Form **990**

Department of the Treasury
Internal Revenue Service

Return of Organization Exempt From Income Tax

Under section 501(c), 527, or 4947(a)(1) of the Internal Revenue Code (except black lung benefit trust or private foundation)

▶ The organization may have to use a copy of this return to satisfy state reporting requirements.

OMB No. 1545-0047

2005

Open to Public Inspection

A **For the 2005 calendar year, or tax year beginning** **and ending**

B Check if applicable:
- ☐ Address change
- ☐ Name change
- ☐ Initial return
- ☐ Final return
- ☐ Amended return
- ☐ Application pending

Please use IRS label or print or type. See Specific Instructions.

C Name of organization
AMERICAN KENNEL CLUB CANINE HEALTH FOUNDATION, INC.

Number and street (or P.O. box if mail is not delivered to street address) Room/suite
5580 CENTERVIEW DRIVE

City or town, state or country, and ZIP + 4
RALEIGH, NC 27606-3390

D **Employer identification number**
13-3813813

E **Telephone number**
919-334-4010

F Accounting method: ☐ Cash ☒ Accrual ☐ Other (specify) ▶

- **Section 501(c)(3) organizations and 4947(a)(1) nonexempt charitable trusts must attach a completed Schedule A (Form 990 or 990-EZ).**

G **Website:** ▶WWW.AKCCHF.ORG

J **Organization type** (check only one) ▶ ☒ 501(c) (3) ◀ (insert no.) ☐ 4947(a)(1) or ☐ 527

K Check here ▶ ☐ if the organization's gross receipts are normally not more than $25,000. The organization need not file a return with the IRS; but if the organization chooses to file a return, be sure to file a complete return. **Some states require a complete return.**

L Gross receipts: Add lines 6b, 8b, 9b, and 10b to line 12 ▶ 6,200,532.

H *and I are not applicable to section 527 organizations.*

H(a) Is this a group return for affiliates? ☐ Yes ☒ No

H(b) If "Yes," enter number of affiliates ▶ N/A

H(c) Are all affiliates included? N/A ☐ Yes ☐ No
(If "No," attach a list.)

H(d) Is this a separate return filed by an organization covered by a group ruling? ☐ Yes ☒ No

I Group Exemption Number ▶ N/A

M Check ▶ ☐ if the organization is **not** required to attach Sch. B (Form 990, 990-EZ, or 990-PF).

Part I Revenue, Expenses, and Changes in Net Assets or Fund Balances

Revenue	1	Contributions, gifts, grants, and similar amounts received:				
	a	Direct public support	1a	3,563,114.		
	b	Indirect public support	1b			
	c	Government contributions (grants)	1c			
	d	**Total** (add lines 1a through 1c) (cash $ 3,563,114. noncash $)			1d	3,563,114.
	2	Program service revenue including government fees and contracts (from Part VII, line 93)			2	
	3	Membership dues and assessments			3	
	4	Interest on savings and temporary cash investments			4	
	5	Dividends and interest from securities			5	263,944.
	6 a	Gross rents	6a			
	b	Less: rental expenses	6b			
	c	Net rental income or (loss) (subtract line 6b from line 6a)			6c	
	7	Other investment income (describe ▶)			7	
	8 a	Gross amount from sales of assets other than inventory — (A) Securities: 2,137,014.	8a	(B) Other:		
	b	Less: cost or other basis and sales expenses: 1,884,923.	8b			
	c	Gain or (loss) (attach schedule): 252,091.	8c			
	d	Net gain or (loss) (combine line 8c, columns (A) and (B)) STMT 1			8d	252,091.
	9	Special events and activities (attach schedule). If any amount is from **gaming**, check here ▶ ☐				
	a	Gross revenue (not including $ 0. of contributions reported on line 1a)	9a	216,656.		
	b	Less: direct expenses other than fundraising expenses	9b	66,977.		
	c	Net income or (loss) from special events (subtract line 9b from line 9a) SEE STATEMENT 2			9c	149,679.
	10 a	Gross sales of inventory, less returns and allowances	10a			
	b	Less: cost of goods sold	10b			
	c	Gross profit or (loss) from sales of inventory (attach schedule) (subtract line 10b from line 10a)			10c	
	11	Other revenue (from Part VII, line 103)			11	19,804.
	12	**Total revenue** (add lines 1d, 2, 3, 4, 5, 6c, 7, 8d, 9c, 10c, and 11)			12	4,248,632.
Expenses	13	Program services (from line 44, column (B))			13	2,471,332.
	14	Management and general (from line 44, column (C))			14	513,820.
	15	Fundraising (from line 44, column (D))			15	259,430.
	16	Payments to affiliates (attach schedule)			16	
	17	**Total expenses** (add lines 16 and 44, column (A))			17	3,244,582.
Net Assets	18	Excess or (deficit) for the year (subtract line 17 from line 12)			18	1,004,050.
	19	Net assets or fund balances at beginning of year (from line 73, column (A))			19	4,242,192.
	20	Other changes in net assets or fund balances (attach explanation) SEE STATEMENT 3			20	48,408.
	21	Net assets or fund balances at end of year (combine lines 18, 19, and 20)			21	5,294,650.

Form **8868**
(Rev. December 2004)
Department of the Treasury
Internal Revenue Service

Application for Extension of Time To File an Exempt Organization Return

▶ File a separate application for each return.

OMB No. 1545-1709

- If you are filing for an **Automatic 3-Month Extension, complete only Part I** and check this box ▶ [X]
- If you are filing for an **Additional (not automatic) 3-Month Extension, complete only Part II** (on page 2 of this form).

Do not complete Part II unless you have already been granted an automatic 3-month extension on a previously filed Form 8868.

Part I Automatic 3-Month Extension of Time - Only submit original (no copies needed)

Form 990-T corporations requesting an automatic 6-month extension - check this box and complete Part I only ▶ [ ]

All other corporations (including Form 990-C filers) must use Form 7004 to request an extension of time to file income tax returns. Partnerships, REMICs, and trusts must use Form 8736 to request an extension of time to file Form 1065, 1066, or 1041.

Electronic Filing (e-file). Form 8868 can be filed electronically if you want a 3-month automatic extension of time to file one of the returns noted below (6 months for corporate Form 990-T filers). However, you cannot file it electronically if you want the additional (not automatic) 3-month extension, instead you must submit the fully completed signed page 2 (Part II) of Form 8868. For more details on the electronic filing of this form, visit *www.irs.gov/efile.*

Type or print	Name of Exempt Organization	Employer identification number
	AMERICAN KENNEL CLUB CANINE HEALTH FOUNDATION, INC.	13-3813813
File by the due date for filing your return. See instructions.	Number, street, and room or suite no. If a P.O. box, see instructions.	
	5580 CENTERVIEW DRIVE	
	City, town or post office, state, and ZIP code. For a foreign address, see instructions.	
	RALEIGH, NC 27606-3390	

Check type of return to be filed (file a separate application for each return):

[X] Form 990	[ ] Form 990-T (corporation)	[ ] Form 4720
[ ] Form 990-BL	[ ] Form 990-T (sec. 401(a) or 408(a) trust)	[ ] Form 5227
[ ] Form 990-EZ	[ ] Form 990-T (trust other than above)	[ ] Form 6069
[ ] Form 990-PF	[ ] Form 1041-A	[ ] Form 8870

- The books are in the care of ▶ DD DILALLA
  Telephone No. ▶ 919-334-4016 FAX No. ▶ 919-334-4011
- If the organization does **not** have an office or place of business in the United States, check this box ▶ [ ]
- If this is for a **Group Return**, enter the organization's four digit Group Exemption Number (GEN) _____. If this is for the **whole** group, check this box ▶ [ ]. If it is for part of the group, check this box ▶ [ ] and attach a list with the names and EINs of all members the extension will cover.

1 I request an automatic 3-month (6-months for a **Form 990-T corporation**) extension of time until AUGUST 15, 2006 .
to file the exempt organization return for the organization named above. The extension is for the organization's return for:
▶ [X] calendar year 2005 or
▶ [ ] tax year beginning _____, and ending _____.

2 If this tax year is for less than 12 months, check reason: [ ] Initial return [ ] Final return [ ] Change in accounting period

3a If this application is for Form 990-BL, 990-PF, 990-T, 4720, or 6069, enter the tentative tax, less any nonrefundable credits. See instructions ..... $ _____

b If this application is for Form 990-PF or 990-T, enter any refundable credits and estimated tax payments made. Include any prior year overpayment allowed as a credit ..... $ _____

c **Balance Due.** Subtract line 3b from line 3a. Include your payment with this form, or, if required, deposit with FTD coupon or, if required, by using EFTPS (Electronic Federal Tax Payment System). See instructions ..... $ N/A

Caution. If you are going to make an electronic fund withdrawal with this Form 8868, see Form 8453-EO and Form 8879-EO for payment instructions.

Part II Statement of Functional Expenses All organizations must complete column (A). Columns (B), (C), and (D) are required for section 501(c)(3) and (4) organizations and section 4947(a)(1) nonexempt charitable trusts but optional for others.

Do not include amounts reported on line 6b, 8b, 9b, 10b, or 16 of Part I.		(A) Total	(B) Program services	(C) Management and general	(D) Fundraising
22 Grants and allocations (attach schedule) (cash $ 2158129. noncash $ 0.) If this amount includes foreign grants, check here ▶ ☐	22	2,158,129.	2,158,129.	STATEMENT 6	
23 Specific assistance to individuals (attach schedule)	23				
24 Benefits paid to or for members (attach schedule)	24				
25 Compensation of officers, directors, etc. **	25	111,332.	62,991.	32,598.	15,743.
26 Other salaries and wages	26	237,788.	135,962.	67,704.	34,122.
27 Pension plan contributions	27	4,118.	2,908.	597.	613.
28 Other employee benefits	28	30,406.	15,525.	10,979.	3,902.
29 Payroll taxes	29	24,367.	13,857.	7,029.	3,481.
30 Professional fundraising fees	30				
31 Accounting fees	31	84,883.	19,915.	57,195.	7,773.
32 Legal fees	32	133,674.		133,674.	
33 Supplies	33	5,579.	1,172.	1,653.	2,754.
34 Telephone	34	3,903.	1,115.	1,917.	871.
35 Postage and shipping	35	6,723.	2,413.	2,986.	1,324.
36 Occupancy	36				
37 Equipment rental and maintenance	37	6,243.	1,812.	2,159.	2,272.
38 Printing and publications	38	13,014.	12,466.	358.	190.
39 Travel	39	42,333.	10,566.	11,570.	20,197.
40 Conferences, conventions, and meetings	40	87,999.	2,278.	16,281.	69,440.
41 Interest	41	8,655.		8,655.	
42 Depreciation, depletion, etc. (attach schedule)	42	26,987.		26,987.	
43 Other expenses not covered above (itemize):					
a	43a				
b	43b				
c	43c				
d	43d				
e	43e				
f	43f				
g SEE STATEMENT 4	43g	258,449.	30,223.	131,478.	96,748.
44 **Total functional expenses.** Add lines 22 through 43. (Organizations completing columns (B)-(D), carry these totals to lines 13-15)	44	3,244,582.	2,471,332.	513,820.	259,430.

Joint Costs. Check ▶ ☐ if you are following SOP 98-2.

Are any joint costs from a combined educational campaign and fundraising solicitation reported in (B) Program services? ▶ ☐ Yes ☒ No

If "Yes," enter (i) the aggregate amount of these joint costs $ N/A ; (ii) the amount allocated to Program services $ N/A ;

(iii) the amount allocated to Management and general $ N/A ; and (iv) the amount allocated to Fundraising $ N/A

Form 990 (2005)

** SEE STATEMENT 5

523011
02-03-06

Part III Statement of Program Service Accomplishments *(See the instructions.)*

Form 990 is available for public inspection and, for some people, serves as the primary or sole source of information about a particular organization. How the public perceives an organization in such cases may be determined by the information presented on its return. Therefore, please make sure the return is complete and accurate and fully describes, in Part III, the organization's programs and accomplishments.

What is the organization's primary exempt purpose? ▶ SEE STATEMENT 7

All organizations must describe their exempt purpose achievements in a clear and concise manner. State the number of clients served, publications issued, etc. Discuss achievements that are not measurable. (Section 501(c)(3) and (4) organizations and 4947(a)(1) nonexempt charitable trusts must also enter the amount of grants and allocations to others.)

Program Service Expenses (Required for 501(c)(3) and (4) orgs., and 4947(a)(1) trusts; but optional for others.)

a THE FOUNDATION FUNDS RESEARCH AND SUPPORTS CANINE HEALTH SCIENTISTS AND PROFESSIONALS IN THEIR EFFORTS TO STUDY THE CAUSES AND ORIGINS OF CANINE DISEASES AND AFFLICTIONS AND TO FORMULATE EFFECTIVE TREATMENTS. SEE ATTACHMENTS ENTITLED "GRANTS FOR RESEARCH ON SPECIFIC CANINE DISEASES AND FOR RESEARCH IN SPECIFIC BREEDS OF DOG".

(Grants and allocations $ 1,606,584.) If this amount includes foreign grants, check here ▶ ☐ 2,471,332.

b

(Grants and allocations $) If this amount includes foreign grants, check here ▶ ☐

c

(Grants and allocations $) If this amount includes foreign grants, check here ▶ ☐

d

(Grants and allocations $) If this amount includes foreign grants, check here ▶ ☐

e Other program services (attach schedule)

(Grants and allocations $) If this amount includes foreign grants, check here ▶ ☐

f **Total of Program Service Expenses** (should equal line 44, column (B), Program services) ▶ 2,471,332.

Form **990** (2005)

523021
02-03-06

Part IV Balance Sheets *(See the instructions.)*

Note: *Where required, attached schedules and amounts within the description column should be for end-of-year amounts only.*

					(A) Beginning of year		(B) End of year
Assets	45	Cash - non-interest-bearing			426,887.	45	275,236.
	46	Savings and temporary cash investments			333,664.	46	386,963.
	47 a	Accounts receivable	47a				
	b	Less: allowance for doubtful accounts	47b			47c	
	48 a	Pledges receivable	48a	169,249.			
	b	Less: allowance for doubtful accounts	48b		216,043.	48c	169,249.
	49	Grants receivable				49	
	50	Receivables from officers, directors, trustees, and key employees				50	
	51 a	Other notes and loans receivable	51a				
	b	Less: allowance for doubtful accounts	51b			51c	
	52	Inventories for sale or use				52	
	53	Prepaid expenses and deferred charges			8,298.	53	
	54	Investments - securities STMT 8 STMT 9 ▶ ☐ Cost ☒ FMV			5,801,395.	54	7,280,423.
	55 a	Investments - land, buildings, and equipment: basis	55a				
	b	Less: accumulated depreciation	55b			55c	
	56	Investments - other SEE STATEMENT 10			238,928.	56	247,314.
	57 a	Land, buildings, and equipment: basis	57a	148,892.			
	b	Less: accumulated depreciation	57b	63,890.	86,148.	57c	85,002.
	58	Other assets (describe ▶ SEE STATEMENT 11)			88,066.	58	100,757.
	59	**Total assets** (must equal line 74). Add lines 45 through 58			7,199,429.	59	8,544,944.
Liabilities	60	Accounts payable and accrued expenses			97,073.	60	96,216.
	61	Grants payable			2,782,833.	61	2,898,361.
	62	Deferred revenue			77,331.	62	16,904.
	63	Loans from officers, directors, trustees, and key employees				63	
	64 a	Tax-exempt bond liabilities				64a	
	b	Mortgages and other notes payable				64b	
	65	Other liabilities (describe ▶ LINE OF CREDIT)				65	238,813.
	66	**Total liabilities.** Add lines 60 through 65)			2,957,237.	66	3,250,294.
Net Assets or Fund Balances		**Organizations that follow SFAS 117, check here** ▶ ☒ and complete lines 67 through 69 and lines 73 and 74.					
	67	Unrestricted			65,257.	67	<69,354.>
	68	Temporarily restricted			2,243,782.	68	2,591,883.
	69	Permanently restricted			1,933,153.	69	2,772,121.
		Organizations that do not follow SFAS 117, check here ▶ ☐ and complete lines 70 through 74.					
	70	Capital stock, trust principal, or current funds				70	
	71	Paid-in or capital surplus, or land, building, and equipment fund				71	
	72	Retained earnings, endowment, accumulated income, or other funds				72	
	73	**Total net assets or fund balances** (add lines 67 through 69 **or** lines 70 through 72; column (A) **must** equal line 19; column (B) **must** equal line 21)			4,242,192.	73	5,294,650.
	74	**Total liabilities and net assets/fund balances.** Add lines 66 and 73			7,199,429.	74	8,544,944.

Part IV-A Reconciliation of Revenue per Audited Financial Statements With Revenue per Return *(See the instructions.)*

a	Total revenue, gains, and other support per audited financial statements			a	4,566,540.
b	Amounts included on line a but not on Part I, line 12:				
1	Net unrealized gains on investments	b1	48,408.		
2	Donated services and use of facilities	b2	269,500.		
3	Recoveries of prior year grants	b3			
4	Other (specify):	b4			
	Add lines b1 through b4			b	317,908.
c	Subtract line b from line a			c	4,248,632.
d	Amounts included on Part I, line 12, but not on line a:				
1	Investment expenses not included on Part I, line 6b	d1			
2	Other (specify):	d2			
	Add lines d1 and d2			d	0.
e	**Total revenue** (Part I, line 12). Add lines c and d			e	4,248,632.

Part IV-B Reconciliation of Expenses per Audited Financial Statements With Expenses per Return

a	Total expenses and losses per audited financial statements			a	3,514,082.
b	Amounts included on line a but not on Part I, line 17:				
1	Donated services and use of facilities	b1	269,500.		
2	Prior year adjustments reported on Part I, line 20	b2			
3	Losses reported on Part I, line 20	b3			
4	Other (specify):	b4			
	Add lines b1 through b4			b	269,500.
c	Subtract line b from line a			c	3,244,582.
d	Amounts included on Part I, line 17, but not on line a:				
1	Investment expenses not included on Part I, line 6b	d1			
2	Other (specify):	d2			
	Add lines d1 and d2			d	0.
e	**Total expenses** (Part I, line 17). Add lines c and d			e	3,244,582.

Part V-A Current Officers, Directors, Trustees, and Key Employees (List each person who was an officer, director, trustee, or key employee at any time during the year even if they were not compensated.) *(See the instructions.)*

(A) Name and address	(B) Title and average hours per week devoted to position	(C) Compensation (If not paid, enter -0-.)	(D) Contributions to employee benefit plans & deferred compensation plans	(E) Expense account and other allowances
SEE STATEMENT 12		94,200.	2,826.	14,306.

Part V-A Current Officers, Directors, Trustees, and Key Employees *(continued)*

		Yes	No
75 a	Enter the total number of officers, directors, and trustees permitted to vote on organization business at board meetings ▶ 23		
b	Are any officers, directors, trustees, or key employees listed in Form 990, Part V-A, or highest compensated employees listed in Schedule A, Part I, or highest compensated professional and other independent contractors listed in Schedule A, Part II-A or II-B, related to each other through family or business relationships? If "Yes," attach a statement that identifies the individuals and explains the relationship(s) 75b		X
c	Do any officers, directors, trustees, or key employees listed in Form 990, Part V-A, or highest compensated employees listed in Schedule A, Part I, or highest compensated professional and other independent contractors listed in Schedule A, Part II-A or II-B, receive compensation from any other organizations, whether tax exempt or taxable, that are related to this organization through common supervision or common control? 75c		X
	Note. Related organizations include section 509(a)(3) supporting organizations. If "Yes," attach a statement that identifies the individuals, explains the relationship between this organization and the other organization(s), and describes the compensation arrangements, including amounts paid to each individual by each related organization.		
d	Does the organization have a written conflict of interest policy? 75d	X	

Part V-B Former Officers, Directors, Trustees, and Key Employees That Received Compensation or Other Benefits (If any former officer, director, trustee, or key employee received compensation or other benefits (described below) during the year, list that person below and enter the amount of compensation or other benefits in the appropriate column. See the instructions.)

(A) Name and address	(B) Loans and Advances	(C) Compensation	(D) Contributions to employee benefit plans & deferred compensation plans	(E) Expense account and other allowances
NONE				

Part VI Other Information *(See the instructions.)*

		Yes	No
76	Did the organization engage in any activity not previously reported to the IRS? If "Yes," attach a detailed description of each activity 76		X
77	Were any changes made in the organizing or governing documents but not reported to the IRS? 77		X
	If "Yes," attach a conformed copy of the changes.		
78 a	Did the organization have unrelated business gross income of $1,000 or more during the year covered by this return? 78a		X
b	If "Yes," has it filed a tax return on **Form 990-T** for this year? N/A 78b		
79	Was there a liquidation, dissolution, termination, or substantial contraction during the year? If "Yes," attach a statement 79		X
80 a	Is the organization related (other than by association with a statewide or nationwide organization) through common membership, governing bodies, trustees, officers, etc., to any other exempt or nonexempt organization? 80a		X
b	If "Yes," enter the name of the organization ▶ N/A and check whether it is ☐ exempt or ☒ nonexempt		
81 a	Enter direct or indirect political expenditures. (See line 81 instructions.) 81a 0.		
b	Did the organization file **Form 1120-POL** for this year? 81b		X

Part VI Other Information *(continued)*

			Yes	No
82 a	Did the organization receive donated services or the use of materials, equipment, or facilities at no charge or at substantially less than fair rental value?	82a	X	
b	If "Yes," you may indicate the value of these items here. Do not include this amount as revenue in Part I or as an expense in Part II. (See instructions in Part III.) 82b 269,500.			
83 a	Did the organization comply with the public inspection requirements for returns and exemption applications?	83a	X	
b	Did the organization comply with the disclosure requirements relating to quid pro quo contributions?	83b	X	
84 a	Did the organization solicit any contributions or gifts that were not tax deductible?	84a		X
b	If "Yes," did the organization include with every solicitation an express statement that such contributions or gifts were not tax deductible? N/A	84b		
85	*501(c)(4), (5), or (6) organizations.* a Were substantially all dues nondeductible by members? N/A	85a		
b	Did the organization make only in-house lobbying expenditures of $2,000 or less? N/A	85b		
	If "Yes" was answered to either 85a or 85b, **do not** complete 85c through 85h below unless the organization received a waiver for proxy tax owed for the prior year.			
c	Dues, assessments, and similar amounts from members 85c N/A			
d	Section 162(e) lobbying and political expenditures 85d N/A			
e	Aggregate nondeductible amount of section 6033(e)(1)(A) dues notices 85e N/A			
f	Taxable amount of lobbying and political expenditures (line 85d less 85e) 85f N/A			
g	Does the organization elect to pay the section 6033(e) tax on the amount on line 85f? N/A	85g		
h	If section 6033(e)(1)(A) dues notices were sent, does the organization agree to add the amount on line 85f to its reasonable estimate of dues allocable to nondeductible lobbying and political expenditures for the following tax year? N/A	85h		
86	*501(c)(7) organizations.* Enter: a Initiation fees and capital contributions included on line 12 86a N/A			
b	Gross receipts, included on line 12, for public use of club facilities 86b N/A			
87	*501(c)(12) organizations.* Enter: a Gross income from members or shareholders 87a N/A			
b	Gross income from other sources. (Do not net amounts due or paid to other sources against amounts due or received from them.) 87b N/A			
88	At any time during the year, did the organization own a 50% or greater interest in a taxable corporation or partnership, or an entity disregarded as separate from the organization under Regulations sections 301.7701-2 and 301.7701-3? If "Yes," complete Part IX	88		X
89 a	*501(c)(3) organizations.* Enter: Amount of tax imposed on the organization during the year under: section 4911 ▶ 0.; section 4912 ▶ 0.; section 4955 ▶ 0.			
b	*501(c)(3) and 501(c)(4) organizations.* Did the organization engage in any section 4958 excess benefit transaction during the year or did it become aware of an excess benefit transaction from a prior year? If "Yes," attach a statement explaining each transaction	89b		X
c	Enter: Amount of tax imposed on the organization managers or disqualified persons during the year under sections 4912, 4955, and 4958 ▶ 0.			
d	Enter: Amount of tax on line 89c, above, reimbursed by the organization ▶ 0.			
90 a	List the states with which a copy of this return is filed ▶ SEE STATEMENT 13			
b	Number of employees employed in the pay period that includes March 12, 2005 90b 6			
91 a	The books are in care of ▶ DD DILALLA Telephone no. ▶ 919-334-4016 Located at ▶ 5580 CENTERVIEW DRIVE, RALEIGH, NC ZIP + 4 ▶ 27606			
b	At any time during the calendar year, did the organization have an interest in or a signature or other authority over a financial account in a foreign country (such as a bank account, securities account, or other financial account)?	91b		X
	If "Yes," enter the name of the foreign country ▶ N/A See the instructions for exceptions and filing requirements for **Form TD F 90-22.1,** Report of Foreign Bank and Financial Accounts.			
c	At any time during the calendar year, did the organization maintain an office outside of the United States?	91c		X
	If "Yes," enter the name of the foreign country ▶ N/A			
92	*Section 4947(a)(1) nonexempt charitable trusts filing Form 990 in lieu of* **Form 1041**- Check here ▶ ☐ and enter the amount of tax-exempt interest received or accrued during the tax year ▶ 92 N/A			

Form **990** (2005)

523162
02-03-06

Part VII Analysis of Income-Producing Activities *(See the instructions.)*

Note: *Enter gross amounts unless otherwise indicated.*	Unrelated business income (A) Business code	Unrelated business income (B) Amount	Excluded by section 512, 513, or 514 (C) Exclusion code	Excluded by section 512, 513, or 514 (D) Amount	(E) Related or exempt function income
93 Program service revenue:					
a					
b					
c					
d					
e					
f Medicare/Medicaid payments					
g Fees and contracts from government agencies					
94 Membership dues and assessments					
95 Interest on savings and temporary cash investments					
96 Dividends and interest from securities			14	263,944.	
97 Net rental income or (loss) from real estate:					
a debt-financed property					
b not debt-financed property					
98 Net rental income or (loss) from personal property					
99 Other investment income					
100 Gain or (loss) from sales of assets other than inventory			18	252,091.	
101 Net income or (loss) from special events			01	149,679.	
102 Gross profit or (loss) from sales of inventory					
103 Other revenue:					
a MISCELLANEOUS			01	18,961.	
b ROYALTY INCOME			15	843.	
c					
d					
e					
104 Subtotal (add columns (B), (D), and (E))		0.		685,518.	0.
105 **Total** (add line 104, columns (B), (D), and (E)) ▶					685,518.

Note: *Line 105 plus line 1d, Part I, should equal the amount on line 12, Part I.*

Part VIII Relationship of Activities to the Accomplishment of Exempt Purposes *(See the instructions.)*

Line No. ▼	Explain how each activity for which income is reported in column (E) of Part VII contributed importantly to the accomplishment of the organization's exempt purposes (other than by providing funds for such purposes).

Part IX Information Regarding Taxable Subsidiaries and Disregarded Entities *(See the instructions.)*

(A) Name, address, and EIN of corporation, partnership, or disregarded entity	(B) Percentage of ownership interest	(C) Nature of activities	(D) Total income	(E) End-of-year assets
	%			
N/A	%			
	%			
	%			

Part X Information Regarding Transfers Associated with Personal Benefit Contracts *(See the instructions.)*

(a) Did the organization, during the year, receive any funds, directly or indirectly, to pay premiums on a personal benefit contract? ☐ Yes ☒ No

(b) Did the organization, during the year, pay premiums, directly or indirectly, on a personal benefit contract? ☐ Yes ☒ No

Note: *If "Yes" to* **(b)**, *file Form 8870* **and** *Form 4720 (see instructions).*

Please Sign Here — Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than officer) is based on all information of which preparer has any knowledge.

▶ Signature of officer Pres. Date 6/30/06 ▶ Type or print name and title.

Paid Preparer's Use Only

Preparer's signature ▶ Date 6/22/06 Check if self-employed ▶ ☐ Preparer's SSN or PTIN

Firm's name (or yours if self-employed), address, and ZIP + 4 ▶ LUNSFORD & STRICKLAND, P.A.
4325 LAKE BOONE TRAIL, STE 100
RALEIGH, NC 27607

EIN ▶

Phone no. ▶ (919)783-7073

523163 02-03-06

SCHEDULE A
(Form 990 or 990-EZ)

Department of the Treasury
Internal Revenue Service

Organization Exempt Under Section 501(c)(3)

(Except Private Foundation) and Section 501(e), 501(f), 501(k), 501(n), or 4947(a)(1) Nonexempt Charitable Trust

Supplementary Information-(See separate instructions.)

▶ MUST be completed by the above organizations and attached to their Form 990 or 990-EZ

OMB No. 1545-0047

2005

Name of the organization AMERICAN KENNEL CLUB CANINE HEALTH FOUNDATION, INC.

Employer identification number 13 3813813

Part I Compensation of the Five Highest Paid Employees Other Than Officers, Directors, and Trustees

(See page 1 of the instructions. List each one. If there are none, enter "None.")

(a) Name and address of each employee paid more than $50,000	(b) Title and average hours per week devoted to position	(c) Compensation	(d) Contributions to employee benefit plans & deferred compensation	(e) Expense account and other allowances
	DIR GRANTS 40.00	65,500.	1,965.	3,638.
Total number of other employees paid over $50,000 ▶	0			

Part II-A Compensation of the Five Highest Paid Independent Contractors for Professional Services

(See page 2 of the instructions. List each one (whether individuals or firms). If there are none, enter "None.")

(a) Name and address of each independent contractor paid more than $50,000	(b) Type of service	(c) Compensation
THOMPSON HINE 3900 KEY CENTER 127 PUBLIC SQUARE, CLEVELAND, OH	LEGAL SERVICES	107,616.
RUTH REID & COMPANY 37 MAIN STREET, 3RD FLOOR, CHARDON, OH 44024	ANNUAL REPORT, BROCHURES, ARTICL	72,083.
Total number of others receiving over $50,000 for professional services ▶	0	

Part II-B Compensation of the Five Highest Paid Independent Contractors for Other Services

(List each contractor who performed services other than professional services, whether individuals or firms. If there are none, enter "None." See page 2 of the instructions.)

(a) Name and address of each independent contractor paid more than $50,000	(b) Type of service	(c) Compensation
NONE		
Total number of other contractors receiving over $50,000 for other services ▶	0	

Part III Statements About Activities (See page 2 of the instructions.)

		Yes	No
1	During the year, has the organization attempted to influence national, state, or local legislation, including any attempt to influence public opinion on a legislative matter or referendum? If "Yes," enter the total expenses paid or incurred in connection with the lobbying activities ▶ $ _____ $ _____ (Must equal amounts on line 38, Part VI-A, or line i of Part VI-B.) Organizations that made an election under section 501(h) by filing Form 5768 must complete Part VI-A. Other organizations checking "Yes" must complete Part VI-B AND attach a statement giving a detailed description of the lobbying activities.	1		X
2	During the year, has the organization, either directly or indirectly, engaged in any of the following acts with any substantial contributors, trustees, directors, officers, creators, key employees, or members of their families, or with any taxable organization with which any such person is affiliated as an officer, director, trustee, majority owner, or principal beneficiary? *(If the answer to any question is "Yes," attach a detailed statement explaining the transactions.)*			
a	Sale, exchange, or leasing of property?	2a		X
b	Lending of money or other extension of credit?	2b		X
c	Furnishing of goods, services, or facilities? SEE STATEMENT 14	2c	X	
d	Payment of compensation (or payment or reimbursement of expenses if more than $1,000)? SEE STATEMENT 15	2d	X	
e	Transfer of any part of its income or assets?	2e		X
3 a	Do you make grants for scholarships, fellowships, student loans, etc.? (If "Yes," attach an explanation of how you determine that recipients qualify to receive payments.)	3a		X
b	Do you have a section 403(b) annuity plan for your employees?	3b		X
c	During the year, did the organization receive a contribution of qualified real property interest under section 170(h)?	3c		X
4 a	Did you maintain any separate account for participating donors where donors have the right to provide advice on the use or distribution of funds?	4a	X	
b	Do you provide credit counseling, debt management, credit repair, or debt negotiation services?	4b		X

Part IV Reason for Non-Private Foundation Status (See pages 3 through 6 of the instructions.)

The organization is not a private foundation because it is: (Please check only **ONE** applicable box.)

- 5 ☐ A church, convention of churches, or association of churches. Section 170(b)(1)(A)(i).
- 6 ☐ A school. Section 170(b)(1)(A)(ii). (Also complete Part V.)
- 7 ☐ A hospital or a cooperative hospital service organization. Section 170(b)(1)(A)(iii).
- 8 ☐ A Federal, state, or local government or governmental unit. Section 170(b)(1)(A)(v).
- 9 ☐ A medical research organization operated in conjunction with a hospital. Section 170(b)(1)(A)(iii). **Enter the hospital's name, city, and state** ▶ _____
- 10 ☐ An organization operated for the benefit of a college or university owned or operated by a governmental unit. Section 170(b)(1)(A)(iv). (Also complete the **Support Schedule** in Part IV-A.)
- 11a ☒ An organization that normally receives a substantial part of its support from a governmental unit or from the general public. Section 170(b)(1)(A)(vi). (Also complete the **Support Schedule** in Part IV-A.)
- 11b ☐ A community trust. Section 170(b)(1)(A)(vi). (Also complete the **Support Schedule** in Part IV-A.)
- 12 ☐ An organization that normally receives: **(1) more than 33 1/3%** of its support from contributions, membership fees, and gross receipts from activities related to its charitable, etc., functions - subject to certain exceptions, and **(2) no more than 33 1/3%** of its support from gross investment income and unrelated business taxable income (less section 511 tax) from businesses acquired by the organization after June 30, 1975. See section 509(a)(2). (Also complete the **Support Schedule** in Part IV-A.)
- 13 ☐ An organization that is not controlled by any disqualified persons (other than foundation managers) and supports organizations described in: (1) lines 5 through 12 above; or (2) sections 501(c)(4), (5), or (6), if they meet the test of section 509(a)(2). Check the box that describes the type of supporting organization: ▶ ☐ Type 1 ☐ Type 2 ☐ Type 3

Provide the following information about the supported organizations. (See page 6 of the instructions.)

(a) Name(s) of supported organization(s)	(b) Line number from above

- 14 ☐ An organization organized and operated to test for public safety. Section 509(a)(4). (See page 6 of the instructions.)

Part IV-A **Support Schedule** (Complete only if you checked a box on line 10, 11, or 12.) **Use cash method of accounting.**
Note: *You may use the worksheet in the instructions for converting from the accrual to the cash method of accounting.*

Calendar year (or fiscal year beginning in) ▶	(a) 2004	(b) 2003	(c) 2002	(d) 2001	(e) Total
15 Gifts, grants, and contributions received. (Do not include unusual grants. See line 28.)	3,705,029.	2,671,461.	2,527,981.	2,304,785.	11,209,256.
16 Membership fees received					
17 Gross receipts from admissions, merchandise sold or services performed, or furnishing of facilities in any activity that is related to the organization's charitable, etc., purpose	25,971.	71,446.	58,433.	77,729.	233,579.
18 Gross income from interest, dividends, amounts received from payments on securities loans (section 512(a)(5)), rents, royalties, and unrelated business taxable income (less section 511 taxes) from businesses acquired by the organization after June 30, 1975	157,987.	119,325.	123,939.	137,620.	538,871.
19 Net income from unrelated business activities not included in line 18					
20 Tax revenues levied for the organization's benefit and either paid to it or expended on its behalf					
21 The value of services or facilities furnished to the organization by a governmental unit without charge. Do not include the value of services or facilities generally furnished to the public without charge					
22 Other income. Attach a schedule. Do not include gain or (loss) from sale of capital assets					
23 Total of lines 15 through 22	3,888,987.	2,862,232.	2,710,353.	2,520,134.	11,981,706.
24 Line 23 minus line 17	3,863,016.	2,790,786.	2,651,920.	2,442,405.	11,748,127.
25 Enter 1% of line 23	38,890.	28,622.	27,104.	25,201.	

26 **Organizations described on lines 10 or 11:** a Enter 2% of amount in column (e), line 24 ▶	26a		234,963.
b Prepare a list for your records to show the name of and amount contributed by each person (other than a governmental unit or publicly supported organization) whose total gifts for 2001 through 2004 exceeded the amount shown in line 26a. **Do not file this list with your return.** Enter the total of all these excess amounts ▶	26b		5,035,344.
c Total support for section 509(a)(1) test: Enter line 24, column (e) ▶	26c		11,748,127.
d Add: Amounts from column (e) for lines: 18 538,871. 19 ____ 22 ____ 26b 5,035,344. ▶	26d		5,574,215.
e Public support (line 26c minus line 26d total) ▶	26e		6,173,912.
f **Public support percentage (line 26e (numerator) divided by line 26c (denominator))** ▶	26f		52.5523%

27 **Organizations described on line 12:** a For amounts included in lines 15, 16, and 17 that were received from a "disqualified person," prepare a list for your records to show the name of, and total amounts received in each year from, each "disqualified person." **Do not file this list with your return.** Enter the sum of such amounts for each year: N/A

(2004) ____ (2003) ____ (2002) ____ (2001) ____

b For any amount included in line 17 that was received from each person (other than "disqualified persons"), prepare a list for your records to show the name of, and amount received for each year, that was more than the **larger** of **(1)** the amount on line 25 for the year or **(2)** $5,000. (Include in the list organizations described in lines 5 through 11b, as well as individuals.) **Do not file this list with your return.** After computing the difference between the amount received and the larger amount described in **(1)** or **(2)**, enter the sum of these differences (the excess amounts) for each year: N/A

(2004) ____ (2003) ____ (2002) ____ (2001) ____

c Add: Amounts from column (e) for lines: 15 ____ 16 ____ 17 ____ 20 ____ 21 ____ ▶	27c		N/A
d Add: Line 27a total ____ and line 27b total ____ ▶	27d		N/A
e Public support (line 27c total minus line 27d total) ▶	27e		N/A
f Total support for section 509(a)(2) test: Enter amount on line 23, column (e) ▶	27f	N/A	
g **Public support percentage (line 27e (numerator) divided by line 27f (denominator))** ▶	27g		N/A %
h **Investment income percentage (line 18, column (e) (numerator) divided by line 27f (denominator))** ▶	27h		N/A %

28 **Unusual Grants:** For an organization described in line 10, 11, or 12 that received any unusual grants during 2001 through 2004, prepare a list for your records to show, for each year, the name of the contributor, the date and amount of the grant, and a brief description of the nature of the grant. **Do not file this list with your return.** Do not include these grants in line 15.

NONE

Part V **Private School Questionnaire** (See page 7 of the instructions.) N/A

(To be completed ONLY by schools that checked the box on line 6 in Part IV)

			Yes	No
29	Does the organization have a racially nondiscriminatory policy toward students by statement in its charter, bylaws, other governing instrument, or in a resolution of its governing body?	29		
30	Does the organization include a statement of its racially nondiscriminatory policy toward students in all its brochures, catalogues, and other written communications with the public dealing with student admissions, programs, and scholarships?	30		
31	Has the organization publicized its racially nondiscriminatory policy through newspaper or broadcast media during the period of solicitation for students, or during the registration period if it has no solicitation program, in a way that makes the policy known to all parts of the general community it serves?	31		
	If "Yes," please describe; if "No," please explain. (If you need more space, attach a separate statement.)			
32	Does the organization maintain the following:			
a	Records indicating the racial composition of the student body, faculty, and administrative staff?	32a		
b	Records documenting that scholarships and other financial assistance are awarded on a racially nondiscriminatory basis?	32b		
c	Copies of all catalogues, brochures, announcements, and other written communications to the public dealing with student admissions, programs, and scholarships?	32c		
d	Copies of all material used by the organization or on its behalf to solicit contributions?	32d		
	If you answered "No" to any of the above, please explain. (If you need more space, attach a separate statement.)			
33	Does the organization discriminate by race in any way with respect to:			
a	Students' rights or privileges?	33a		
b	Admissions policies?	33b		
c	Employment of faculty or administrative staff?	33c		
d	Scholarships or other financial assistance?	33d		
e	Educational policies?	33e		
f	Use of facilities?	33f		
g	Athletic programs?	33g		
h	Other extracurricular activities?	33h		
	If you answered "Yes" to any of the above, please explain. (If you need more space, attach a separate statement.)			
34 a	Does the organization receive any financial aid or assistance from a governmental agency?	34a		
b	Has the organization's right to such aid ever been revoked or suspended?	34b		
	If you answered "Yes" to either 34a or b, please explain using an attached statement.			
35	Does the organization certify that it has complied with the applicable requirements of sections 4.01 through 4.05 of Rev. Proc. 75-50, 1975-2 C.B. 587, covering racial nondiscrimination? If "No," attach an explanation	35		

Part VI-A Lobbying Expenditures by Electing Public Charities (See page 9 of the instructions.) N/A

(To be completed **ONLY** by an eligible organization that filed Form 5768)

Check ▶ **a** ☐ if the organization belongs to an affiliated group. Check ▶ **b** ☐ if you checked "**a**" and "limited control" provisions apply.

Limits on Lobbying Expenditures (The term "expenditures" means amounts paid or incurred.)		(a) Affiliated group totals	(b) To be completed for ALL electing organizations
		N/A	
36 Total lobbying expenditures to influence public opinion (grassroots lobbying)	36		
37 Total lobbying expenditures to influence a legislative body (direct lobbying)	37		
38 Total lobbying expenditures (add lines 36 and 37)	38		
39 Other exempt purpose expenditures	39		
40 Total exempt purpose expenditures (add lines 38 and 39)	40		
41 Lobbying nontaxable amount. Enter the amount from the following table -			
If the amount on line 40 is - / **The lobbying nontaxable amount is -**			
Not over $500,000 — 20% of the amount on line 40	41		
Over $500,000 but not over $1,000,000 — $100,000 plus 15% of the excess over $500,000			
Over $1,000,000 but not over $1,500,000 — $175,000 plus 10% of the excess over $1,000,000			
Over $1,500,000 but not over $17,000,000 — $225,000 plus 5% of the excess over $1,500,000			
Over $17,000,000 — $1,000,000			
42 Grassroots nontaxable amount (enter 25% of line 41)	42		
43 Subtract line 42 from line 36. Enter -0- if line 42 is more than line 36	43		
44 Subtract line 41 from line 38. Enter -0- if line 41 is more than line 38	44		

Caution: *If there is an amount on either line 43 or line 44, you must file Form 4720.*

4-Year Averaging Period Under Section 501(h)

(Some organizations that made a section 501(h) election do not have to complete all of the five columns below. See the instructions for lines 45 through 50 on page 11 of the instructions.)

N/A

	Lobbying Expenditures During 4-Year Averaging Period				
Calendar year (or fiscal year beginning in) ▶	(a) 2005	(b) 2004	(c) 2003	(d) 2002	(e) Total
45 Lobbying nontaxable amount					0.
46 Lobbying ceiling amount (150% of line 45(e))					0.
47 Total lobbying expenditures					0.
48 Grassroots nontaxable amount					0.
49 Grassroots ceiling amount (150% of line 48(e))					0.
50 Grassroots lobbying expenditures					0.

Part VI-B Lobbying Activity by Nonelecting Public Charities

(For reporting only by organizations that did not complete Part VI-A) (See page 11 of the instructions.) N/A

During the year, did the organization attempt to influence national, state or local legislation, including any attempt to influence public opinion on a legislative matter or referendum, through the use of:	Yes	No	Amount
a Volunteers			
b Paid staff or management (Include compensation in expenses reported on lines **c** through **h**.)			
c Media advertisements			
d Mailings to members, legislators, or the public			
e Publications, or published or broadcast statements			
f Grants to other organizations for lobbying purposes			
g Direct contact with legislators, their staffs, government officials, or a legislative body			
h Rallies, demonstrations, seminars, conventions, speeches, lectures, or any other means			
i Total lobbying expenditures (Add lines **c** through **h**.)			0.

If "Yes" to any of the above, also attach a statement giving a detailed description of the lobbying activities.

Part VII Information Regarding Transfers To and Transactions and Relationships With Noncharitable Exempt Organizations (See page 12 of the instructions.)

51 Did the reporting organization directly or indirectly engage in any of the following with any other organization described in section 501(c) of the Code (other than section 501(c)(3) organizations) or in section 527, relating to political organizations?

		Yes	No
a	Transfers from the reporting organization to a noncharitable exempt organization of:		
	(i) Cash	51a(i)		X
	(ii) Other assets	a(ii)		X
b	Other transactions:		
	(i) Sales or exchanges of assets with a noncharitable exempt organization	b(i)		X
	(ii) Purchases of assets from a noncharitable exempt organization	b(ii)		X
	(iii) Rental of facilities, equipment, or other assets	b(iii)		X
	(iv) Reimbursement arrangements	b(iv)	X	
	(v) Loans or loan guarantees	b(v)		X
	(vi) Performance of services or membership or fundraising solicitations	b(vi)	X	
c	Sharing of facilities, equipment, mailing lists, other assets, or paid employees	c	X	

d If the answer to any of the above is "Yes," complete the following schedule. Column (b) should always show the fair market value of the goods, other assets, or services given by the reporting organization. If the organization received less than fair market value in any transaction or sharing arrangement, show in column (d) the value of the goods, other assets, or services received:

(a) Line no.	(b) Amount involved	(c) Name of noncharitable exempt organization	(d) Description of transfers, transactions, and sharing arrangements
B-IV		AMERICAN KENNEL CLUB	SEE STATEMENT 16
B-VI		AMERICAN KENNEL CLUB	
C		AMERICAN KENNEL CLUB	
C	145,000.	AMERICAN KENNEL CLUB	

52 a Is the organization directly or indirectly affiliated with, or related to, one or more tax-exempt organizations described in section 501(c) of the Code (other than section 501(c)(3)) or in section 527? ▶ [X] Yes [ ] No

b If "Yes," complete the following schedule:

(a) Name of organization	(b) Type of organization	(c) Description of relationship
AMERICAN KENNEL CLUB	501(C)(4)	SEE STATEMENT 17

Schedule A | **Identification of Excess Contributions Included on Part IV-A, Line 26b** | **2005**

**** Do Not File ****
***** Not Open to Public Inspection *****

Contributor's Name	Total Contributions	Excess Contributions
AMERICAN KENNEL CLUB	3,994,382.	3,759,419.
NESTLE PURINA PET CARE CO	1,510,888.	1,275,925.

Total Excess Contributions to Schedule A, Line 26b .... 5,035,344.

523171/05-01-05

Schedule B (Form 990, 990-EZ, or 990-PF) Department of the Treasury Internal Revenue Service	**Schedule of Contributors** Supplementary Information for line 1 of Form 990, 990-EZ, and 990-PF (see instructions)	OMB No. 1545-0047 **2005**

Name of organization	Employer identification number
AMERICAN KENNEL CLUB CANINE HEALTH FOUNDATION, INC.	13-3813813

Organization type (check one):

Filers of:	Section:
Form 990 or 990-EZ	[X] 501(c)(3) (enter number) organization
	[ ] 4947(a)(1) nonexempt charitable trust **not** treated as a private foundation
	[ ] 527 political organization
Form 990-PF	[ ] 501(c)(3) exempt private foundation
	[ ] 4947(a)(1) nonexempt charitable trust treated as a private foundation
	[ ] 501(c)(3) taxable private foundation

Check if your organization is covered by the **General Rule** or a **Special Rule.** (**Note:** *Only a section 501(c)(7), (8), or (10) organization can check boxes for both the General Rule and a Special Rule-see instructions.)*

General Rule-

[ ] For organizations filing Form 990, 990-EZ, or 990-PF that received, during the year, $5,000 or more (in money or property) from any one contributor. (Complete Parts I and II.)

Special Rules-

[X] For a section 501(c)(3) organization filing Form 990, or Form 990-EZ, that met the 33 1/3% support test under Regulations sections 1.509(a)-3/1.170A-9(e) and received from any one contributor, during the year, a contribution of the greater of $5,000 or 2% of the amount on line 1 of these forms. (Complete Parts I and II.)

[ ] For a section 501(c)(7), (8), or (10) organization filing Form 990, or Form 990-EZ, that received from any one contributor, during the year, aggregate contributions or bequests of more than $1,000 for use *exclusively* for religious, charitable, scientific, literary, or educational purposes, or the prevention of cruelty to children or animals. (Complete Parts I, II, and III.)

[ ] For a section 501(c)(7), (8), or (10) organization filing Form 990, or Form 990-EZ, that received from any one contributor, during the year, some contributions for use *exclusively* for religious, charitable, etc., purposes, but these contributions did not aggregate to more than $1,000. (If this box is checked, enter here the total contributions that were received during the year for an *exclusively* religious, charitable, etc., purpose. Do not complete any of the Parts unless the **General Rule** applies to this organization because it received nonexclusively religious, charitable, etc., contributions of $5,000 or more during the year.) ..... ▶ $ _____

Caution: *Organizations that are not covered by the General Rule and/or the Special Rules do not file Schedule B (Form 990, 990-EZ, or 990-PF), but they* **must** *check the box in the heading of their Form 990, Form 990-EZ, or on line 2 of their Form 990-PF, to certify that they do not meet the filing requirements of Schedule B (Form 990, 990-EZ, or 990-PF).*

Name of organization
AMERICAN KENNEL CLUB CANINE HEALTH FOUNDATION, INC.

Employer identification number
13-3813813

Part I Contributors (See Specific Instructions.)

(a) No.	(b) Name, address, and ZIP + 4	(c) Aggregate contributions	(d) Type of contribution
1	THE AMERICAN KENNEL CLUB 260 MADISON AVENUE NEW YORK, NY 10016	$ 1,625,356.	Person [X] Payroll [ ] Noncash [ ] (Complete Part II if there is a noncash contribution.)
2	NESTLE PURINA PET CARE COMPANY CHECKERBOARD SQUARE ST. LOUIS, MO 63164	$ 865,609.	Person [X] Payroll [ ] Noncash [ ] (Complete Part II if there is a noncash contribution.)
		$	Person [ ] Payroll [ ] Noncash [ ] (Complete Part II if there is a noncash contribution.)
		$	Person [ ] Payroll [ ] Noncash [ ] (Complete Part II if there is a noncash contribution.)
		$	Person [ ] Payroll [ ] Noncash [ ] (Complete Part II if there is a noncash contribution.)
		$	Person [ ] Payroll [ ] Noncash [ ] (Complete Part II if there is a noncash contribution.)

ORM 990 GAIN (LOSS) FROM PUBLICLY TRADED SECURITIES STATEMENT 1

ESCRIPTION	GROSS SALES PRICE	COST OR OTHER BASIS	EXPENSE OF SALE	NET GAIN OR (LOSS)
ARIOUS SECURITIES-SEE TTACHED	2,137,014.	1,884,923.	0.	252,091.
O FORM 990, PART I, LINE 8	2,137,014.	1,884,923.	0.	252,091.

ORM 990 SPECIAL EVENTS AND ACTIVITIES STATEMENT 2

ESCRIPTION OF EVENT	GROSS RECEIPTS	CONTRIBUT. INCLUDED	GROSS REVENUE	DIRECT EXPENSES	NET INCOME
ALA - TAMPA, FL	180,568.		180,568.	60,702.	119,866.
OLF OUTING	8,225.		8,225.	6,275.	1,950.
REEDERS SYMPOSIUM	17,928.		17,928.		17,928.
INNERS & BANQUETS	9,935.		9,935.		9,935.
O FM 990, PART I, LINE 9	216,656.		216,656.	66,977.	149,679.

FORM 990 OTHER CHANGES IN NET ASSETS OR FUND BALANCES STATEMENT 3

DESCRIPTION	AMOUNT
UNREALIZED APPRECIATION ON PORTFOLIO	48,408.
TOTAL TO FORM 990, PART I, LINE 20	48,408.

FORM 990 OTHER EXPENSES STATEMENT 4

DESCRIPTION	(A) TOTAL	(B) PROGRAM SERVICES	(C) MANAGEMENT AND GENERAL	(D) FUNDRAISING
TRAINING AND EDUCATION	6,622.	5,478.	411.	733.
PROFESSIONAL FEES-CREATIVE	5,570.		1,275.	4,295.
INVESTMENT FEES	33,370.		33,370.	
DUES AND SUBSCRIPTIONS	4,306.	866.	321.	3,119.

EBSITE	1,624.	279.	1,063.	282.
ARKETING PROJECTS	9,552.		3,141.	6,411.
EETINGS & PLANNING	28,338.	8,840.	15,434.	4,064.
DVERTISING	14,622.	1,620.	1,465.	11,537.
NSURANCE	20,892.	698.	19,496.	698.
NNUAL REPORT	26,907.		26,907.	
KTG PROGRAM SUPPORT	9,373.	9,373.		
EMBERSHIP	11,614.		5,807.	5,807.
EGISTRATION FEES	4,782.		4,782.	
EW DEVELOPMENT	55,397.		10,295.	45,102.
ISCELLANEOUS	25,480.	3,069.	7,711.	14,700.
OTAL TO FM 990, LN 43	258,449.	30,223.	131,478.	96,748.

ORM 990 OFFICER COMPENSATION ALLOCATION STATEMENT 5
PART II, LINE 25

AME OF OFFICER, ETC.	COMPENSATION	EMPLOYEE BEN. PLANS	EXPENSE ACCOUNTS	TOTALS
	94,200.	2,826.	14,306.	111,332.
. PROGRAM SERVICES	53,298.	1,599.	8,094.	62,991.
. MANAGEMENT AND GENERAL	27,582.	827.	4,189.	32,598.
. FUNDRAISING	13,320.	400.	2,023.	15,743.

OTAL PROGRAM SERVICES	62,991.
OTAL MANAGEMENT AND GENERAL	32,598.
OTAL FUNDRAISING	15,743.
OTAL OFFICER, ETC., COMPENSATION INCLUDED ON PARTS V-A AND V-B	111,332.

ORM 990 CASH GRANTS AND ALLOCATIONS STATEMENT 6

LASSIFICATION	DONEE'S NAME	DONEE'S ADDRESS	DONEE'S RELATIONSHIP	AMOUNT
RANTS	SEE ATTACHED ANNUAL REPORT FOR DETAILS OF GRANTS		NONE	2158129.
OTAL INCLUDED ON FORM 990, PART II, LINE 22				2158129.

FORM 990 STATEMENT OF ORGANIZATION'S PRIMARY EXEMPT PURPOSE STATEMENT 7
PART III

EXPLANATION

THE ORGANIZATIONAL EXEMPT PURPOSE IS TO SUPPORT BASIC AND APPLIED HEALTH PROGRAMS WITH EMPHASIS ON CANINE GENETICS TO IMPROVE THE QUALITY OF LIFE FOR DOGS AND THEIR OWNERS.

ORM 990 NON-GOVERNMENT SECURITIES STATEMENT 8

ECURITY DESCRIPTION	COST/FMV	CORPORATE STOCKS	CORPORATE BONDS	OTHER PUBLICLY TRADED SECURITIES	TOTAL NON-GOV'T SECURITIES
UTUAL FUNDS	FMV			5,788,919.	5,788,919.
ARKETEABLE DEBT ECURITIES	FMV		722,379.		722,379.
O FORM 990, LINE 54, COL B			722,379.	5,788,919.	6,511,298.

ORM 990 GOVERNMENT SECURITIES STATEMENT 9

ESCRIPTION	COST/FMV	U.S. GOVERNMENT	STATE AND LOCAL GOV'T	TOTAL GOV'T SECURITIES
J.S. GOVERNMENET OBLIGATIONS	FMV	769,125.		769,125.
OTAL TO FORM 990, LINE 54, COL B		769,125.		769,125.

FORM 990 OTHER INVESTMENTS STATEMENT 10

DESCRIPTION	VALUATION METHOD	AMOUNT
CERTIFICATES OF DEPOSIT	COST	247,314.
TOTAL TO FORM 990, PART IV, LINE 56, COLUMN B		247,314.

FORM 990 OTHER ASSETS STATEMENT 11

DESCRIPTION	AMOUNT
CHARITABLE REMAINDER ANNUITY TRUST RECEIVABLE	85,096.
DIVIDEND & INTEREST RECEIVABLE	15,661.
TOTAL TO FORM 990, PART IV, LINE 58, COLUMN B	100,757.

ORM 990 PART V - LIST OF OFFICERS, DIRECTORS, TRUSTEES AND KEY EMPLOYEES STATEMENT 12

AME AND ADDRESS	TITLE AND AVRG HRS/WK	COMPEN-SATION	EMPLOYEE BEN PLAN CONTRIB	EXPENSE ACCOUNT
AYNE FERGUSON (— 57 . BOX 17 R . 508	PRESIDENT 0.00	0.	0.	0.
INDY VOGELS AVENUE 121	VICE-PRESIDENT 0.00	0.	0.	0.
OBERT L. KELLY D. 09	TREASURER 0.00	0.	0.	0.
EE ARNOLD OAD	SECRETARY 0.00	0.	0.	0.
ATHERINE BELL) K .	SECOND VICE-PRESIDENT 0.00	0.	0.	0.
OR. SHELDON ADLER (— — — — — E B 15	DIRECTOR 0.00	0.	0.	0.
PAMELA STEPHENS BUCKLES) C( )	DIRECTOR 0.00	0.	0.	0.
DR. DUANE BUTHERUS OAD —	DIRECTOR 0.00	0.	0.	0.
DR. ANTHONY DINARDO W 8	DIRECTOR 0.00	0.	0.	0.
MYRLE HALE OTOSASSA ROAD	DIRECTOR 0.00	0.	0.	0.

USAN LACROIX HAMIL	DIRECTOR			
	0.00	0.	0.	0.
ARY EDWARDS HAYES	DIRECTOR			
RD	0.00	0.	0.	0.
40-6607				
O-ANN KUSUMOTO	DIRECTOR			
ENUE	0.00	0.	0.	0.
AREN LA FRAK	DIRECTOR			
	0.00	0.	0.	0.
ROF. IRIS LOVE	DIRECTOR			
26B	0.00	0.	0.	0.
HOMAS L. MILLNER	DIRECTOR			
	0.00	0.	0.	0.
NDREW GENE MILLS	DIRECTOR			
	0.00	0.	0.	0.
R. WILLIAM R. NEWMAN	DIRECTOR			
ET	0.00	0.	0.	0.
TEVE T. REMSPECHER	DIRECTOR			
RD	0.00	0.	0.	0.
T.				
INA SCHAEFER	DIRECTOR			
6	0.00	0.	0.	0.
OHN A. STUDEBAKER	DIRECTOR			
	0.00	0.	0.	0.
DR. WILLIAM C. TRUESDALE	DIRECTOR			
3926	0.00	0.	0.	0.
DEBORAH DILALLA	EXECUTIVE DIRECTOR			
	40.00	94,200.	2,826.	14,306.
TOTALS INCLUDED ON FORM 990, PART V		94,200.	2,826.	14,306.

ORM 990 LIST OF STATES RECEIVING COPY OF RETURN STATEMENT 13
PART VI, LINE 90

TATES

L,AK,AZ,AR,CA,CO,CT,DC,FL,GA,IL,KS,KY,MD,MA,MI,MN,MS,NH,NM,NJ,NY,NC,ND,OH
K,OR,PA,RI,SC,TN,TX,UT,VA,WA,WV,WI

CHEDULE A EXPLANATION OF TRANSACTIONS STATEMENT 14
PART III, LINE 2C

FURNISHING OF GOODS, SERVICES AND FACILITIES FROM THE AMERICAN KENNEL CLUB. SEE FORM 990 SCHEDULE A PART VII.

CHEDULE A EXPLANATION OF TRANSACTIONS STATEMENT 15
PART III, LINE 2D

THE FOUNDATION REIMBURSES IT'S OFFICERS AND DIRECTORS FOR OUT OF POCKET EXPENDITURES MADE ON BEHALF OF THE FOUNDATION UPON RECEIPT OF AN ITEMIZATION OF SUCH EXPENDITURES.

CHEDULE A INVOLVEMENT WITH NONCHARITABLE ORGANIZATIONS STATEMENT 16
PART VII, LINE 51, COLUMN (D)

:AME OF NONCHARITABLE EXEMPT ORGANIZATION

MERICAN KENNEL CLUB

)ESCRIPTION OF TRANSFERS, TRANSACTIONS, AND SHARING ARRANGEMENTS

:EIMBURSEMENTS FOR OUT OF POCKET EXPENDITURES ON BEHALF OF FOUNDATION.

NAME OF NONCHARITABLE EXEMPT ORGANIZATION

AMERICAN KENNEL CLUB

DESCRIPTION OF TRANSFERS, TRANSACTIONS, AND SHARING ARRANGEMENTS

ADMINISTER PENSION AND MEDICAL PLAN FOR FOUNDATION.

NAME OF NONCHARITABLE EXEMPT ORGANIZATION

AMERICAN KENNEL CLUB

DESCRIPTION OF TRANSFERS, TRANSACTIONS, AND SHARING ARRANGEMENTS

SHARE MAILING LIST.

AME OF NONCHARITABLE EXEMPT ORGANIZATION

MERICAN KENNEL CLUB

ESCRIPTION OF TRANSFERS, TRANSACTIONS, AND SHARING ARRANGEMENTS

ONATED SPACE AND SERVICES (PAYROLL, HUMAN RESOURCES, ADMIN SERVICES).

CHEDULE A AFFILIATION WITH TAX-EXEMPT ORGANIZATIONS STATEMENT 17
PART VII, LINE 52, COLUMN (C)

AME OF AFFILIATED OR RELATED ORGANIZATION

MERICAN KENNEL CLUB

ESCRIPTION OF RELATIONSHIP WITH AFFILIATED OR RELATED ORGANIZATION

HARE FACILITIES AND EQUIPMENT. PERSONNEL SERVICES

AKC Canine Health Foundation
Fiscal Year Ended 12/31/2005
AKC Canine Health Foundation
Realized Gains and Losses in Non-Taxable or Tax Deferred Accounts

	Gross Proceeds	Cost Basis	Short-Term Gain/Loss	Long-Term Gain/Loss	Total Gain/Loss
Endowment Fund					
Short Term Gains	371,341	338,713	32,628		32,628
Long Term Gains	406,424	341,307		65,117	65117
Total (Sales)	777,765	680,020	32,628	65,117	97,745
Grants Fund					
Short Term Gains	425,605	403,045	22,560		22,560
Long Term Gains	404,111	352,988		51,123	51,123
Total (Sales)	829,716	756,033	22,560	51,123	73,683
Donor Advised Fund					
Short Term Gains	269,379	236,605	32,774		32,774
Long Term Gains	260,154	212,265		47,889	47,889
Total (Sales)	529,533	448,870	32,774	47,889	80,663
Totals					
Short Term Gains	1,066,325	978,363	87,962	-	87,962
Long Term Gains	1,070,689	906,560		164,129	164,129
Total (Sales)	2,137,014	1,884,923	87,962	164,129	252,091

American Kennel Club Canine Health Foundation, Inc.
Attachment to Form 990, Year Ended December 31, 2005
Confirmed Copy of Amended Bylaws of the
American Kennel Club Canine Health Foundation, Inc.
As of December 31, 2005

To whom it may concern,

I confirm that the amended bylaws attached hereto are complete and accurate copies of the original documents.

Wayne E. Ferguson

By: Wayne Ferguson, President

Dated: June 21, 2006

AMERICAN KENNEL CLUB
CANINE HEALTH FOUNDATION

(A New York Not-for-Profit Corporation)

BYLAWS

ARTICLE I
NAME

The name of the corporation is American Kennel Club Canine Health Foundation. The corporation shall hereinafter in these Bylaws be referred to as the "Corporation."

ARTICLE II
OFFICE

The principal office of the Corporation shall be located in the City of New York, County of New York, State of New York, or such other location as the Board of Directors may designate.

ARTICLE III
PURPOSES OF THE CORPORATION

The purpose of the Corporation is to further the knowledge of canine diseases and health care by clinical study, laboratory research, the sponsorship of educational programs, and taking any and all lawful steps in furtherance of this purpose, consistent with the Corporation's Certificate of Incorporation. The Corporation will seek to be inclusive in all of the activities, including but not limited to board membership, employment, programs, and services and will not discriminate on the basis of gender, age, race, disability or national origin.

ARTICLE IV
MEMBERS

The Board of Directors may establish categories of non-voting membership from individuals and organizations who indicated their interest in the purposes and programs of the foundation and who pay the appropriate dues. Rights, privileges and dues of such members may vary from category to category and shall be determined by the Board of Directors.

ARTICLE V
BOARD OF DIRECTORS

Section 1. Qualification of Directors. Each director shall be at least eighteen (18) years of age and shall have a record of significant contributions of time, effort or funds to the corporation.

Section 2. Powers and Duties. The Board of Directors shall have the general power and responsibility to control and manage the business, affairs and property of the Corporation, subject to

P.O. Box 37941 | Raleigh, North Carolina 27627-7941 | ph. 888.682.9696 | email: akcchf@aol.com | www.akcchf.org

applicable law and the Corporation's Certificate of Incorporation. It shall have full power, by majority vote of the directors present and voting at any duly constituted meeting, to adopt rules and regulations governing the action of the Board of Directors.
Specific notice regarding rules and regulations to be considered at a regular meeting of the Board of Directors need not be given.
The Board of Directors shall have full authority with respect to the distribution and payment of the monies received by the Corporation from time to time.

Section 3. Number, Election, Term of Office and Removal. The number of directors shall be not fewer than five (5), the number to be fixed from time to time by resolution of the Board adopted by the affirmative vote of a majority of the Board of Directors present and voting. The initial directors shall be the persons named in the Articles of Incorporation. The regular term of office shall be four years. The assignment of a new director to a particular class may result in a first term of less than four years, but shall not be less than three years. Assignment of new directors to classes shall maintain classes of approximately uniform size. Board members shall serve a maximum of three consecutive four year terms of office. One class shall be elected to regular terms at each annual meeting. All elections shall be by ballot. Mail ballots may be used if approved at least thirty days in advance by the affirmative vote of a majority of the entire Board of Directors. Directors whose term or class expire shall be elected at the annual meeting of the Board of Directors by the affirmative vote of a majority of the Directors present and voting, and each shall continue in office until the next annual meeting of the Board of Directors and until his or her successor shall have been elected and qualified or until his or her earlier death, resignation or removal. Since Board membership is more than honorary and does involve active participation in Board meetings, three consecutive unexcused absences from regularly scheduled Board meetings, irrespective of terms of service, shall constitute a resignation from the Board of Directors.

Vacancies on the Board of Directors, for whatever reason, may be filled at any regular meeting of the Board, by a majority of the Board of Directors present and voting providing that prior notice has been given of such intent.

Any director may be removed at any time for cause providing prior notice has been given to the Board and to the Director of one month and a maximum of three months prior to such a vote. On September 11, 2005, the number of Directors was fixed at thirty.

Section 4. Annual Meeting; Notice. The annual meeting of the Board of Directors shall be held at the principal office of the Corporation or at such other place as the Board of Directors shall designate on such day generally in March, but not later than June and no more than six (6) months after the end of the Corporation's most recent fiscal year as the Board of Directors shall designate. Notice of the time, place and purposes of such annual meeting shall be given by the Secretary personally, by telephone or facsimile, or by mailing a copy thereof by first class mail or delivering the same to each director not less than thirty (30) days before such annual meeting.

Section 5. Other Meetings; Notice. Regular meetings shall be held in March, June and September. There shall be one regular meeting to be held in December or January. Notice of regular meetings shall be delivered to each director not less than seven (7) days before each such meeting. Other meetings of the Board of Directors may be called by the President or by any director upon verbal or written demand of not less than one-fourth of the entire Board of Directors, with such meeting to be held at the

principal office of the Corporation or at such other place as may be designated in the notice of such meeting. Notice of the time, place and purposes of any such meeting shall be given by the Secretary personally, by telephone or facsimile, or by mailing a copy thereof by first class mail or delivering the same to each director not less than seven (7) days before such meeting.

Section 6. Waiver of Notice of Meeting. Notice of any meeting of the Board of Directors may be waived orally or in writing, before or after the meeting. Attendance of any meeting without protest regarding defects in notice of any meeting or written approval of the minutes of any meeting shall be equivalent to waiver of notice thereof.

Section 7. (a) Action Without a Meeting. Any action permitted to be taken by the Board of Directors may be taken without a meeting if three fourths of the members of the Board of Directors consent verbally or in writing to the adoption of a resolution authorizing the action. The resolution and any written consents thereto by the members of the Board of Directors shall be filed with or recorded in the minutes or the proceedings of the Board of Directors.

(b) Meetings by Conference Telephone. The members of the Board of Directors or any committee thereof may participate in a meeting of such board or committee by means of teleconferencing or similar communications equipment by means of which all persons participating in the meeting can communicate with each other and such participation shall constitute presence in person at such meeting.

Section 8. Quorum; Adjustment of Meetings. At all meetings of the Board of Directors, a majority of the entire board, (but no less than two (2) members) of the entire board shall constitute a quorum for the transaction of business. In the absence of a quorum, a majority of the directors present may, without giving notice other than by announcement at the meeting, adjourn the meeting from time to time until a quorum is obtained. At any such adjourned meeting, at which a quorum is present, any business may be transacted which might have been transacted at the meeting as originally called. The act of a majority of the directors present at any meeting at which there is a quorum shall be the act of the Board of Directors unless a greater vote is required by law. Among the actions for which a greater vote is required by law are purchases, sales and mortgages of real property and leases of real property owned by the Corporation.

Section 9. Organization. The President of the Corporation shall preside at all meetings of the Board of Directors or, in the absence of the President, the Vice-President, or in the absence of the President and the Vice-President, a Chairperson shall be chosen by a majority of the directors present. The Secretary of the Corporation shall act as Secretary at all meetings of the Board of Directors. In the absence of the Secretary, the person presiding at the meeting may appoint any person to act as Secretary of the meeting.

Section 10. Compensation. No officer or director of the Corporation shall receive, directly or indirectly, any salary, compensation or emolument therefrom for his or her services as officer or director or in any other capacity except for expenses incurred at the request of the Executive Committee, unless authorized by the affirmative vote of a majority of the entire Board of Directors.

Section 11. Resignation. Any director may resign at any time by giving written or oral notice to the President or the Corporation. Such resignation shall take effect at any time specified therein and,

unless otherwise specified therein, the acceptance of such resignation shall not be necessary to make it effective. All Board members shall promptly be notified of any resignation.

Section 12. Director Emeritus. The Board of Directors may designate a former member as Director Emeritus.

Section 13. Parliamentary Authority. The rules contained in the current edition of Robert's Rules of Order Newly Revised shall govern the Corporation in all cases to which they are applicable and in which they are not inconsistent with this Constitution and Bylaws and any special rules or Order the Corporation may adopt.

ARTICLE VI
EXECUTIVE COMMITTEE

Section 1. Qualifications. The Executive Committee shall be composed of Officers and the immediate past president.

Section 2. Powers and Duties. Between meetings of the Board of Directors, the Executive Committee shall have the authority to act on matters requiring attention but not in conflict with any action of the Board nor in any matter reserved by law to the Board of Directors.

Section 3. Meetings. Meetings may be called by the President or at the request of any two members; two days' notice shall be given. A quorum shall be a majority.

The agenda shall be disseminated to all board members and any board member who wishes may be included in the meeting.

Section 4. Reporting. The committee shall report all actions within seven (7) days to the entire Board of Directors.

ARTICLE VII
NOMINATING COMMITTEE

Section 1. Appointment and Duties. Immediately following the annual election of officers, and prior to the next quarterly meeting, the President shall appoint an annual Nominating Committee of three or more Directors who are not officers to nominate candidates for vacancies on the Board created by the expiration of term and for positions as officers of the corporation to be filled at the annual meeting. Written nominations by the Committee shall be delivered to the Secretary 60 days prior to the Annual Meeting. The Secretary will forward to the Board of Directors the nominating committee's report. Additional written nominations signed by a minimum of two Board members for a position on the Board of Directors or for the position as officer, will close 21 days prior to the Annual meeting. There shall be no nominations made thereafter.

Section 2. Potential Candidates. At any time, any two Directors may submit to the Nominating Committee a signed recommendation of a person they believe could be a new Director. The chair of the Committee shall determine the potential candidate's interest and willingness to serve and send to such person descriptive material regarding the Corporation and its work, a director's profile, and any other material it deems necessary, and shall ask for a brief biography of the candidate.

The Nominating Committee shall present its recommendations to the Board of Directors for its review, discussion and action.

Section 3. Notification. No person except the President shall notify a candidate of nomination or election to the Board of Directors.

ARTICLE VIII
OFFICERS

Section 1. Officers. The officers of the Corporation shall be a President, a First Vice-President, a Second Vice-President, a Secretary, a Treasurer and such other officers, if any, as the Board of Directors may from time to time appoint or elect. One person may hold more than one office in the Corporation, except that one person may not hold both the offices of President and Secretary or President and Treasurer. No instrument required to be signed by more than one officer shall be signed by one person in more than one capacity. Except for the Executive Vice-President, only a director of the Corporation may serve as an officer.

Section 2. Election, Term of Office and Removal. The initial officers of the Corporation shall be selected by the initial directors of the Corporation. Thereafter, the officers of the Corporation shall be elected at the annual meeting of the Board of Directors immediately following the election of directors and shall hold office for two years. Officers may not serve more than two consecutive two-year terms in the same office, beginning with the election years as specified subsequently. The maximum terms of office for the President, Treasurer and Second Vice President, will end in odd-numbered years, starting in 2005. The maximum terms of office for the First Vice President and Secretary will end in even-numbered years, starting in 2004. Any officer of the Corporation may be removed at any time, with or without cause, by the affirmative vote of a majority of the directors then in office.

Section 3. Other Agents. The Board of Directors may from time to time appoint such agents as it shall deem necessary, each of whom shall hold office at the pleasure of the Board of Directors, and shall have such authority, compensation, if any, as the Board of Directors may from time to time determine.

Section 4. Vacancies. Any vacancy in any office may be filled by the Board of Directors at any meeting. Any officer so elected shall hold office until the next annual meeting.

Section 5. President; Powers and Duties. The President shall be the chief executive officer of the Corporation and shall preside at all meetings of the Board of Directors. The President shall generally manage and supervise the affairs of the Corporation. The President shall keep the Board of Directors fully informed, and shall freely consult with them concerning the activities of the Corporation. The President shall present at the annual meeting of the Board of Directors a report complying with Section 519 of the New York Not-for-Profit Corporation Law, which report shall be filed with the records of the Corporation.

The President shall have the power to sign alone, unless the Board of Directors shall specifically require an additional signature, in the name of the Corporation all contracts authorized either generally or specifically by the Board of Directors. The President shall perform all duties incident to the office

of President, subject to the direction of the Board of Directors and such other duties as shall from time to time be assigned to him or her by the Board of Directors.

Section 6. Secretary; Powers and Duties. The Secretary shall act as secretary of all meetings of the Board of Directors and shall keep the minutes of all such meetings in the books proper for that purpose and shall distribute copies of such minutes to all Directors within three weeks after each meeting. As a procedural, not as part of the bylaws, a draft is to be sent within one week of the meeting, by fax, with corrections/additions returned to the secretary again within another week by fax. The Secretary shall attend to the giving and serving of all notices of the Corporation. The Secretary shall have custody of the seal of the Corporation and shall affix the same to all instruments requiring it when authorized by the Board of Directors or President, and attest the same. The Secretary shall perform all duties incident to the office of the Secretary subject to the direction of the President and such other duties as shall from time to time be assigned to him or her by the President or by the Board of Directors.

Section 7. First Vice-President; Powers and Duties. The First Vice-President shall assume the powers and duties of the President in the absence, incapacity or death of the President.

Section 8. Second Vice-President; Powers and Duties. The Second Vice-President shall assume the powers and duties of the President in the absence, incapacity or death of the President and the absence, incapacity or death of the First Vice-President.

Section 9. Treasurer; Powers and Duties. The Treasurer shall have the custody of all funds, securities, evidences of indebtedness and other valuable documents of the Corporation, which may come into his or her hands. The Treasurer shall keep or cause to be kept complete and accurate accounts of receipts and disbursements of the Corporation, and shall deposit all moneys and other valuable effects of the Corporation in the name and to the credit of the Corporation in such banks or depositories as the Board of Directors may designate. Whenever required by the Board of Directors, the Treasurer shall render a statement of his or her accounts and shall distribute copies of the most recent financial statements to all Directors prior to each regularly scheduled Board meeting. The Treasurer shall at all reasonable times exhibit his or her books and accounts to any officer or director of the Corporation, and shall perform all duties incident to the office of Treasurer subject to the direction of the President and such other duties as shall from time to time be assigned to him or her by the President or by the Board of Directors. The Treasurer shall, if so required by the Board of Directors, give such security for the faithful performance of his or her duties as the Board of Directors may require.

Section 10. Executive Director or Executive Vice-President; Powers and Duties. The Board may appoint an Executive Director or Executive Vice-President who shall devote full time to the administration and general management of the Corporation under the immediate direction of the Board, the Executive Committee and the President. The Executive Officer shall be responsible for carrying out the instructions of the Board and the Executive Committee and for recommending plans of work and conducting the day-to-day business of the Corporation. The Executive Officer shall be paid a salary set by the Board based on a recommendation of the President, approved by the Executive Committee.

ARTICLE IX
ADVISORS

Section 1. Advisors. The Board of Directors may appoint from time to time any number of persons as advisors of the Corporation to act either singly or as a committee or committees. Each such advisor shall hold office at the pleasure of the Board of Directors and shall have only such authority or obligation as the Board of Directors may from time to time determine.

Section 2. Compensation. No advisor of the Corporation shall receive, directly or indirectly, any salary, compensation or emolument therefrom for any service rendered to the Corporation by such advisor, unless authorized by the concurring vote of two-thirds of all the directors then in office. No director or officer of the Corporation shall be eligible for appointment as a paid advisor.

ARTICLE X
CONTRACTS, CHECKS, BANK ACCOUNTS, INVESTMENTS, ETC.

Section 1. Checks, Notes, Contracts, Etc. The Board of Directors is authorized to select such banks or depositories, as it shall deem proper for the funds of the Corporation. The Board of Directors shall determine who, if anyone, in addition to the President, the Secretary and the Treasurer, shall be authorized from time to time on the Corporation's behalf to sign checks, drafts or other orders for the payment of money, acceptances, notes or other evidences of indebtedness, to enter into contracts, or to execute and deliver other documents and instruments.

Section 2. Investments. The funds of the Corporation may be retained in whole or in part in cash or be invested and reinvested from time to time in such property, real, personal or otherwise, or stocks, bonds or other securities, as the Board of Directors in its discretion may deem desirable.

Section 3. Gifts. The Board of Directors may accept on behalf of the Corporation any contribution, gift, bequest, or devise for the general purposes, or for any special purpose, of the Corporation.

ARTICLE XI
BOOKS

Section 1. Books. There shall be kept at the principal office of the Corporation correct books of account of the activities and transactions of the Corporation, including a minute book, which shall contain a copy of the Certificate of Incorporation, a copy of these Bylaws and all minutes of meetings of the Board of Directors.

ARTICLE XII
CORPORATE SEAL

The seal of the Corporation shall be circular in form and shall bear the name of the Corporation and words and figures showing that it was incorporated in the State of New York in 1994.

ARTICLE XIII
FISCAL YEAR

The fiscal year of the Corporation shall end with the thirty-first day of December of each year.

ARTICLE XIV
INDEMNIFICATION

Section 1. Indemnification. The Corporation shall, to the fullest extent now or hereafter permitted by law, indemnify any person made, or threatened to be made, a party to any action, suit or proceeding by reason of the fact that he or she (or a person of whom he or she is the legal or personal representative or heir or legatee) is or was a director, officer, employee or other agent of the Corporation, or of any other organization served by him or her in any capacity at the request of the Corporation, against judgments, fines, amounts paid in settlement and reasonable expenses, including attorney's fees. Such right or indemnification shall be a contract right which may be enforced in any manner such person may elect.

Section 2. Other Indemnification Rights. Such right of indemnification shall not be exclusive of any other rights which those indemnified may have or hereafter acquire under any bylaws, agreements, resolution of directors, provisions of law or otherwise.

Section 3. Insurance. The Board of Directors shall have the power to authorize the Corporation to purchase and maintain insurance (i) to indemnify the Corporation against liability incurred by the Corporation in connection with the activities of the Corporation, (ii) to indemnify the Corporation for any express obligation which it incurs as a result of the indemnification of any person under the provisions of this Article, and (iii) to indemnify any person who is or was a director, officer or employee of the Corporation, or the legal representative for such a person, against all expenses, liability and loss incurred by or asserted against such person in such capacity of arising out of such status, whether or not the Corporation would have the power to indemnify such person.

Section 4. Amendments. The Board of Directors may from time to time adopt further bylaws with respect to indemnification permitted by the laws of the State of New York.

ARTICLE XV
AMENDMENTS

These Bylaws or any part thereof may be amended or repealed at any meeting of the Board of Directors by the affirmative vote of a majority of the Board of Directors present and voting, provided that notice of intention to amend the Bylaws and the proposed changes shall have been contained in the notice of the meeting.

AMERICAN KENNEL CLUB
CANINE HEALTH FOUNDATION

2004 Grants for Research on Canine Diseases and for Research to Benefit Specific Breeds

- *Grants for research in specific diseases are based on scientific merit and established significance of the disease in dogs.*
- *Grants for research on specific breeds are also based on scientific merit and significance in a particular breed as identified by the AKC Parent Club. Research on specific breeds falls under the Club Partnership Program, which outlines the availability of matching funds and the opportunities for clubs to open Donor Advised Funds with the AKC Canine Health Foundation.*
- *All grants reflect AKC Canine Health Foundation first-year funding; subsequent funding is dependent upon reporting and performance.*
- *For the most current information about the progress or status of research sponsored by a breed parent club, please consult your breed club health liaison. Information about the ongoing progress of research cannot be published until the research is completed and the researcher has had the opportunity to publish his/her finding under peer review in a scientific journal.*

ALLERGIES

Active Grant No. 2234:

Basophil/Mast Cell Response to Lectins as a Predictor for Risk of Allergic Disease in Genetically Susceptible Dogs

Principal Investigator:

Bruce Hammerberg, DVM, PhD, North Carolina State University

Sponsor(s):

American Belgian Tervuren Club, Inc., American Miniature Schnauzer Club, Inc., American Sealyham Terrier Club, Bedlington Terrier Club of America, Bichon Frise Club of America, Inc., Bull Terrier Welfare Foundation, Chow Chow Club, Inc., Dalmatian Club of America Foundation, Inc., French Bulldog Club of America, Irish Water Spaniel Club of America, Otterhound Club of America, Rhodesian Ridgeback Club of the United States, Scottish Terrier Club of America Health Trust Fund, Welsh Terrier Club of America, Inc., Westie Foundation of America, Inc.

Abstract: Atopic dermatitis or skin allergies is a chronic debilitating disease that is widely distributed among the breeds of dogs. This inherited disease is listed as a high research priority for the following breeds: Bichon Frise, Boston Terrier, Bull Terrier, Cairn Terrier, Dalmatian, Vizsla, Welsh Terrier and West Highland White Terrier. The skin mast cell and circulating basophil are the cells mainly responsible for itching and skin damage seen in atopic dermatitis. This laboratory has just recently discovered that mast cells from atopic dogs release significantly more of the inflammatory mediator, tumor necrosis factor alpha (TNF-α), than normal dog mast cells when stimulated with lectins that bind glycoproteins on the surface of mast cells. If there is an inherited difference in how surface glycoproteins signal release of TNF- α, then knowledge of the molecular basis for this difference will lead to being able to identify dogs that will have a higher risk of developing atopic dermatitis. To accomplish this, atopic and non-atopic dogs will be compared with regard to the identity and quantity of the cell surface glycoproteins on basophils that are responsible for signaling immediate TNF-α release stimulated by lectins.

ALTERNATIVE AND COMPLEMENTARY MEDICINE

Pending Grant No. 207:

Effect of Electro-Acupuncture on Bispectral Index-Guided Anesthetic Requirement During Surgery

Principal Investigator:

Stephen A. Greene, DVM, Washington State University

Abstract: This will be a prospective study of dogs presented to the Washington State University Veterinary Teaching Hospital for surgery. Owners' informed consent to participate will be required. The study will involve placement of 4 acupuncture needles during general anesthesia. Anesthetic depth will be evaluated using standard cardiopulmonary monitoring along with a monitor of brain wave activity (bispectral index) derived from the electroencephalogram. Anesthetic depth will thus be individually assessed and guided by the bispectral index in addition to standard monitoring parameters. Use of bispectral index monitoring will allow precise titration of inhaled anesthetic and optimize detection of differences in anesthetic depth due to acupuncture. Time-weighted concentrations of the inhaled anesthetic, sevoflurane concentrations required for optimal maintenance of anesthesia will be determined between dogs receiving electro-acupuncture, acupuncture needle placement only, or no acupuncture as an analgesic adjunct during surgical anesthesia.

Active Grant No. 2628:

The Effects of Acupuncture, Electroacupuncture and Transcutaneous Cranial Electrical Stimulation on Isoflurane Requirements in Dogs: A Comparative Study

Principal Investigator:

Roman T. Skarda, DVM, PhD, Ohio State University

Abstract: This randomized study should demonstrate that acupuncture, electroacupuncture (EA), and transcutaneous cranial electrical stimulation (TCES) significantly reduce the minimum alveolar concentration of isoflurane (MAC-ISO) and release the neurochemical beta-endorphin, to produce a sparing of isoflurane and post-anesthetic pain relief. Isoflurane is the most popular and commonly used inhalation anesthetic in dogs. Non-pharmacological therapy such as acupuncture, EA and TCES on MAC-ISO reduction and post-anesthetic analgesia in dogs, surprisingly, has not been investigated. A direct comparison of acupuncture, EA and TCES on isoflurane-sparing effects will demonstrate which of the three techniques is the most effective for reducing MAC-ISO. Electro-acupuncture and TCES are expected to be more potent to reduce MAC-ISO than acupuncture. There are substantial benefits from minimizing the necessary concentration of isoflurane for general anesthesia, such as increased safety of anesthesia, reduced amount of waste anesthetic gases, minimal pollution of the environment, decreased toxic by-products of anesthetic gases (carbon monoxide, inorganic fluoride), and reduced cost of inhalation anesthesia. We will determine the plasma concentration of beta-endorphins and respiratory and cardiovascular effects of acupuncture, EA and TCES in healthy dogs during and after administration of isoflurane.

Standard Poodle

AUTOIMMUNE DISEASE

Active Grant No. 2226:

Characterizing the Inheritance of Addison's Disease and Linked DNA Markers

Principal Investigator:

Anita M. Oberbauer, PhD, University of California, Davis

Sponsor(s):

Anonymous, BEACON for Health, Bearded Collie Club of America, Poodle Club of America Foundation, Portuguese Water Dog Club of America, Inc., Portuguese Water Dog Foundation, Versatility in Poodles, Inc., Westie Foundation of America, Inc.

Abstract: Addison's disease is a late onset disorder caused by the deterioration of the adrenal gland. Addison's occurs in the domestic dog at approximately 0.1 percent, with some breeds showing a greater prevalence. Notably, the Bearded Collie, the West Highland White Terrier, the Standard Poodle, the Portuguese Water Dog, and the Leonberger are considered to have unacceptable rates of Addison's disease. Breeders have noted a familial tendency of Addison's disease suggesting a genetic basis to the disorder. Our laboratory has determined that Addison's is highly heritable in Bearded Collies. Further, although Addison's is not fully governed by a single locus in the Bearded Collie, it does appear to be regulated by a single gene of large effect. The specific objectives of this study are to develop a genetic marker associated with an Addison's locus in the Bearded Collie; such a genetic marker will provide a useful tool to aid breeders in making health-based breeding decisions. The second objective is to determine if Addison's disease in the Standard Poodle, West Highland White Terrier, Portuguese Water Dog and Leonberger also has a genetic basis and if so, whether there is a common genetic defect across all these breeds.

Active Grant No. 225:

Establishing a Genetic Linkage Between Addison's Disease and DNA Markers

Principal Investigator:

Anita M. Oberbauer, PhD, University of California, Davis

Sponsor(s):

BEACON for Health, Bearded Collie Club of America, Great Dane Club of America, Poodle Club of America Foundation, Portuguese Water Dog Club of America, Inc., Portuguese Water Dog Foundation, Westie Foundation of America, Inc.

Abstract: Addison's disease is a late onset disorder caused by deterioration of the adrenal gland cortex. Although Addison's disease occurs in the general canine population, some breeds show a greater prevalence as noted by owners and breeders: Bearded Collies, Standard Poodles, Leonbergers, Portuguese Water Dogs, and West Highland White Terriers. We have demonstrated that for the above breeds for which we have sufficient data to analyze, Addison's disease is highly heritable. Statistical evaluation of the dogs' pedigrees suggests a single locus of large effect significantly influences the expression of Addison's in the Standard Poodle and that this locus acts as an autosomal recessive. Similar findings characterize Addison's for the Bearded Collie although the level of significance is less robust. Thus, the specific objectives of this grant are to expand our pedigree, phenotypic, and DNA databases for all possible Bearded Collies, Standard Poodles, Leonbergers, Portuguese Water Dogs and West Highland White Terriers as related to Addison's disease and to continue our genome scan of the DNA to identify a genetic marker linked to the single locus suggested by the pedigree analyses. We have made an effort to include dogs affected with Addison's and those that are unaffected to give us the greatest depth of pedigree information that will speed the genome search.

Active Grant No. 2270:

Mechanisms for Hypercoagulability in Immune Mediated Hemolytic Anemia and Early Disseminated Intravascular Coagulation

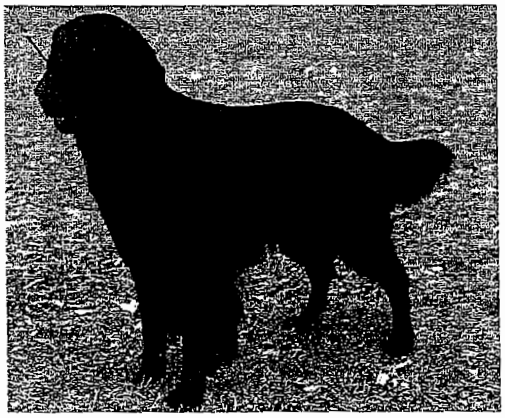
Principal Investigator:

Cynthia Otto, DVM, PhD, University of Pennsylvania

Sponsor(s):

Collie Health Foundation, Flat-Coated Retriever Foundation, Versatility in Poodles

Abstract: The formation of excessive blood clots (thrombosis) is a major cause of mortality in a variety of diseases that affect purebred and mixed breed dogs. Two very common conditions are immune-mediated hemolytic anemia (IMHA; a disease in which the dog's immune system destroys its own red blood cells) and disseminated intravascular coagulation (DIC; a syndrome in which inflammation initiates systemic coagulation, with subsequent depletion of clotting factors and inhibitors and the ultimate development of bleeding). Once thromboses form, specialized or invasive procedures must be used to confirm their presence and define the extent of organ involvement. Even with definitive diagnosis, treatment is limited. This study is designed to test the ability of a specialized clotting test, thromboelastography, to identify increased coagulation (hypercoagulability) in dogs with IMHA, and early DIC associated with a primary diagnosis of pancreatitis. Through our studies of the mechanisms of hypercoagulability in IMHA and DIC, we can design specific treatment strategies for the prevention of the devastating syndromes of thromboembolic (inappropriate formation and migration of clots) disease in IHMA and DIC. The ability to diagnose animals at risk for the complications of hypercoagulable states is revolutionary and will change critical care practice and treatment of these potentially fatal syndromes.



Flat-Coated Retriever

Active Grant No. 2273:

Preclinical Detection of Hypoadrenocorticism (Addison's Disease) in Dogs: Development and Evaluation of Laboratory Techniques for the Diagnosis of Immune-Mediated Canine Adrenal Disease

Principal Investigator:

Markus Rick, VetMed, Michigan State University

Sponsor(s):

Anonymous, Bearded Collie Club of America, Portuguese Water Dog Club of America, Inc., Westie Foundation of America, Inc.

Abstract: The adrenals are hormone-producing glands located near each kidney. Their products are of such importance that, without them, an individual cannot survive. If the adrenals are damaged and not able to make sufficient hormones, a potentially life-threatening disease called hypoadrenocorticism arises. This disease is known as Addison's Disease. Both humans and dogs can have this disease. It is most often caused by an immune reaction in which the body's own defense mechanisms destroy the adrenals. This process releases telltale antibodies into the circulation before severe damage occurs. We hope to be able to measure these antibodies in serum. With this test, we will be able to make an early diagnosis long before affected animals become ill. Such a test will also help us identify which breeds, families and ages are most at risk for this disease. With this information we can identify which individual animals require close monitoring for the development of the disease and what breeding strategies might help eradicate it. An average prevalence of 0.3 percent has been reported for dogs, however numerous breeds including Bearded Collie, West Highland White Terrier, Standard Poodle, Portuguese Water Dog, Leonberger, Great Dane, Airedale Terrier, Basset Hound, Wheaten Terrier and Rottweiler are reported to be at higher risk.

Active Grant No. 305:

Histocompatibility Alleles Conferring Susceptibility to Canine Diabetes, Immune-Mediated Thyroiditis and Immune-Mediated Hemolytic Anemia

Principal Investigator:

Wayne Potts, PhD, University of Utah

Sponsor(s):

Australian Terrier Club of America, Inc., Borzoi Club of America, Golden Retriever Foundation, Irish Wolfhound Club of America, Kerry Blue Terrier Foundation, Westie Foundation of America, Inc.

Abstract: Autoimmune diseases cause significant amounts of mortality and debilitating disease in dogs. In humans many autoimmune diseases occur only in individuals expressing one of the few predisposing histocompatibility genes. For example, all cases of type I diabetes in humans are associated with only a few of the many alleleic forms of class II histocompatibility genes. Consequently, if the frequencies of these few alleles were reduced by half, the incidence of diabetes would be reduced by half. Here we propose to characterize histocompatibility susceptibility alleles for three major, heritable canine autoimmune diseases — diabetes, immune-mediated thyroiditis and immune-mediated hemolytic anemia. If any of these three debilitating (or lethal) autoimmune diseases have a restricted number of susceptibility alleles it will allow: (1) development of diagnostic tests for identifying individuals at risk for prophylactic therapy and research and (2) reducing the incidence of the disease by reducing the breeding of individuals carrying the predisposing histocompatibility alleles. For each of the three autoimmune diseases, we propose to collect DNA samples from approximately 100 purebred dogs diagnosed with the disease. Histocompatibility genes will be cloned and sequenced for each dog for a total of approximately 1100 sequences. Histocompatibility alleles will be tested for significant associations with each of the autoimmune diseases.

BEHAVIOR DISORDERS

Active Grant No. 22111:

Assessing Canine Temperament - Establishing and Validating a Physiological Measurement to Quantify Emotional Reactivity in the Canine

Principal Investigator:

Paul Mundell,
Canine Companions for Independence

Abstract: Each year behavioral problems stemming from fear, nervousness or aggression result in dogs being surrendered to animal shelters or euthanized. Unfortunately, these problematic behaviors are often not recognized until the dog is adopted into a home, bred, or placed in a working role. For assistance dog organizations, temperament problems account for nearly 70 percent of the dog failure rate. Our project begins with the finding that an important component of temperament is rooted in emotional reactivity. Our multi-stage project seeks to define both an objectively scored behavioral test and a physiological parameter, the dog's fecal cortisol profile (FCP), that can be used to describe and quantify canine emotional reactivity. Unlike other physiological indicators of stress, assaying the FCP is non-invasive and reflects adrenal activity over time. The FCP should therefore be less sensitive to episodic and circadian fluctuations in adrenal secretions and allow us a clearer picture of whether an animal is chronically hypersecreting due to a higher degree of emotional reactivity. The project makes use of the large canine population at Canine Companions for Independence, which ranges in age from newborns to seniors and includes purebred Labrador and Golden Retrievers.

Active Grant No. 2433:

Final Testing, Completion and Publication of the Behavioral Assessment and Research Questionnaire (PennBARQ)

Principal Investigator:

James Serpell, PhD,
University of Pennsylvania

Sponsor(s):

Westie Foundation of America, Inc.

Abstract: Canine behavior problems are a significant public health concern in the USA, as well as being a major threat to the welfare and survival of pet dogs. Despite the extent of the problems posed by canine behavior problems, relatively little is known about their overall prevalence in the pet dog population, or the reasons why they develop in some dogs but not others. Efforts to understand the distribution and development of behavior problems are currently hampered by the fact that (a) canine behavior is difficult to observe and record in the home environment using conventional methods, and (b) there is no widely accepted "gold standard" system for describing and classifying these problems. The proposed study is seeking to overcome these difficulties by completing the development and validation of a new behavioral measurement instrument, the University of Pennsylvania Behavioral Assessment and Research Questionnaire (PennBARQ). This instrument shows considerable promise both as a research tool for studying canine behavioral problems at the population level, and as a reliable method for screening individual dogs for the presence of behavior problems.

BLOOD DISORDERS

Active Grant No. 2245:

Screening Candidate Genes as Potential Cause of Basset Hound Thrombopathia

Principal Investigator:

Mary K. Boudreaux, DVM, PhD,
Auburn University

Sponsor(s):

Basset Hound Club of America, Inc.,

Abstract: Bassett Hound Thrombopathia is an inherited platelet defect that has plagued the breed since its first description by Johnstone and Lotz in 1979. At the present time, diagnosis of the defect requires the animal(s) be brought to one of the few existing specialized veterinary platelet function laboratories in the country. Although platelet studies do identify affected dogs with clarity, unambiguous identification of carriers is difficult. Identification of the genetic cause would greatly facilitate elimination of this defect from the breed by allowing clear identification of carrier and affected animals without the necessity of having the dog be on the premises of the facility. Many candidate genes need to be sequenced and evaluated to begin to make progress toward identification of the cause. This study not only would potentially identify the genetic cause of Basset Hound Thrombopathia but would also add valuable information to the database on the canine genome. As information on the canine genome continues to expand, veterinarians will be better positioned to identify genetic causes of disease, which will ultimately benefit all breeds.

Pending Grant No. 411:

Incidence and Characterization of Anemia in Critically Ill Dogs

Principal Investigator:

Erin Portillo, MS, DVM,
Iowa State University

Abstract: Anemia is a clinical manifestation of an underlying disease processes. Clinical symptoms associated with anemia include weakness, collapse, elevated heart rate and respiratory rate, and inappetance. There are many clinical conditions that cause anemia including but not limited to: Immune Mediated Hemolytic Anemia (IMHA), chronic renal disease, rickettsial disease, some drug therapy, blood loss, toxicities, nutritional deficiencies and chronic disease or inflammation. Indications to transfuse are not well defined and the decision to transfuse is ultimately dependent on the patient's packed cell volume (PCV), hemoglobin concentration and patient's clinical signs. Transfusion of blood products is not benign treatment and is associated with risks, including transfusion reactions and sepsis, not to mention the escalating costs of blood products. The purpose of this prospective study is to determine the incidence of anemia in dogs admitted to the Intensive Care Unit (ICU). All dogs admitted to the small animal ICU at Iowa State University College of Veterinary Medicine will be eligible for inclusion in the study. The study will be performed over a 30-day period. Dogs will be enrolled in the study if they have a PCV on admission of less than 37%. All dogs participating in the study will have a Complete Blood Count (CBC) and reticulocyte count evaluated at admission. The dog's signalment, final diagnosis, length of hospitalization, clinical complications, transfusion therapies, cause of the anemia and any treatments specifically targeted for the anemia will also be recorded. The blood counts will be characterized into regenerative and non-regenerative, physiologic or pathologic, etc. Red Blood Cell (RBC) characteristics such as Mean Corpuscular Volume (MCV), Mean Corpuscular Hemoglobin Concentration (MHCH) and morphologic characteristics will also be recorded.

Pending Grant No. 420:

Factor VIII Marker Genotyping for Hemophilia A Carrier Detection in Golden Retrievers

Principal Investigator:

Marjory Brooks, DVM, Cornell University

Abstract: This study aims to prevent propagation of Hemophilia A (Factor VIII deficiency) in Golden Retrievers through application of molecular diagnostic techniques. Familial transmission of Hemophilia A has been recently recognized in this breed. Preliminary screening confirmed the diagnosis of Hemophilia A in more than a dozen males having clinical signs of a mild to moderate severity bleeding diathesis. Recruitment for the proposed study will focus on the offspring, parents, and siblings of obligate and suspect carrier females. The test protocol will combine Factor VIII coagulation assays with genotyping for an intragenic Factor VIII marker in order to enhance the accuracy of female carrier detection. The genetic status of males will be assigned based on direct measurement of Factor VIII coagulant activity, allowing identification of the marker allele segregating with hemophilia. Females' carrier status will be assigned through pedigree review and linkage based on their genotype at the Factor VIII marker locus. This strategy will enable owners and breeders to preserve the desirable traits in a line affected with hemophilia while avoiding the unwitting use of asymptomatic males or carrier females.

BRAIN DISEASE

Active Grant No. 2501:

Transmission Analysis of Breed Specific Necrotizing Encephalitis in the Pug Dog: Pedigree Collection Phase

Principal Investigator:

Kimberly Greer, PhD, Texas A&M University

Sponsor(s):

Pug Dog Club of America, Inc.

Abstract: The long-term goal of the proposed research is to understand the molecular genetics of breed specific necrotizing meningoencephalitis in the Pug (Pug Dog Encephalitis, or PDE), the etiology of which is currently unknown. However, the breed predilection of PDE strongly suggests a genetic component. A necessary resource for this goal is detailed information regarding the incidence and inheritance of PDE. To this end, we propose collection of pedigree information and biological samples. We will identify informative pedigrees and collect blood/tissue samples, together with extensive laboratory and clinical information, from all available pedigree members. The clinical data are necessary for definitive diagnosis of PDE and analyses of pedigrees will allow determination of the mode of transmission. Once this is known, we will carry out whole genome scans to reveal genetic markers associated with PDE. Identification of markers linked to PDE will 1) allow development of marker-based tests for carrier detection and 2) facilitate positional cloning of the candidate gene, or genes, causative for the disease.

Active Grant No. 2631:

Polymerase Chain Reaction for Herpesviruses From Paraffinized Brains and Fresh Tissues in Cases of Pug Dog Encephalitis

Principal Investigator:

Stephen Barr, BVSc, PhD, Cornell University

Abstract: Pug Dog encephalitis (PDE) is a fatal brain disease of young Pugs for which the cause is currently unknown. Anecdotally, the disease is over-represented in certain families of Pugs, and most investigators believe that the Pug Dog has a genetic predisposition for the development of this condition. Interestingly, similar brain diseases have been described in a variety of other small breed dogs, most notably the Yorkshire Terrier and Maltese. As no definitive inheritance pattern has been identified in any breed, we believe that the cause is multifactorial. We hypothesize that PDE is secondary to an inherited genetic defect that causes an exaggerated, fatal immune response following a herpesvirus infection. We are most suspicious of a herpesvirus because the clinical signs and brain lesions seen in PDE are remarkably similar to those appreciated in people with herpes simplex virus encephalitis. We plan to use the polymerase chain reaction (PCR), a molecular biology tool, to study archival Pug brains (collected over the years from dogs that have died from PDE) for the presence of herpesvirus DNA. The identification of a herpesviral cause for PDE would revolutionize the way we diagnose and treat this fatal disease.

Active Grant No. 2650:

Transmission Analysis of Breed Specific Necrotizing Encephalitis in the Pug Dog

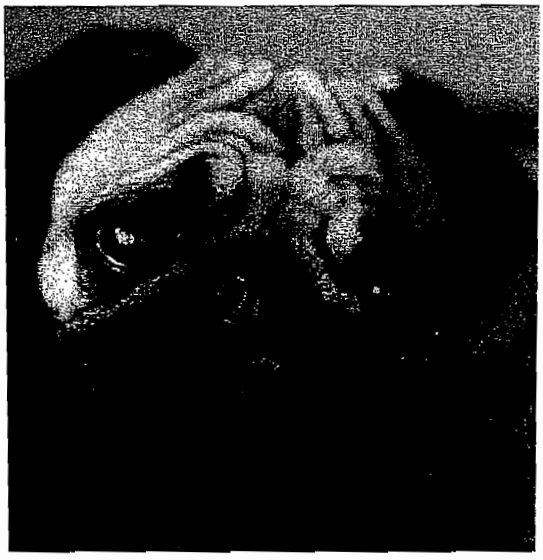
Principal Investigator:

Keith E. Murphy, PhD, Texas A&M University

Sponsor(s):

Pug Dog Club of America, Inc.

Abstract: The long-term goal of the proposed research is to understand the molecular genetics of breed specific necrotizing meningoencephalitis in the Pug (Pug Dog Encephalitis, or PDE), the etiology of which is currently unknown. However, the breed predilection of PDE strongly suggests a genetic component. A necessary resource for this goal is detailed information regarding the incidence and inheritance of PDE. To this end, we propose collection of pedigree information and biological samples. We will identify informative pedigrees and collect blood/tissue samples, together with extensive laboratory and clinical information, from all available pedigree members. The clinical data are necessary for definitive diagnosis of PDE and analyses of pedigrees will allow determination of the mode of transmission. Once this is known, we will carry out whole genome scans to reveal genetic markers associated with PDE. Identification of markers linked to PDE will 1) allow development of marker-based tests for carrier detection and 2) facilitate positional cloning of the candidate gene, or genes, causative for the disease.



Pug

CANCER

Active Grant No. 2038T:

The Molecular Cytogenetics of Canine Lymphosarcoma: Correlating Chromosomal Changes with Clinical Disease

Principal Investigator:

Matthew Breen, PhD,
North Carolina State University

Sponsor(s):

American Bullmastiff Association, Bull Terrier Welfare Foundation, Chinese Shar-Pei Club of America Charitable Trust, Flat-Coated Retriever Foundation, Newfoundland Club of America Charitable Trust, Pembroke Welsh Corgi Club of America, Rhodesian Ridgeback Club of the United States, Rottweiler Health Foundation

Abstract: Cancer kills. Twenty years ago, the diagnosis of lymphosarcoma (a tumor of the lymph glands) in humans was almost invariably fatal. However, with the development of improved means to sub-classify this neoplasm and the tailoring of therapies that are subtype-specific, more and more forms of lymphosarcoma are treatable. One of the most important means of sub-classification of human tumors is based on the identification of chromosome abnormalities. In the dog, lymphosarcoma comprises one in five malignancies; however, the extent and identity of chromosome aberrations are still unknown. This is largely because the chromosomes of dogs were extremely difficult to identify with confidence. Recently, we have developed a set of canine chromosome-specific reagents that allow us to identify conclusively every dog chromosome. We propose to use these reagents to identify the chromosome aberrations associated with dog lymphosarcoma and to investigate the correlation between these aberrations and the clinical disease. Such an approach offers a means to potentially sub-divide this diverse disease in dogs, thereby offering new information of diagnosis, prognosis and therapy. Identification of specific chromosome aberrations will also help to investigate the correlation between the genetic etiologies in dogs with those in humans.

Active Grant No. 205:

Relationship of Clinical Stage and Ki-67 Expression to Recurrence Following Radiotherapy of Canine Intranasal Neoplasia

Principal Investigator:

WM Adams, DVM,
University of Wisconsin, Madison

Abstract: This study will test the usefulness of canine intranasal tumor staging systems, plus a promising biologic marker tested on a large series of dogs treated similarly for intranasal neoplasia. The intent is to identify a system that could become the benchmark of initial evaluation for this tumor type. Biologic behavior of intranasal neoplasia (INN) in a series of affected dogs, all treated in the same manner with radiotherapy, has been recorded in the University of Wisconsin Veterinary Medical Teaching Hospital computerized data base system. Biologic behavior findings will be compared to pretreatment assessment of severity of the disease as determined by application of 3 published and one new proposed staging systems, based on computed tomography (CT) findings. Further, biologic behaviors of INN in this series of dogs will be compared to expression of the biologic marker Ki-67, found in pretreatment biopsy samples.

Active Grant No. 22101:

Development of Anti-Canine Il-2R Antibodies Using CpG Oligodeoxynucleotide Vaccination

Principal Investigator:

Stuart Helfand, DVM,
University of Wisconsin, Madison

Sponsor(s):

American Boxer Charitable Foundation, Golden Retriever Foundation, Nestlé Purina PetCare Company

Abstract: Despite progress in treating canine lymphoma, most affected dogs eventually develop resistance to chemotherapy and succumb to their disease. In human medicine, the subunit of the interleukin-2 receptor (IL-2R) has been developed as a target for immunotherapy of chemo-resistant lymphoma patients. Intensively studied as a molecule present on normal lymphocytes that are activated, IL-2R has recently been developed as a target on malignant lymphocytes that have been found to express this protein inappropriately. This has been accomplished using anti-IL-2R monoclonal antibody (Mab) to deliver cellular toxins or radioisotopes directly to the cancer cells, a strategy that overcomes drug resistance. We would now like to develop such an antibody against the canine Il-2R subunit that could benefit dogs with lymphoma. Our rationale for pursuing this approach stems from molecular data we generated indicating that a high percentage of canine lymphomas from Golden Retrievers and Rottweilers express Il-2R. Having synthesized canine recombinant (cr) IL-2R using the gene sequence we cloned, we are now ready to produce and validate Mabs against it. To accomplish these goals, 1) we will employ a novel immunization strategy to prepare murine anti-canine IL-2R Mabs, 2) develop a test using anti-canine IL-2R Mabs for the detection of IL-2R shed into the blood of Golden Retriever and Rottweiler lymphoma patients, and 3) screen lymphoma biopsies from Golden Retrievers and Rottweilers for IL-2R. Mabs generated to Canine IL-2R will be a powerful tool in the diagnosis, prognosis, and treatment of canine lymphoma.

Active Grant No. 2214T:

Identification of a 5-10Mb BAC Set as a Cytogenetic Resource and for the Development of an Ordered CGH Microarray for Cancer Studies in the Dog

Principal Investigator:

Matthew Breen, PhD,
North Carolina State University

Sponsor(s):

American Boxer Charitable Foundation, Nestlé Purina PetCare Company

Abstract: The study of aberrant chromosome structure has significantly increased our understanding of the cause and progression of human cancers. Many cancers are common to both dogs and humans, in part reflecting the high degree of similarity in their genetic material and in their environmental exposure to carcinogens. The extent and identity of chromosome aberrations associated with canine cancers, however, remains largely unknown. This is primarily due to the difficulty in identifying dog chromosomes by conventional means alone. Comparative genomic hybridization (CGH) is a technique that allows a comprehensive analysis of chromosome aberrations present within tumors. We have developed this technique for application to dog cancers and are obtaining valuable information. However, chromosome-based CGH

is labor intensive, has a limited resolution and requires detailed knowledge of dog chromosomes. In this study we aim to identify set of large insert clones that are evenly spaced, at small intervals, along all dog chromosomes. These clones will be a very valuable resource for chromosome studies of dog cancers. The clones will be used to generate an ordered microarray to replace chromosome-based analyses. This will significantly and rapidly advance the study of canine cancer, leading to improved diagnosis and prognosis and thus health and welfare.

Active Grant No. 2222:

Molecular Control of Prostaglandin Synthesis in Canine Mammary Tumors

Principal Investigator:

Monique Doré, DVM, PhD,
University of Montreal

Sponsor(s):

Mid-Kentucky Kennel Club,
Nestlé Purina PetCare Company,
Skye Terrier Foundation

Abstract: Tumors originating from the mammary gland represent the most frequent form of cancer in female dogs. However, very little information is known of the mechanisms involved in the development of this cancer. In dogs, the growth of mammary gland tumors is dependent on the age of the animal and on its hormones. Malignant mammary tumors can recur following surgical excision or can send cancerous cells to distant organs. Cyclooxygenase-2 (COX-2), an enzyme that is essential in the production of prostaglandins, has recently been implicated in various forms of cancer in humans, including breast cancer. However, the possible implication of this enzyme in canine mammary cancer has never been addressed. The objective of this proposal is to study the mechanisms involved in the synthesis of prostaglandins in mammary tumors in the dog. We first plan to study the expression of the enzyme COX-2 in benign and malignant mammary tumors in dogs. We then want to characterize the regulation of the enzyme COX-2 in cultures of cells derived from canine mammary tumors. It is expected that a better comprehension of the mechanisms involved in COX-2 expression in canine mammary cancer will help design new strategies for cancer therapy and prevention in the canine species.

Active Grant No. 2254:

Heritable and Sporadic Genetic Lesions in Canine Lymphoma and Osteosarcoma

Principal Investigators:

Jaime Modiano, VMD, PhD,
AMC Cancer Research Center;
Matthew Breen, PhD,
North Carolina State University

Sponsor(s):

Akita Club of America, Inc., American Belgian Tervuren Club, Inc., American Bloodhound Club, American Boxer Charitable Foundation, Atlantic States Briard Club, Inc., Bernese Mountain Dog Club of America, Briard Club of America, Bull Terrier Welfare Foundation, Flat-Coated Retriever Foundation, German Wirehaired Pointer Club of America, Golden Retriever Foundation, Irish Wolfhound Club of America, Inc., Mastiff Club of America, Medallion Rottweiler Club, Nestlé Purina PetCare Company, Newfoundland Club of America Charitable Trust, Otterhound Club of America, Portuguese Water Dog Club of America, Inc., Rhodesian Ridgeback Club of the United States

Abstract: Lymphoma (cancer of lymph glands) and osteosarcoma (bone cancer) are two common cancers of dogs with remarkable breed predisposition. Lymphoma accounts for approximately 20 percent of all canine tumors, and > 80 percent of cancers originating from blood cells. Osteosarcoma is the most common bone tumor in dogs, accounting for 85 percent of skeletal cancers. All cancers have a genetic basis, and in effect, these conditions represent various diseases, each sharing one or few genetic abnormalities that contributes to overall risk and treatment response. However, a means does not exist to identify individuals at risk, or tumors that are likely to respond to conventional therapy. We have identified individual genes and larger regions within the genome that appear to be important in canine cancer. For this project, we propose to confirm the frequency and significance of these genetic anomalies in lymphoma and osteosarcoma of Golden Retrievers, Rottweilers, Irish Setters, and Bernese Mountain Dogs. This work will begin to determine which of these anomalies may be heritable and which may be sporadic, and pave the way to apply this knowledge for clinical b[illegible]its by providing potential targets for treatment, and tools to define individual risk to develop these types of cancer or produce cancer-prone progeny.

Active Grant No. 2465:

Identification and Characterization of Genetic Mutations in Canine Mast Cell Tumors

Principal Investigator:

Cheryl London, DVM, PhD,
University of California, Davis

Sponsor(s):

American Boxer Charitable Foundation, American Bullmastiff Association, Chinese Shar-Pei Club of America Charitable Trust, Collie Health Foundation, French Bulldog Club of America, Golden Retriever Foundation, Jeffrey Pepper, Rhodesian Ridgeback Club of the United States, Staffordshire Bull Terrier Club of America

Abstract: The most common malignant tumor in dogs is the mast cell tumor (MCT, a form of skin cancer), occurring with an incidence of close to 20% in the canine population. MCTs range from relatively benign to extremely aggressive, leading to tumor spread and eventual death. Particular breeds of dog are at risk for the development of this tumor, indicating a role for genetic factors. We have previously identified mutations in the gene c-kit in 30-50% of dog MCTs. c-Kit plays a critical role in regulating the growth and function of normal mast cells, and as the mutations we discovered cause uncontrolled function of c-kit, it is likely they influence MCT development in dogs. This proposal will establish a prospective tumor registry of dog MCTs to be used for investigation of the true incidence of c-kit mutations within specific dog breeds. Moreover, the studies outlined in this grant will identify additional genetic mutations present in dog MCTs that can be used for the development of new targeted therapeutics. In summary, this work will provide a much more detailed understanding of dog MCTs, thereby building a framework for the development of new therapies and strategies for disease prevention.

Active Grant No. 249:

Genomics of Canine Brain Neoplasia

Principal Investigator:

Matthew Breen, PhD;
Natasha Olby, VetMB, PhD;
North Carolina State University

Sponsor(s):

Boston Terrier Club of America Charitable Trust, Golden Retriever Foundation

Abstract: Genetic abberations underlie many different types of cancer. Identification of these aberrations provides important information on the malignancy of different cancers, but until recently it has been extremely labor intensive to screen for such anomalies. Gene expression profiling is a technique that provides information on the level of expression of thousands of genes in a single assay, greatly improving the efficiency of screening for genetic aberrations. We hypothesize that there are tumor-specific differences in gene expression in canine brain tumors, which will correspond to and be predictive of clinical outcome. As certain breeds of dog (e.g. the Boxer, Boston Terrier and Golden Retriever) are predisposed to developing brain tumors, we may find breed specific genetic aberrations that are associated with the development of brain tumors. In this study, we will apply gene expression profiling to tissue taken from naturally occurring brain tumors (obtained during routine diagnosis and treatment) to identify tumor specific differences in gene expression. We will correlate these differences with tumor type and the clinical course of disease to identify prognostic factors for survival. This study may enable us to identify prognostic factors and novel therapeutic targets applicable to many different types of canine cancer.

Bernese Mountain Dog

Active Grant No. 2629:

Clinical and Immunological Outcomes in Dogs with Osteosarcoma Treated with Intratumoral Interleukin-12 Microspheres

Principal Investigator:

Stuart Helfand, DVM,
University of Wisconsin, Madison

Sponsor(s):

Akita Club of America, Inc., American Bloodhound Club, American Boxer Charitable Foundation, American Bullmastiff Association, American German Shepherd Dog Charitable Foundation, Borzoi Club of America, Flat-Coated Retriever Foundation, Golden Retriever Foundation, Great Pyrenees Club of Puget Sound, Irish Wolfhound Club of America, Inc., Irish Wolfhound Foundation, Jeffrey Pepper, Newfoundland Club of America Charitable Trust, Rottweiler Health Foundation, St. Bernard Club of America, Starlight Fund

Abstract: Appendicular osteosarcoma, or bone cancer of the limbs, is an important tumor in dogs representing nearly 10% of all canine cancers. Despite progress in treating canine osteosarcoma using a combination of limb amputation and chemotherapy, life expectancy is not usually extended by more than 6-10 months compared to amputation alone. Death is due to dissemination of cancer cells beyond the leg and it is estimated that the cancer has already spread in at least 95% of dogs when it is initially diagnosed. Any pet owner who has lived through this disease can attest to the heartbreak of the news that tumor masses, initially undetectable at the time of diagnosis, have been discovered on a chest X-ray. Novel treatment regimens are urgently needed to improve the lives of large breed dogs such as Golden, Labrador and other Retrievers, Rottweilers, Irish Wolfhounds, Great Danes, German Shepherds and others that are at greatest risk for developing this cancer. Stimulating the immune system of dogs with cancer has been a goal of veterinary cancer researchers for more than 20 years and osteosarcoma is a tumor that has shown positive responses to some of these interventions. This research proposes to add a potent new form of immunostimulation to the standard treatment for canine osteosarcoma. This strategy uses a powerful stimulant of the immune system called interleukin-12 (IL-12) that has been shown to induce strong antitumor responses in experimental animal models. Stimulated by IL-12, immune cells tolerant of cancer can be triggered to kill cancer cells throughout the body, resulting in the generation of an army of deadly circulating killer immune cells specific for the cancer. What's more, this type of cell has long-term memory for the cancer, in much the same way vaccination results in long-term immunity to infectious disease. Our laboratory has shown that IL-12 enhances killing of osteosarcoma cells by immune cells from dogs with this cancer. Now, we propose that injection of IL-12 directly into limb osteosarcoma using a novel (microsphere) formulation resulting in slow IL-12 release within the tumor environment will promote active antitumor immunity in dogs with osteosarcoma and lengthen their survival time. A number of pertinent immunological questions will also be addressed.

Active Grant No. 2632:

Analysis of Gene Expression in Canine Tumors

Principal Investigator:

Richard W. McCombie, PhD,
Cold Spring Harbor Laboratory

Abstract: In recent times our understanding of human cancer has changed considerably. We know that a given type of cancer, such as breast cancer, is comprised of a number of subtypes, based on specific genetic changes that occur in a given patient. More and more, these genetic differences will guide not only our understanding of this disease, but the treatment and diagnosis of specific patients. We are proposing to use some of the same tools by which these molecular changes are found in human tumors to study cancer in the dog. By doing this we hope to see how closely canine cancer parallels the disease in humans. In addition to letting us profile the disease in molecular terms in dogs, it will let us determine to what extent we can use the vast data set from humans to understand the molecular nature of canine cancer.

Active Grant No. 2654:

Characterization of Receptor Tyrosine Kinase Dysfunction in Malignant Histiocytosis

Principal Investigator:

Cheryl London, DVM, PhD, University of California, Davis

Sponsor(s):

American Boxer Charitable Foundation, Bernese Mountain Dog Club of America, Flat-Coated Retriever Foundation, Golden Retriever Foundation

Abstract: Malignant histiocytosis (MH), while rare in people, occurs frequently in certain breeds of dogs including Rottweilers, Golden Retrievers, Flat-Coated Retrievers and Bernese Mountain Dogs. There is no effective therapy for this disease and nearly all patients die within two to four months of diagnosis. The purpose of this proposal is to evaluate MH tumor specimens for mutations in genes that may contribute to the development of this devastating cancer. The genes of interest are those that code for proteins known as growth factor receptors. These proteins are present on the surface of the cell and when stimulated by growth factors, signal into the cell promoting cell survival and growth. Dysregulation of growth factor receptors is a common mechanism through which normal cells undergo transformation into cancer cells. Significant research has been directed towards the development of inhibitors capable of blocking the function of dysregulated receptors. Recent success of this approach has been realized with the inhibitor Gleevec in the treatment of chronic myelogenous leukemia in people. The purpose of this proposal is to identify growth factor receptors that are dysregulated in MH to provide the foundation for future clinical application of growth factor receptor inhibitors in the treatment of MH.

Active Grant No. 2657:

Role of Circulating Endothelial Cells in Physiologic and Pathologic Angiogenesis

Principal Investigator:

Steven W. Dow, DVM, PhD, Colorado State University

Sponsor(s):

American Boxer Charitable Foundation, Collie Health Foundation, Flat-Coated Retriever Foundation, Golden Retriever Foundation, Great Pyrenees Club of Puget Sound, Saluki Club of America, Inc., Saluki Health Research, Inc., St. Bernard Club of America, Starlight Fund

Abstract: Formation of new blood vessels (angiogenesis) is crucial to a number of important processes, including healing wounds, resolving inflammation, and stimulating the growth of tumors. Recent studies indicate that many of the new cells that are used to form new blood vessels actually come from the bloodstream. This observation raises several important questions, including how different disease states may affect that numbers of these cells in circulation and how the numbers of these circulating endothelial cells may be regulated. We propose to evaluate new assays to measure the numbers of these circulating endothelial cells in the bloodstream of dogs, using small blood samples. These assays will be used to measure the numbers of these endothelial cells in the bloodstream of dogs with conditions that may affect formation of new blood vessels, including surgery, tumors, and clotting disorders. Circulating endothelial cells will also be grown in tissue culture and characterized. These studies will provide important new information on the role of the bone marrow and circulating endothelial cells in blood vessel formation in dogs and may help in the development of new strategies to either inhibit or stimulate blood vessel formation in different diseases.

A /e Grant No. 2667:

Cellular Genomics - Molecular Cytogenetic Investigation of Canine Soft Tissue Sarcomas

Principal Investigator:

Matthew Breen, PhD, North Carolina State University

Sponsor(s):

American Boxer Charitable Foundation, Bernese Mountain Dog Club of America, Canaan Dog Club of America, Collie Health Foundation, Flat-Coated Retriever Foundation, Golden Retriever Foundation

Abstract: It has been established that non-random chromosome aberrations are characteristic of specific types of many different human cancers. The knowledge of such aberrations has identified areas of the human genome to be targeted for further research. In the dog the extent and identity of chromosome aberrations associated with specific cancers is still largely unknown. In certain breeds, such as the Flat-Coated Retriever and Bernese Mountain Dog, soft tissue sarcomas account for up to 50% of all malignant tumors and thus represent a serious health and welfare issue for those breeds. These tumors are difficult to classify by conventional means and so attention is required to develop alternative approaches. Human soft tissue sarcomas have been demonstrated to be associated with specific chromosomal aberrations that have been shown to have both diagnostic and prognostic significance. This proposal will make use of major recent advances in canine molecular cytogenetics to identify recurrent chromosome aberrations associated with canine soft tissue sarcomas, in particular those of histiocytic origin. This project will identify areas of the canine genome associated with such cancers for further investigation at the sub-chromosomal level.

Golden Retriever

Active Grant No. 267:

An Investigation into Combined Molecular Approaches to Treat Hemangiosarcoma

Principal Investigator:

David J. Argyle, BVMS, PhD,

University of Wisconsin, Madison

Sponsor(s):

Collie Health Foundation, Golden Retriever Foundation, Scottish Terrier Club of America Health Trust Fund, Starlight Fund

Abstract: Hemangiosarcoma (HSA) is a common and fatal cancer in dogs for which there is no effective treatment. Despite surgery and intensive chemotherapy, the median survival time for dogs diagnosed with HSA is little more than six months. From our own studies on canine cancer, expression of the enzyme telomerase allows cancer cells to become immortal and has emerged as a central and near universal marker of cancer, making it a candidate target for novel therapies. In this study we will explore the value of telomerase inhibition to treat HSA using the novel mechanism of RNA interference (RNAi). Our hypothesis is that potent inhibition using this technique will inhibit the immortal phenotype of the cancer cells and cause them to die. However, it is possible that a combined approach, targeting two molecular pathways, may offer greater therapeutic benefit. Consequently, we will also explore the potential synergism of combining telomerase inhibition with an alternative inhibitor of a further mechanism involved in cancer (receptor tyrosine kinase inhibition) on targeting this highly malignant tumor. In this we will use in vitro cell culture techniques for initial inhibition studies followed by studies in a novel canine HSA model system to ascertain the potential clinical merit of this approach for dogs with HSA.

Active Grant No. 272:

Oligonucleotide Microarray Gene Expression Profiling of Canine Lymphoma

Principal Investigator:

William C Kisseberth, DVM, PhD,
Ohio State University

Sponsor(s):

Collie Health Foundation, Golden Retriever Foundation, Newfoundland Club of America Charitable Trust, Scottish Terrier Club of America Health Trust Fund, Starlight Fund

Abstract: Lymphoma is one of the most common cancers seen in the dog. Current methods of classifying lymphoma neither explain nor predict its variable clinical behavior. While the majority of canine lymphomas appear microscopically similar and affected dogs show similar clinical signs, the clinical course of the disease can vary significantly in patients with microscopically identical tumors with identical clinical signs. This heterogeneity in behavior is particularly evident with respect to response to chemotherapy. Although the majority of patients initially respond well to chemotherapy, some are disease-free for a few months, while others remain disease-free over two years. Clearly, microscopic and initial clinical appearances inadequately explain the variable clinical behavior. In order to better understand and explain these differences, we will create and develop a specialized dog lymphoma gene microarray; a new tool that can be used to determine which groups of genes are important in different sub-types of lymphoma. Ultimately, by identifying these important groups of genes, we hope to 1) provide better prognostic information regarding individual tumor clinical behavior, 2) identify important groups of genes that characterize unique lymphoma sub-types, and 3) identify new molecules or genes that can be targets for development of new drugs to treat lymphoma.

Active Grant No. 297:

Identification of a Chromosomal Region Associated with the Development of Osteosarcoma in the Scottish Deerhound

Principal Investigator:

Marlene Hauck, DVM, PhD,
North Carolina State University

Sponsor(s):

Scottish Deerhound Club of America

Abstract: Osteogenic sarcoma (OSA) is the most common malignant bone tumor in dogs. The etiology of canine osteogenic sarcoma (OSA) is largely unknown. Reports have noted an association between prior local radiation therapy, bone infarcts, and prior fractures (fixed with metallic implants) and the development of bony tumors. A hereditary basis for canine OSA has long been suspected by veterinarians, given the disproportionate incidence in many breeds. The Scottish Deerhound is a giant breed of dog with a ten percent estimated incidence of osteosarcoma. By studying family groups of dogs within this breed, we hope to determine both the mechanism of inheritance as well as the region of DNA associated with their high risk of developing OSA. Determination of the genetic regions (or genes) responsible for the high incidence of OSA in breeds such as the Scottish Deerhound will allow further understanding of the mechanisms underlying neoplastic transformation, enable genetic testing for carriers across all breeds, as well as present new therapeutic targets.

CANINE GENOME MAPPING

Active Grant No. 2215:

A BAC Map of the Canine Genome

Principal Investigator:

Elaine Ostrander, PhD, NHGRI;
Francis Galibert, PhD, CNRS,
Rennes, France

Sponsor(s):

Geraldine Rockefeller Dodge Foundation

Abstract: Genome maps are essential for identifying genes that cause inherited disease. They consist of a series of markers, or molecular street signs, positioned along each chromosome, which act as reference points for navigating different regions of the genome. Currently, the canine map is composed of about several hundred such markers, which provide "addresses" for over 90% of the genome and as a result, the current map has proven useful for identifying the general location of several disease genes. But a much more highly refined map is necessary if we are to actually clone disease genes of interest (not just identify their location) and, subsequently, develop affordable and reproducible genetic tests. This proposal aims to characterize several hundred random clones, each containing a small portion of the canine genome, and then order them on the existing map, relative to the markers and genes already positioned. These clones, called BACs, will serve as "entry points" along the canine genome to begin a molecular "walk" towards a disease gene once its general chromosomal location is known. The work done as a result of this proposal is not breed specific, rather, it will equally benefit all breeds of dog.

Active Grant No. 2248:

Generation of Canine EST Resources

Principal Investigator:

Richard W. McCombie, PhD,
Cold Spring Harbor Laboratory

Sponsor(s):

Geraldine Rockefeller Dodge Foundation

Abstract: The identification of all of the genes, or major elements of heredity, within an organism is revolutionizing biomedical research. This holistic approach referred to as genomics will enable us to understand and eventually solve diseases with complex genetic factors underlying them. While genomic analysis of the dog is at an early stage, the impending completion of the mouse and human genome sequences will allow rapid acceleration of canine genomics. We are proposing to contribute to this process by building resources for gene identification in the dog. This will include constructing libraries of genes from the dog and determining the DNA sequence of a large number of their component genes. These can then be compared to their counterparts from human and mouse.

Active Grant No. 2448:

Identification and Mapping of Genes Expressed in the Canine Brain

Principal Investigator:

James R. Mickelson, PhD,
University of Minnesota

Abstract: Molecular and medical genetics is producing remarkable advances and contributing to an enhanced understanding of normal and disease processes in humans. We are now at the stage in canine genetics where we also hope to make rapid progress in identifying the molecular and genetic bases for traits that play a role in health, disease susceptibility, and disease resistance in dogs. Canine neurophysiology and behavior is ultimately governed by the expression of many thousands of genes in the brain and central nervous system. A number of devastating canine diseases are also due to either heritable or acquired alterations in the function of nervous system genes. In this study we will greatly increase the number of these important, interesting and useful genes whose precise location on a canine chromosome is known. This work will help future efforts to identify those genes that greatly impact the health, behavior, reproduction and other characteristics of all dogs by making the extensive human genome mapping information more directly transferable to knowledge of the canine genome.

Active Grant No. 279:

Whole Genome Scans Using Multiplexed Microsatellite Markers

Principal Investigator:

Niels Pedersen, PhD,
University of California, Davis

Abstract: Veterinary clinicians, usually in concert with their breeder clients, are the first people to recognize novel deleterious traits in purebred dogs and to suspect their genetic origin. Some of these clinicians and breeders have access to necessary scientific expertise and sophisticated genetic testing through their home or local institutions. However, many of them have no such access and the identification of genetic disorders is either greatly delayed or does not occur. The objective of this proposal is to promote collaboration within the canine scientific community by pairing the resources of the VGL with researchers and veterinarians who have identified normal or abnormal canine traits of a possible genetic nature, but who lack the scientific or laboratory expertise to confirm their findings. The VGL has extensive experience in animal genetic testing, the technical infrastructure to perform large scale genotyping, and now has a genome screening set optimized for efficient linkage analysis. The VGL proposes to match its strengths with the phenotyping expertise of researchers and veterinarians. Successful collaborations will lead to DNA tests and/ or the discovery of casual genes that in turn will improve the health of purebred dogs.

Active Grant No. 322:

Multiplexing of Canine Minimal Screening Set 2

Principal Investigator:

Keith E. Murphy, PhD, Texas A&M University

Abstract: There are more than 400 canine hereditary diseases, many of which have no genes that stand out as potential causes of diseases. Thus, to identify those regions of the canine genome that are implicated in such diseases, a screen of the entire genome must be done. This is possible by characterizing specific repetitive sequences found throughout the canine genome on each chromosome. These sequences, termed microsatellite markers, can be typed to determine whether specific changes in the sequences of these markers are linked to the expression of disease. Characterization of these markers is costly, inefficient and time consuming. Multiplexing is the simultaneous characterization of multiple microsatellites, which reduces the cost and time required for a whole genome screen. Proposed here is multiplexing of specific microsatellite markers to expedite screens of the dog.

CATARACTS

Active Grant No. 229:

Exploration of a Single Nucleotide Polymorphism in the GALK1 Gene as a Potential Marker for Juvenile Cataracts in the Boston Terrier

Principal Investigator:

Kathryn Graves, PhD, University of Kentucky

Abstract: No mutation was found in the coding portion of the GALK1 gene in Boston Terriers. A SNP (single nucleotide polymorphism) was found in intron 3 (non-coding portion) in an affected dog and its carrier dam. Both the dam and offspring were heterozygous for this allele. This may mean it is unlikely that this SNP is very close to the cataract gene, or we may find that the majority of other affected dogs are indeed homozygous for this marker. The frequency of this marker in affected dogs will be compared to the frequency of its occurrence in our normal group of dogs. Only then can we determine if it is useful as an indicator of the presence of the cataract gene elsewhere on chromosome 9. We will further examine the polymorphism found in GALK1 Intron 1 in Boston Terriers. We have DNA from 100 additional Boston Terriers available. We will start by sequencing exon/intron 3 in the archived DNA of 27 affected Boston Terriers.

Dalmatian

DEAFNESS

Active Grant No. 1870:

Genetics of Hereditary Deafness in the Domestic Dog

Principal Investigator:

Keith E. Murphy, PhD, Texas A&M University

Sponsor(s):

Dalmatian Club of America Foundation, Inc., English Setter Association of America

Abstract: Congenital deafness has been reported for approximately 60 breeds, and can potentially appear in any breed. The disorder is usually associated with pigmentation patterns, where increasing amounts of white in the hair coat increase the likelihood of deafness. Pigment-associated inheritance of deafness is not restricted to dogs. Similar defects have been reported for mice, mink, pigs, horses, cattle, cats and humans. Waardenburg syndrome type 2 (WS2) in humans presents with congenital deafness and hypopigmentation of the eyes and head hair. This is an autosomal dominant disorder with incomplete penetrance, meaning that individuals that inherit the disorder may not show all of the components of the syndrome. Mutations in the mitf gene cause at least twenty percent of cases of WS2. Piebaldism in humans most commonly presents with congenital patches of white skin and hair lacking melanocytes on certain parts of the body, although deafness is a characteristic of the disorder in an unknown percentage of affected individuals. Mutations in the kit gene are responsible for typical cases of piebaldisms. We believe that deafness in dogs may result from mutations in the canine mitf/kit genes. Examination of these genes and identification of causative mutations will aid in understanding the etiology of deafness.

Active Grant No. 2264:

Whole Genome Screens Using Microsatellite Markers in Genetic Analyses of Hereditary Deafness in the Dalmatian and English Setter

Principal Investigator:

Keith E. Murphy, PhD, Texas A&M University

Sponsor(s):

Dalmatian Club of America Foundation, Inc., English Setter Association of America

Abstract: Hereditary deafness has been reported for approximately 60 breeds, and can potentially appear in any breed. The disorder is often associated with pigmentation patterns, with increasing amounts of white in the hair coat increasing the likelihood of deafness. Pigment-associated inheritance of deafness is not restricted to dogs. Similar defects have been reported for mouse, mink, pig, horse, cattle, cat and human. High incidences of deafness are found in the Dalmatian and English Setter. Deafness in these breeds presents unilaterally (with no preference for either ear) or bilaterally and recent research suggests that more than one gene is involved. Therefore, in an effort to identify such genes, we will carry out analysis of the entire genome rather than restricting studies to one or two genes. By using this approach, termed linkage analysis, we hope to identify markers present in affected dogs. Informative markers will allow selection and subsequent examination of candidate genes for mutations that play roles in deafness of the aforementioned breeds. The long-term objectives of this work are to 1) develop marker or gene-based tests to identify carriers and to reduce the incidence of deafness, and 2) understand the etiology of deafness in the Dalmatian and English Setter.

Active Grant No. 324:

Molecular Genetic Characterization of Canine Non-Syndromic Deafness

Principal Investigator:

Paula S. Henthorn, PhD, University of Pennsylvania

Abstract: We propose to characterize a form of canine inherited deafness. This deafness is classified as non-syndromic, neuroepithelial, and is inherited as an autosomal recessive trait in a large pedigree of dogs originally from Pointers. A genetic approach for the identification of the gene responsible for this canine disorder is now possible because of the recent availability of canine linkage and radiation hybrid maps and other genetic resources of sufficient resolution for comparative positional-candidate cloning of disease genes.

ENDOCRINE DISORDERS

Pending Grant No. 394:

Evaluation of Glycemic Variation in Diabetic Dogs Using a Continuous Glucose Monitor System

Principal Investigator:

H Autran de Morais, DVM, PhD, University of Wisconsin, Madison

Abstract: Several breeds of dogs are at high risk of developing diabetes mellitus. Diabetes can result in blindness and other severe illnesses within one year of diagnosis, mostly due to inadequate glycemic control. The standard evaluation of therapy relies on a 12-hour, in-hospital glucose curve. This test does not reflect day-to-day and nocturnal glycemic variation in humans. Glucose curves also show a day-to-day variability that has been observed in dogs. If changes observed in people also occur in dogs, in-hospital glucose curves may not be the best way to evaluate diabetes therapy. We will utilize a continuous glucose monitoring system (CGMS) to measure glucose concentration every 5 minutes for 72 hours in 20 stable diabetic dogs. Comparisons will be made with results obtained in-hospital and at home, during both day and night, and on day 1 versus day 2 at home. Nadir, peak glucose, and mean glucose will be evaluated as well as recommendations regarding insulin dose and type for each curve.

Assessing the limitations of in-hospital glucose curse will improve management of diabetes in dogs, improving glycemic control. Long-term control of glucose is the most important factor in preventing complications in patients with diabetes mellitus.

EPILEPSY

Pending Grant No. 224:

Characterizing Idiopathic Epilepsy in the Poodle, Giant Schnauzer, English Mastiff: An Assessment of Inheritance

Principal Investigator:

Anita M. Oberbauer, PhD, University of California, Davis

Sponsor(s):

Poodle Club of America Foundation

Abstract: Idiopathic epilepsy afflicts many dogs, in fact, epilepsy is listed as being a major health concern by 35 Parent Clubs. In some breeds, epilepsy has been established to be an inherited disorder although the mode of inheritance differs. For the Poodle, Giant Schnauzer, and English Mastiff, three breeds in which epilepsy is a recognized health concern, the mode of inheritance, heritability and relative incidence have not been defined. Collection of health information, pedigrees and DNA samples will provide the necessary data needed to characterize this disorder in these breeds. Survey data describing the characteristics of the seizures (frequency, age of onset, and intensity) will be collected and statistically analyzed to generate reliable heritability estimates of seizuring. Once we have determined how heritable epilepsy is within these breeds, more advanced statistical procedures will be employed to ascertain whether epilepsy is a complex disorder involving many genes or whether a single gene regulates the seizures. If the statistical analyses suggest a major gene affects the seizures within each breed, then it becomes possible to identify a genetic marker linked to that gene. Determining heritability and mode of inheritance of epilepsy in the Poodle, Giant Schnauzer, and English Mastiff will prove valuable for breeders to make informed, health-based breeding decisions.

Active Grant No. 2252:

Canine Epilepsy: Determining the Mode of Inheritance, Mapping the Genes, and Developing a Linkage Test

Principal Investigator:

James R. Mickelson, PhD, University of Minnesota

Sponsor(s):

English Springer Spaniel Field Trial Association Foundation, National Beagle Club, Vizsla Club of America Welfare Foundation

Abstract: We propose to continue our molecular genetic studies to develop a screening linkage test for predicting epilepsy in Beagles, English Springer Spaniels and Vizslas. Preliminary results of our genetic marker studies in these breeds indicate that we will be able to find linked markers and the chromosomal segment containing the epilepsy gene given sufficiently large and informative pedigrees. The onset of seizures in dogs with epilepsy is typically from one to five years of age. The late onset means that often a dog has already been bred before it is known to be affected. In some individuals, seizures are well controlled with anticonvulsant medications, but a significant number of dogs have "refractory" seizures needing high doses of medications to achieve control. The severity of seizures may be such that the owner elects to have the dog euthanized. A genetic test for epilepsy would allow breeders to screen potential breeding animals for this common, frustrating, and potentially devastating disorder prior to making breeding decisions. Our genome mapping approach to identifying the region of the canine genome containing the defective gene will ultimately lead to the prediction of candidate genes that can be characterized to define the precise defect responsible.

English Springer Spaniel

Active Grant No. 2304:
Continued Investigation into the Molecular Genetic Causes of Canine Epilepsies

Principal Investigator:
Gary S. Johnson, DVM, PhD, University of Missouri

Sponsor(s):
American Spaniel Club Health Foundation, AWS Partners, Collie Health Foundation, Dalmatian Club of America Foundation, Inc., English Springer Spaniel Field Trial Association Foundation, Greater Swiss Mountain Dog Club of America, Inc., Irish Setter Club of America Foundation, Irish Water Spaniel Club of America, St. Bernard Club of America, Standard Schnauzer Club of America, Welsh Springer Spaniel Club of America

Abstract: In our on-going study of canine epilepsy, we have found that most canine epilepsy families do not follow the simple inheritance patterns described by Gregor Mendel. This suggests that epilepsy results when a dog inherits mutations in two or more different genes. Mutations involving two or more genes are also thought to be responsible for the vast majority of human epilepsy that occurs in families. Mendelian inheritance is encountered in rare types of human epilepsy and in many of these families the epilepsy-causing mutation has been found by genome mapping. We appear to have found Mendelian inheritance in at least one canine family and if this holds true we will attempt to map the mutation. One unexpected finding that is not seen in the human epilepsy families is the predominance of males among the affected dogs in several dog breeds. A similar inheritance pattern in human disease has been attributed to paired mutations on the X chromosome and in the mitochondrial DNA in these breeds. Our ultimate goal is to produce a DNA marker that breeders can use to avoid matings that will result in new generations of epileptic dogs.

Pending Grant No. 2614:
Refining the Genetic Linkage for Idiopathic Epilepsy in the Belgian Tervuren and Sheepdog

Principal Investigator:
Anita M. Oberbauer, PhD, University of California, Davis

Sponsor(s):
American Belgian Tervuren Club, Inc., Belgian Sheepdog Club of America, Inc.

Abstract: Idiopathic epilepsy affects over 30 different AKC dog breeds and was identified as the top canine health issue in the 2001 AKC CHF Parent Club Survey. Preliminary studies in the Belgian Tervuren and Sheepdog indicate that although this is a heritable disorder governed by many genes, there exists a single gene of very large effect on the incidence of epilepsy. The epileptic condition influenced by this particular gene is inherited as an autosomal recessive. Preliminary data in our laboratory, derived from screening the DNA of affected dogs, identified a chromosomal region appearing to be associated with epilepsy. The specific objective of this project is to refine this initial association to a very discrete region of the DNA in order to ultimately develop a genetic marker associated with epilepsy. Such a genetic marker will permit the identification of carriers of epilepsy in Belgian Tervuren and Belgian Sheepdogs, and possibly other breeds, prior to breeding with the end result that breeders can make informed, health-based breeding decisions.

Standard Schnauzer

Pending Grant No. 266:
Canine Epilepsy: Mapping the Genes and Developing a Linkage Test (Continuing Studies)

Principal Investigator:
James R. Mickelson, PhD, University of Minnesota

Sponsor(s):
Greater Swiss Mountain Dog Club of America, Inc., Irish Setter Club of America, Inc., Keeshond Club of America, Otterhound Club of America, Vizsla Club of America Welfare Foundation, Welsh Springer Spaniel Club of America

Abstract: We seek to continue our molecular genetic studies to develop a screening linkage test for predicting epilepsy in Beagles, English Springer Spaniels, and Vizslas and to institute new studies in Welsh Springer Spaniels, Greater Swiss Mountain Dogs, Irish Setters, Otterhounds, Samoyeds and Keeshonden. Preliminary results of our genetic marker studies indicate that we will be able to find linked markers and the chromosomal segment containing the epilepsy gene given sufficiently large and informative pedigrees. The late age of onset of seizures in dogs with epilepsy means that a dog has often already been bred before it is diagnosed as affected. In some individuals seizures are well controlled with anticonvulsant medications. However, a significant number of dogs have "refractory" seizures needing high doses of medications to achieve control or the severity of seizures may be such that the owner elects to have the dog euthanized. Our genome mapping approach to identifying the regions of the canine genome containing the defective genes will ultimately lead to genetic tests for epilepsy that would allow breeders to screen potential breeding animals for this common, frustrating, and potentially devastating disorder.

EYE DISEASE

Active Grant No. 2291:

Molecular Genetic Causes for Canine Lens Luxation and Glaucoma

Principal Investigator:

Gary S. Johnson, DVM, PhD,
University of Missouri, Columbia

Sponsor(s):

American Sealyham Terrier Club, Basset Hound Club of America, Inc., Bouvier Health Foundation, Bull Terrier Welfare Foundation, Dandie Dinmont Terrier Club of America, Inc., Dandie Dinmont Trust Fund, Health & Rescue Foundation of the Petit Basset Griffon Vendeen Club of America, Jack Russell Terrier Research Foundation, Miniature Bull Terrier Club of America, Montgomery County Kennel Club, Inc., Tibetan Terrier Club of America, Welsh Terrier Club of America, Inc.

Abstract: Heritable lens luxation, if not treated promptly, will induce secondary glaucoma. In addition, heritable primary glaucoma can cause secondary lens luxation. Since it is not always known whether lens luxation or glaucoma is the primary disease, we believe it is rational to study both diseases together. One or the other of these diseases is responsible for loss of sight in the Basset Hound, Border Collie, Dandie Dinmont Terrier, Jack Russell Terrier, Miniature Bull Terrier, Petit Basset Griffon Vendeen, Sealyham Terrier, Tibetan Terrier, Welsh Springer Spaniel, and Welsh Terrier. We are attempting to produce DNA marker assays that will identify dogs with the mutant gene responsible for lens luxation and glaucoma. Early identification of these dogs would enable dog owners and their veterinarians to instigate measures to preserve their dogs' sight and to adjust breeding practices to minimize or eradicate the disease in their breeds.

Active Grant No. 326:

Microphthalmia, Merle and MITF in Dogs

Principal Investigator:

Sheila Schmutz, PhD,
University of Saskatchewan, Canada

Abstract: Dogs with microphthalmia and/or related eye disorders will be studied using the Microphthalmia transcription factor gene (MITF) as a candidate gene. Because this gene causes this problem in mice it seems a reasonable candidate. mRNA from 2 microphthalmic Akitas will be examined and compared to sequence from unaffected dogs which we have already obtained.

Families of dogs (3 Great Dane and 5 Australian Shepherd) will be studied to determine if MITF markers co-segregate with eye disorders and/ or merle phenotype.

Although we have already obtained the coding sequence of the MITF gene for the melanocyte form, we need to determine the sequence of the promoter region and the form expressed in retinal pigmented epithelium of the eye. With these, we may better understand if the eye defects that occur in homozygous merle dogs are unavoidable or one could select for the pattern and select against the eye anomalies (i.e. are there two or more mutations in MITF with different effects).

Pending Grant No. 438:

Collection of Baseline Data for the Australian Cattle Dog Project 2020

Principal Investigator:

J. William O. Ballard, PhD,
Iowa State University

Abstract: In a unique and innovative collaboration Biological Science Professor Bill Ballard has teamed with Web Designer Mr. Mark Bamberry and Veterinarian D. Gene Szymkowiak to develop a set of teaching tools for University of Iowa students. The core of this innovation is the use of domestic dogs to study inheritable diseases and genetic variation within species.

A focus of the pioneering project is to study a common eye disease of Australian Cattle Dogs (ACD). Over 22% of ACD's have reduced vision late in life due to progressive rod-cone degeneration. As the breed was developed to herd cattle and act as watchdogs over their herd the loss of vision is highly detrimental to their job as a breed.

The long-term goal of the study is to develop a web-based computer program to test alternate strategies for selective removal of the eye disease from the breed. These alternate strategies can then be discussed in the classroom and debated by members of the ACD community in America and worldwide. The immediate goal is to learn whether the disease is associated with any morphological, behavioral or genetic traits of interest. The investigators will develop a website for teaching undergraduate students and educating dog breeders and owners.

HEART DISEASE

Active Grant No. 2002:

Evaluation of the Clinical Outcome of Asymptomatic Adult Boxers with Ventricular Arrhythmias Over a Four-Year Period

Principal Investigator:

Kathryn Meurs, DVM, PhD, DACVIM, Ohio State University

Sponsor(s):

American Boxer Charitable Foundation

Abstract: Heart disease in the Boxer was initially documented in the 1980s and referred to as Boxer cardiomyopathy. More recent studies have confirmed that this disease is inherited and is primarily characterized by disturbances in the cardiac electrical system, fainting episodes and sudden death. The inherited nature of the disease has led to increased interest in the screening of dogs for the disease by electrocardiogram, ultrasound and Holter monitoring prior to using them for breeding. However, the interpretation of the results is difficult, since many adult Boxers have some abnormalities detected on at least one of the tests and there is no available information regarding the relationship between these findings and the likelihood of development of clinical signs. The objective of this study is to evaluate the correlation between specific cardiac parameters (Ventricular Premature Contractions (VPC) number, grade of arrhythmia, heart rate, etc.) detected by electrocardiogram, ultrasound, and Holter monitoring and the development of clinical signs including fainting, sudden death and congestive heart failure in 130 adult Boxers previously diagnosed with heart disease.

Active Grant No. 2250:
Diet-Related Taurine Deficiency in Newfoundland Dogs and Associated Cardiac Insufficiency

Principal Investigator:
Robert Backus, DVM, PhD, University of California, Davis

Sponsor(s):
Newfoundland Club of America Charitable Trust

Abstract: Dilated cardiomyopathy (DCM) is the most common acquired cardiovascular disease of dogs. Of suggested nutritional causes, taurine deficiency appears most evinced. But in dogs, such a need for dietary taurine is not generally recognized. Dogs are known to have the metabolic capacity to synthesize taurine from the dietary sulfur amino acids, cysteine and methionine (Hayes 1988). Diet-related taurine deficiencies and associated dilated cardiomyopathies have been reported in large breed dogs (Torres et al. 2000). The present investigators (Backus et al. 2000) have recently reported taurine deficiency (52%) and cardiac insufficiency (10%) among a group of 21 privately owned Newfoundland dogs. The proposed research will estimate the prevalence of a possible unrecognized, widespread, taurine deficiency in the Newfoundland breed. This will involve conducting non-invasive tests in a clinical setting. Dogs will be evaluated for heart and retinal disease. In selected normal and taurine deficient dogs, blood and urine will be collected to determine taurine and sulfur amino acid concentrations. Feeding trials will evaluate the effect of diet composition on taurine concentrations and excretion. A possible genetic contribution to taurine deficiencies will be assessed by pedigree analyses.

Active Grant No. 2266:
Linkage Analysis of Familial Dilated Cardiomyopathy in the Doberman Pinscher

Principal Investigator:
Kathryn Meurs, DVM, PhD, DACVIM, Ohio State University

Sponsor(s):
Doberman Pinscher Club of America

Abstract: Dilated cardiomyopathy (DCM), a primary heart muscle disorder characterized by poor cardiac function, is inherited in the Doberman Pinscher. Therapy for DCM does not cure or even successfully control the clinical signs. The inability to control the disease has led to increased interest in disease prevention. Prevention will likely be achieved through careful selection of unaffected dogs for breeding. However, since DCM is often not apparent until later in the adult life of the dog, many dogs are selected for breeding before they are found to be affected. A blood test that could identify affected animals before they are used for breeding would greatly decrease the prevalence of DCM. The study proposed here is a continuation of a study funded by the AKC CHF that recruited and screened families of Doberman Pinschers with DCM. Pedigrees and DNA samples have been collected. Genetic analysis is now being performed on three families of Doberman Pinschers with DCM. Genetic markers will be evaluated to determine if they are associated with the development of DCM in the Doberman Pinscher. The identification of a genetic marker linked to DCM will be the first step in the development of a screening blood test.

Active Grant No. 2267:
Linkage Analysis of Familial Subvalvular Aortic Stenosis in the Newfoundland Dog

Principal Investigator:
Kathryn Meurs, DVM, PhD, DACVIM, Ohio State University

Sponsor(s):
Newfoundland Club of America Charitable Trust, NewPenDel Newfoundland Club

Abstract: Subvalvular Aortic Stenosis (SAS) is a familial congenital heart disease characterized by a fibrous ridge located below the aortic valve. Affected dogs are at risk of developing an infection on the aortic valve, congestive heart failure or sudden death. This is a familial defect in the Newfoundland dog; therefore affected dogs should not be bred. However, mildly affected dogs can be difficult to diagnose without Doppler echocardiography, an expensive test with limited availability. Therefore, there is significant interest in developing a genetic test to screen for SAS. The study proposed builds on a previous study funded by the AKC CHF to recruit and screen families of Newfoundland dogs with SAS. Dogs have been classified as affected, unaffected but related to affected, or unaffected by Doppler echocardiography. Pedigrees and DNA samples have been collected on several small families. Additional recruitment of grandparents and siblings will complete these families. Genetic analysis will be performed using canine markers and DNA samples from these families. Genetic markers will be evaluated to determine if they are associated with SAS in the Newfoundland. The identification of a genetic marker linked to SAS will be the first step in the development of a DNA screening test.

Pending Grant No. 228:
A Comparative Evaluation of the Concealed and Overt Forms of Arrhythmogenic Right Ventricular Cardiomyopathy: Risk Factors Associated with the Development of Symptoms in Dogs with Arrhythmogenic Right Ventricular Cardiomyopathy

Principal Investigator:
Kathryn Meurs, DVM, PhD, DACVIM, Ohio State University

Sponsor(s):
American Boxer Charitable Foundation

Abstract: The clinical syndrome characterized by ventricular arrhythmias, collapsing episodes, sudden cardiac death and sometimes, heart failure in the Boxer dog was previously referred to as Boxer Cardiomyopathy. More recent studies have demonstrated striking similarities, including the inheritance, to a human disease called Arrhythmogenic Right Ventricular Cardiomyopathy (ARVC). The familial nature as well as the devastating outcome of the disease has led to significant interest in developing screening methods for asymptomatic dogs prior to use for breeding. Screening to develop a blood test is underway. However, although these screening methods will detect affected dogs, it appears that not all dogs that are affected will ever develop clinical signs.

Unfortunately, these dogs may be removed from showing or breeding programs because of their abnormal status. The objective of this study is to evaluate asymptomatic and syncopal Boxers for findings that may relate to the development and presence of symptoms, including ventricular premature couple number, grade of arrhythmia, left and right ventricular size and function, BNP, Troponin I and family history.

Active Grant No. 2303:

Molecular Analysis of Familial Ventricular Arrhythmias in the Boxer Dog

Principal Investigator:

Kathryn Meurs, DVM, PhD, DACVIM, Ohio State University

Sponsor(s):

American Boxer Charitable Foundation

Abstract: A heart muscle disease in the Boxer dog was initially documented in the 1980s and referred to as Boxer cardiomyopathy. Studies have confirmed that this is an inherited disease primarily characterized by an electrical disturbance in the heart that may lead to collapsing episodes and sudden death. There is increasing demand for a screening test that could be used to evaluate dogs for the disease before they are selected for breeding purposes. Unfortunately, many of the clinical abnormalities do not become apparent until the dog is several years old. Therefore, there is significant interest in developing a DNA test that could be performed before a dog is selected for breeding. The study proposed here is a continuation of a study in which 268 Boxers were evaluated by physical examination, echocardiography and ambulatory electrocardiography. Dogs have been classified as affected, equivocally affected or unaffecred; pedigrees and DNA samples have been collected. Three-generation families have been identified. Linkage and candidate gene analysis will now be performed using canine markers and these DNA samples. The identification of a genetic marker linked to familial ventricular arrhythmias will be the first step in the development of a DNA screening test.

Active Grant No. 2429:

The Assessment of Ejection Murmurs in the Boxer Dog

Principal Investigator:

Kathryn Meurs, DVM, PhD, DACVIM, Ohio State University

Sponsor(s):

American Boxer Charitable Foundation

Abstract: Subvalvular aortic stenosis (SAS) is a common, inherited birth defect of the heart. SAS often affects Boxers and impacts breeding programs. Severely affected dogs are at risk for heart failure, heart infection, and sudden death. Veterinarians usually identify SAS by listening for a heart murmur. In over 50% of Boxers, a murmur compatible with SAS is found, prompting sophisticated ultrasound imaging (echocardiography) and blood flow studies (Doppler). Even these tests may not distinguish a stressed or excited, but otherwise normal dog, from one with mild SAS. This uncertainty is a source of frustration to Boxer breeders. The proposed study explores causes of soft murmurs and increased blood velocities in Boxers. Extensive noninvasive ultrasound studies comparing affected and unaffected dogs are proposed. Furthermore, the origin of these soft murmurs is investigated in a subgroup of Boxers. In these clinical evaluations we will employ "gold standard" methods of X-ray contrast angiography (die), direct (catheter) measurement of blood flow in the heart, and recording of heart murmurs within the heart and blood vessels. We hope to answer the pivotal question: are these soft murmurs and increased blood velocities really due to SAS, or do they simply represent a normal physiologic event?

Active Grant No. 2620:

Determination of the Clinical Phenotype and Inherited Nature of Familial Subvalvular Aortic Stenosis in the Rottweiler Dog

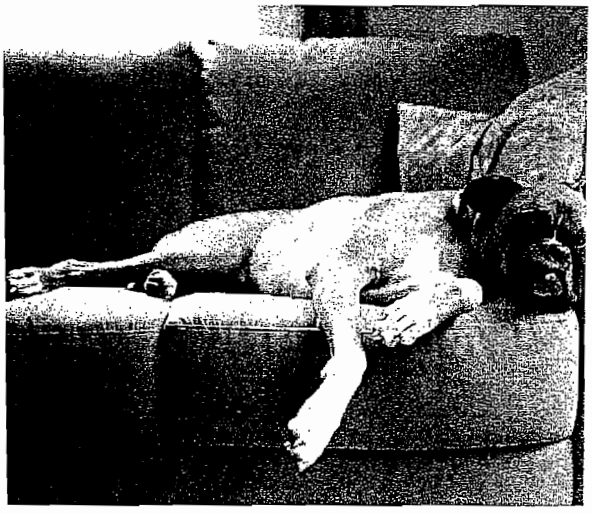
Principal Investigator:

Kathryn Meurs, DVM, PhD, DACVIM, Ohio State University

Sponsor(s):

Medallion Rottweiler Club, Rottweiler Health Foundation

Abstract: Subvalvular aortic stenosis (SAS) is a congenital heart disease characterized by a fibrous ridge located below the aortic valve. Affected dogs are at risk of developing heart valve infections, congestive heart failure or sudden death. This trend has been reported with increasing frequency in the Rottweiler. The defect has been shown to be inherited in the Newfoundland breed, however the inherited nature of the disease in other breeds of dogs, including the Rottweiler, is unknown. The objectives of this study are to define the clinical presentation of SAS in the Rottweiler, compile pedigrees with reference to defined clinical cardiovascular status and evaluate for specific modes of inheritance, and accumulate a databank of clinical information, pedigrees and DNA from Rottweilers affected with SAS and all surviving family members. This study will help define both the clinical attributes and inherited nature of the disease. Information obtained in this study will provide the background for developing both screening and treatment programs and provide the initial materials for molecular studies to be performed in the future.



Boxer

Pending Grant No. 276:

Microarray Analysis for Cardiac Gene Expression in German Shepherds with Sudden Death

Principal Investigator:

N. Sydney Moïse, DVM, MS, Cornell University

Sponsor(s):

American German Shepherd Dog Charitable Foundation

Abstract: Sudden death in dogs due to cardiac disease is common. Many of these dogs die because of abnormal beats of the heart. Such diseases are likely inherited in the dog. Breeds at risk for such a cardiac death include the Doberman Pinscher, Boxer, Great Dane, Irish Wolfhound, Afghan Hound, Newfoundland and the German Shepherd Dog (GS). To discover the genetic mutations that cause the diseases in each of these dogs will take many years of work. Research to identify the means of marking abnormal genes will help us to find the mutations. Even though the mutations will be different, research in one breed will help other breeds as we can use the gained information as we search the canine genome for the fatal inherited mistake. GS have an inherited propensity for sudden death due to the occurrence of abnormal heart beats that develop primarily during sleep or with certain anesthetic agents. We have the needed pedigrees from GS for our research. IN this proposal we put forth a comprehensive plan to used stored samples from GS that have died and their relatives so that we can identify potential abnormal genes and develop the markers for the most likely genes that could be involved in the disorder.

Pending Grant No. 357:

Characterizing Mitral Valve Disease in the Norfolk Terrier

Principal Investigator:

Sunshine M. Lahmers, DVM, Washington State University

Abstract: Although breeders, owners and veterinarians who work with Norfolk Terrier are suspicious that an early onset form of mitral valve disease exists in this breed there have been no published studies to characterize mitral valve disease in the Norfolk. The goal of the proposed study is to investigate the incidence, pattern of inheritance, progression, pathology and potentially the genetic basis of mitral valve disease in the Norfolk Terrier. This information will benefit the breeder, veterinarian and pet owner by providing the information necessary to make informed medical and breeding decisions. In addition, this study proposes the development of a canine cardiac gene array. This array has the potential to increase our understanding about a variety of cardiac disorders by providing a screening tool for expression of a subset of cardiac genes.

Pending Grant No. 360:

Genome Expression Profiling: Canine Cardiomyopathy and Degenerative Mitral Valve Disease

Principal Investigator:

Mark A. Oyama, DVM, DACVIM, University of Illinois

Abstract: Canine cardiomyopathy and degenerative valve disease have proven to be highly complex conditions, with multiple potential etiologies, elaborate and interrelated pathophysiologic mechanisms, and a diverse phenotypic expression. The analysis of such complex systems would benefit from a global assessment of gene expression. Because gene expression is the primary regulator of cell function, expression profiling in diseased subjects could provide valuable information about the response of the cell to injury, activity of physiologic pathways, and possible etiologies. Expression profiling may also enable the identification of diagnostic or prognostic markers, thereby improving the clinical management of disease. To this end, genomic microarrays represent an emerging technology that can assess the activity to profile the genome on a global scale. Using a newly developed canine gene microarray, we seek to profile genome expression in ventricular tissue of dogs with cardiomyopathy in mitral valve tissue in dogs with age-related mitral disease, and to compare the genomic expression in these populations with controls from an age and breed matched population. Genomic profiling will provide a molecular portrait of cardiomyopathy and degenerative valve disease.

INFECTIOUS DISEASE

Pending Grant No. 237:

Molecular Epidemiology of Ehrlichia and Bartonella spp. Infection in Golden Retrievers with Lymphoma

Principal Investigator:

Edward Breitschwerdt, DVM, North Carolina State University

Sponsor(s):

Golden Retriever Foundation

Abstract: Bartonella spp. are a group of related bacteria, most of which have only been discovered within the last 10 years. They are able to infect and survive inside cells, causing persistent infections in mammals. Infection with Bartonella spp., however does not always cause disease manifestations and for this reason, a positive blood test documenting infection with Bartonella spp. does not necessarily mean that Bartonella is the cause of an animal's disease. However, in people, there is growing evidence implicating Bartonella spp. as a cause of a broad spectrum of disease syndromes, and there is some evidence to support the potential that chronic Bartonella infection may contribute to the development of cancer. The purpose of this study is look for evidence of Bartonella infection in Golden Retriever dogs with lymphoma, as compared to a healthy control group. We will use standard serologic tests which are currently available for Bartonella spp. testing of dogs, but we will also use a newer, more broadly reaching method of molecular testing. This will allow us to test for a larger number of Bartonella spp. (even species that are currently unknown to medicine), and may potentially provide greater test sensitivity. As previous work from or laboratory has documented co-infection with B. vinsonii (berkhoffii) and Ehrlichia canis, another tick transmitted bacteria, we will test for both of these organisms in this study.

Active Grant No. 2610:

Molecular Approach to Determine the Spectrum of Rickettsial Disease in Dogs

Principal Investigator:

Edward Breitschwerdt, DVM, North Carolina State University

Abstract: Although Rickettsia rickettsii is a well-characterized cause of acute, severe and sometimes fatal Rocky Mountain spotted fever (RMSF) in dogs and people, the role of other Rickettsia species as a cause of disease in dogs is yet to be established. During the late 1990s, we developed a method using polymerase chain reaction assay, or PCR, to detect the presence of DNA of rickettsial organisms in patient blood samples. This PCR method was developed under the currently accepted assumption that R. rickettsii represents the only clinically relevant Rickettsia species inducing disease in dogs in the United States. Therefore, species differentiation was not deemed necessary. Based upon recent clinical, serologic, and PCR data derived from dogs by our research group, this assumption appears to have been inaccurate. Initial work will focus on determining the gene sequence of isolates previously obtained in tissue culture from clinically ill dogs, sequencing rickettsial DNA amplicons detected by current diagnostic methods, and developing PCR techniques that will differentiate R. rickettsii from other known Rickettsia species. We believe that this approach will reveal previously unrecognized pathogenic rickettsiae. Results will impact diagnostic, therapeutic and preventative strategies affecting the health of dogs in North America and perhaps throughout the world.

JOINT TRAUMA

Active Grant No. 2405:

Inhibition of Collagenolysis in Canine Cranial Cruciate Ligament During Rupture

Principal Investigator:

Peter Muir, BVSc, PhD, University of Wisconsin, Madison

Sponsor(s):

Great Pyrenees Club of America, Mastiff Club of America, National Amateur Retriever Club, Newfoundland Club of America Charitable Trust, Orthopedic Foundation for Animals

Abstract: The long-range goal of this work is to study tissue repair in the canine cruciate ligament and to determine what causes cruciate rupture. Our objective is to determine whether the presence of two enzymes, tartrate-resistant acid phosphatase and cathepsin K, causes excessive breakdown of collagen within the cruciate ligament, and weakening of the ligament. It is currently believed that excessive expression of this type of enzyme is an important factor causing cruciate rupture. Having determined whether these enzymes cause breakdown of collagen within the cruciate ligament, this knowledge will offer new insight into cruciate rupture in dogs and facilitate development of new treatments. To accomplish the objective of this application, we will determine whether these enzymes are released into the knee joint fluid in dogs with cruciate rupture. Using a tissue culture technique with pieces of ruptured ligament collected from surgical patients, we will also determine whether treatment of the ligament with enzyme inhibitors prevents excessive breakdown of ligament collagen. Upon completion of this work, we expect to have gained a detailed understanding of the role of these ligament-dissolving enzymes in cruciate rupture. We also expect that the results will lead to development of new medical treatments for cruciate rupture.

A .ve Grant No. 247:

The Study of the Genetics of Cranial Cruciate Ligament Disease in the Dog

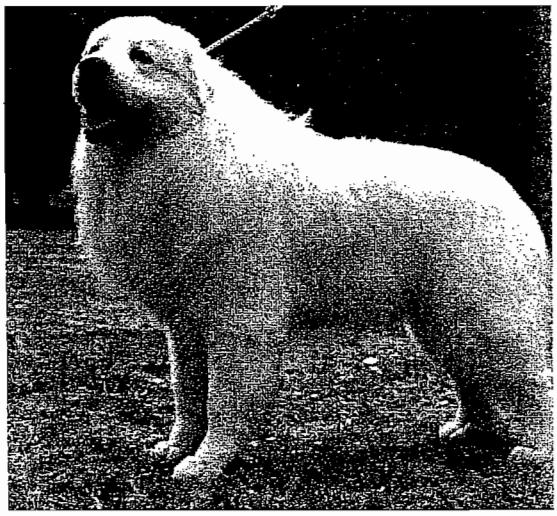
Principal Investigator:

Max Rothschild, PhD, Iowa State University

Sponsor(s):

Newfoundland Club of America Charitable Trust

Abstract: Cranial cruciate ligament disease (CCLD) is the cause of limping in nearly 20 percent of all dogs that are taken by their owners to veterinarians for lameness. CCLD causes instability in the knee, swelling and pain. Surgery to stabilize a torn CCL costs individual dog owners thousands of dollars and the dog owning public tens of millions of dollars each year and even with surgery, debilitating arthritis occurs and progresses. CCLD commonly occurs in particular breeds of dogs (e.g. Labrador Retriever, Rottweiler, and Newfoundland) while other breeds (e.g. Greyhound, German Shepherd) rarely develop this problem. When a disease is seen with increased frequency in particular breeds of dogs, this supports the probability that a disease, in this case CCLD, is hereditary. Using this information we have already collected pedigrees and genetic material (DNA) from normal and CCLD affected Newfoundlands. The pedigrees will be used to determine a pattern of inheritance (i.e. simple recessive, sex-linked) for CCLD. The DNA will be used to search for genetic markers that differ between normal and affected dogs and may serve as disease predictors. These markers will then allow identification of carriers of CCLD, and potentially reduction or elimination of CCLD from the dog population.



Great Pyrenees

KIDNEY DISEASE

Active Grant No. 2020:

Inheritance of Urinary Stone Formation in the Dalmatian

Principal Investigator:

Danika Bannasch, DVM, PhD,
University of California, Davis

Abstract: Dalmatians are unique among dogs since they excrete uric acid in their urine rather than allantoin like other dogs. Some male Dalmatians form bladder stones composed of urate. The stones can cause a blockage of the urethra preventing the dog from urinating, which is a life-threatening problem. After surgical removal of the urinary stones, medical treatment is available to prevent their reoccurrence. The treatment for Dalmatians that form stones requires lifelong medication and frequent visits to the veterinarian for urine testing. All Dalmatians regardless of line or the sex of the dogs produce uric acid in their urine, however only a subset of male Dalmatians has the stone formation problem. The goal of this project is to determine if there is an inherited component to the formation of urate stones in Dalmatians and determine the gene involved.

Active Grant No. 2219:

Longitudinal Clinical Study, Mode of Inheritance and Therapeutic Trial of Protein-Losing Enteropathy and Nephropathy in Soft Coated Wheaten Terriers

Principal Investigator:

Shelly Vaden, DVM, PhD,
North Carolina State University

Sponsor(s):

Soft Coated Wheaten Terrier Endowment Fund

Abstract: Soft Coated Wheaten Terriers (SCWT) are at risk for protein wasting diseases of the kidneys and intestines. Clinical signs vary but can be severe, even fatal. We demonstrated that the disease is associated with food allergies. We propose to continue the evaluation of our colony of dogs that are genetically predisposed to this disorder. Some of these SCWT already have the disease. Longitudinal evaluation of these dogs will allow us to characterize the early clinical signs, progressive nature, and mode of inheritance of this disease. These findings will allow for future development of a genetic marker and selective breeding programs aimed at elimination of this disorder from the SCWT population. Once dogs become overtly affected with this disease, we will enter them into a treatment trial, using methods known to be effective in food allergies. Information obtained from this trial will be invaluable in developing treatment regimens for affected SCWT in the general population. The youngest dogs in our colony have been weaned directly to a unique diet to determine if diet can be used to prevent disease. Results from these studies have applicability to other breeds of dogs that are at risk for food allergies and/or specific gastrointestinal and renal diseases.

Active Grant No. 2458:

Molecular Genetic Characterization of Canine Cystinuria for the Development of Carrier Tests

Principal Investigator:

Paula S. Henthorn, PhD,
University of Pennsylvania

Sponsor(s):

American Bullmastiff Association, Bulldog Club of America Charitable Health Fund, Inc., Mastiff Club of America, Scottish Deerhound Club of America

Abstract: Cystinuria is an inherited disease that has been long recognized in dogs and has been documented in nearly 70 breeds. Our previous studies made significant progress with a form of cystinuria that is clinically manifested at an early age such that we can go from seeing an affected animal in the clinic to a DNA-based test in a matter of weeks. We now have access to sufficient pedigrees to make similar progress for cystinuria that presents at a later age, and probably represents a more common form of the disease. Genetic testing is even more important for a disease that has a later age of onset.

Active Grant No. 2462:

Molecular Genetic Study of Fanconi Syndrome in Basenjis

Principal Investigator:

Gary S. Johnson, DVM, PhD,
University of Missouri

Sponsor(s):

Basenji Club of America, Inc. & Basenji Health Endowment

Abstract: The Basenji Club of America considers Fanconi Syndrome the problem of highest priority in the 2001 Parent Club Survey. Our long-term goals are to identify the mutation responsible for Fanconi Syndrome in Basenjis and to use this information to design a DNA-based test for carriers of this disease. This test would enable Basenji breeders to avoid producing future generations of Basenjis with Fanconi Syndrome. Our specific objectives are (1) to isolate DNA from Basenjis with Fanconi Syndrome and their close relatives; (2) to evaluate variant sequences in mitochondrial DNA from an affected Basenji as possible causes of Fanconi Syndrome; (3) to evaluate a region of canine chromosome 30 that corresponds to a chromosomal region responsible for human Fanconi Syndrome locus and, if necessary, to extend the evaluation to cover the entire chromosome; and (4) to establish an internet website for recruiting DNA samples and disseminating information about Fanconi Syndrome and its management. The proposed experiments should localize the Basenji Syndrome locus if it is in the mitochondrial genome or on canine chromosome 30. If the Fanconi locus is elsewhere in the nuclear genome, the proposed experiments should test the feasibility of finding it by whole-genome mapping in future studies.

Active Grant No. 306:

Effect of Cisplatin on Renal Function in Dogs with Spontaneous Neoplasia

Principal Investigator:

Lisa G. Barber, DVM, DACVIM,
Tufts University

Abstract: Cisplatin is a widely used chemotherapy important in the management of many canine cancers. The dose-limiting toxicity of this drug is renal injury. Nevertheless, our ability to detect renal toxicity has been limited to measurement of urine specific gravity and serum creatinine concentrations, which are very insensitive until significant nephron loss has occurred. This may lead to excessive toxicity, specifically irreversible renal failure, in some dogs and suboptimal dosing in others. We propose to use iohexol clearance as a relatively simple, noninvasive method for estimating glomerular filtration rate (the most sensitive measurement of renal function) before and after three cycles of cisplatin chemotherapy in order to quantify changes in renal function. In addition, testing the urine for minute amounts of albumin throughout the course of therapy will be investigated as a simple marker of renal injury. The goal is to quantify changes in renal function due to chemotherapy in an effort to optimize the treatment of canine cancers by improving our ability to identify dogs at risk of renal failure from cisplatin therapy as well as to determine whether intensification of chemotherapy may be possible in other dogs.

Active Grant No. 311:

A Continued Molecular Genetic Study of Fanconi Syndrome in Basenjis

Principal Investigator:

Gary S. Johnson, DVM, PhD, University of Missouri

Abstract: Canine Fanconi Syndrome is an inherited adult-onset kidney disease, common among Basenjis. It can be fatal if untreated. We want to identify the mutation responsible for Fanconi Syndrome in Basenjis. If successful, we will be able to devise a DNA marker assay to identify affected dogs so they can receive early treatment and to identify carriers so Basenji breeders can avoid producing affecteds in future generations. Two recent scientific reports may help us identify the gene for canine Fanconi syndrome. A study of kidneys in transgenic mice with Fanconi Syndrome found substantial decreases in the activity of the SLC17A1 gene. In another study, the cause of inherited human Fanconi syndrome was located to a small region of human chromosome 15 containing only about 40 genes. Genes from this region of human chromosome 15 are found on canine chromosome 30. We plan to determine if the mutation responsible for Fanconi syndrome in Basenjis occurs in the canine SLC17A1 gene or in the target region of canine chromosome 30. If we do not find the Fanconi syndrome mutation in either of these places, we will evaluate the feasibility of searching for the Fanconi syndrome mutation by whole-genome mapping.

LIVER DISEASE

Active Grant No. 2279:

Longitudinal Field Studies of Families of Soft Coated Wheaten Terriers Affected with Protein-Losing Enteropathy and/or Protein-Losing Nephropathy and the Foundation of a DNA Bank

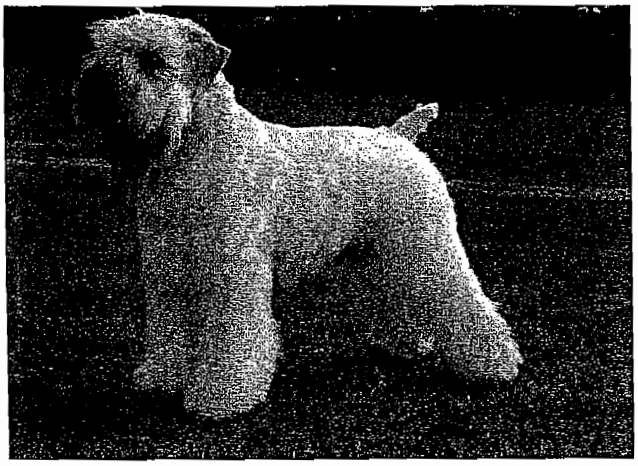
Principal Investigator:

Meryl Littman, VMD, University of Pennsylvania

Sponsor(s):

Soft Coated Wheaten Terrier Club of America, Inc.

Abstract: An inherited predisposition for diseases causing protein loss from the intestine (protein-losing enteropathy, PLE) and kidney (protein-losing nephropathy, PLN) has been found in Soft Coated Wheaten Terriers. Dogs often show no signs of illness until middle age, and by then many dogs have been bred. Tissue biopsies commonly show inflammatory bowel disease and immune-mediated glomerulonephritis. The mode of inheritance is not proven, and an environmental trigger may be necessary for expression. After diagnosis, most dogs succumb to their disease within year despite therapy, and some die suddenly. Currently there is no predictive test to determine which animals may later become ill (affected), which may be passing on at-risk genes (carriers), and which animals are normal. By studying families of affected dogs and monitoring individuals annually with screening tests to detect early signs of abnormalities, we will study the significance of those changes, the clinical course of these diseases and we will attempt to alter the course with diet changes and medications. We will be able to store and begin to study DNA from affected animals, their families, and geriatric healthy animals, in an effort to find a genetic test to help identify affected, at-risk, and normal individuals.



Soft Coated Wheaten Terrrier

NEUROLOGICAL DISEASE

Active Grant No. 2232:

Cricopharyngeal Dysphagia in the Golden Retriever

Principal Investigator:

Margret Casal, PhD, University of Pennsylvania

Sponsor(s):

Golden Retriever Foundation

Abstract: Cricopharyngeal Dysphagia is a swallowing disorder in dogs that is apparent at the time of weaning. It may result in failure to thrive, regurgitation, nasal discharge, pneumonia or even death resulting from recurrent pneumonia. Cricopharyngeal dysphagia has been described in several dog breeds and is suspected to be an autosomal recessive disease in these breeds. It has come to our attention that the disease has been recently described in Golden Retrievers, where the disease is suspected to be a dominant trait with variable expression. The objective of this study is to determine the mode of inheritance and to collect DNA samples to develop a genetic test in the future. To determine the mode of inheritance, careful diagnosis of the presence of absence of cricopharyngeal dysphagia using fluoroscopy is required, as there may be some dogs with a very mild, almost undetectable swallowing disorder. The ultimate goal is to eradicate this devastating disease from the Golden Retriever population.

Active Grant No. 2636:

Characterization of Cerebellar Cortical Degeneration in American Staffordshire Terriers

Principal Investigator:

Natasha Olby, Vet MB, PhD, North Carolina State University

Sponsor(s):

Staffordshire Terrier Club of America

Abstract: An inherited degenerative disease affecting the cerebellum has recently been recognized in adult American Staffordshire Terriers. The cerebellum controls coordination of movement, and as a result of degeneration of cerebellar neurons, affected dogs have progressive difficulty with coordination and balance. Signs of the disease start from two to six years of age and are subtle at first, but progress at varying rates until the dog is unable to walk. The late onset of signs means that dogs can be bred widely before the disease manifests itself, and development of a

diagnostic test that can be used to screen dog. the disease is therefore extremely important. The aims of this study are to describe in detail the clinical and pathological characteristics of this disease, to determine its mode of inheritance, to bank DNA from affected and unaffected dogs for future use, and to identify possible candidate genes for the disease. Affected dogs will be recruited by disseminating information in the disease to owners and breeders of American Staffordshire Terriers with the help of the American Staffordshire Terrier Club. The clinical information and DNA collected in this study will form the basis for future work on identifying the mutation causing this disease. Our ultimate aim is to develop a diagnostic test for cerebellar cortical degeneration in American Staffordshire Terriers.

Active Grant No. 323:

Mapping the Gene Responsible for Hypomyelination in Weimaraner Dogs

Principal Investigator:

Ian Duncan, BVMS, PhD,
University of Wisconsin, Madison

Sponsor(s):

Weimaraner Club of America

Abstract: The aim of this project is to map the gene responsible for a central nervous system (CNS) disorder in the Weimaraner breed. This disorder, which appears to be inherited as a single gene defect in an autosomal recessive trait, is widespread throughout North America. Affected dogs develop a severe tremor at ten to fourteen days with consequent high morbidity. Many pups show difficulty in ambulating and nursing, requiring intensive care. Although the tremor in many pups will lessen with time, some are euthanized due to the severity of signs at the time of diagnosis. Affected pups are also not suitable for breeding or the show ring. An identical disorder is also seen in Chow Chows. The long-term goal is to provide a screening test for heterozygotes and find the gene, thus helping to lower the prevalence of the disease. To begin with, we will concentrate on the Weimaraner as we have extensive pedigrees and DNA for this breed. Linkage analysis with microsatellite markers will be applied to map the location of the gene. Then, the linked marker(s) could serve as an indicator of the existence of the disease related allele in the family.

ORTHOPEDIC DISEASE

Active Grant No. 2460:

Molecular Genetic Characterization of Mucopolysaccharidosis Type VI for the Development of a Carrier Test and Relationship to Legg-Calve-Perthes Disease

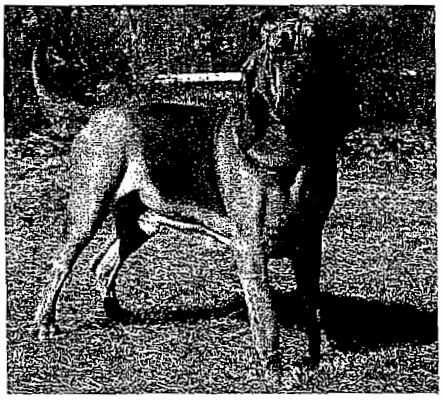
Principal Investigator:

Urs Giger, PD, Dr. Med. Vet.,
University of Pennsylvania

Sponsor(s):

Helen Chrysler Greene,
Miniature Pinscher Club of America, Inc.,
Westie Foundation of America, Inc.

Abstract: Legg-Calve-Perthes disease is an orthopedic abnormality causing pain and decreased hip motion. The cause of this disease is unknown, but it is likely to be multi-factorial. It is common in smaller breeds of dog, including the Miniature Pinscher. Similarly, mucopolysaccharidosis type VI (MPS VI) is a disease that causes hip and patellar abnormalities. It, too, has been recognized as occurring with increased frequency in the Miniature Pinscher and some other breeds such as Miniature Schnauzers, Welsh Corgis, and Chesapeake Bay Retrievers. It is an autosomal recessively inherited disease caused by a deficiency in the enzyme arylsulfatase B. When the normal canine arylsulfatase gene sequence is known, the mutation responsible for MPS VI in the Miniature Pinscher as well as other breeds can be determined and it will be possible to develop genetic tests. Since MPS VI and Legg-Calve-Perthes disease have both been diagnosed in Miniature Pinschers and both cause skeletal defects, we hypothesize that at least a subset, if not all, Miniature Pinschers with Legg-Calve-Perthes disease in fact have MPS VI. We have developed a genetic test for MPS VI in the Miniature Pinscher and propose to develop a test in other breeds and to identify individuals with Legg-Calve-Perthes disease to see if they test as normal, carriet or affected in the MPS VI test.



Bloodhound

Active Grant No. 2616:

Molecular Analysis of Contributory Factors of Osteoarthritis in Canine Hip Dysplasia

Principal Investigator:

Alpana Ray, PhD,
University of Missouri, Columbia

Sponsor(s):

American Bloodhound Club, Basenji Club of America, Inc. & Basenji Health Endowment, Golden Retriever Foundation, Newfoundland Club of America Charitable Trust, Norwegian Elkhound Association of America, Inc., Rottweiler Health Foundation, St. Bernard Club of America

Abstract: Hip Dysplasia is a common disease of dogs that will ultimately lead to osteoarthritis (OA), a serious debilitating condition, which, at present, is treated by symptomatic management of pain. Accidental injuries also lead to the development of OA. Cartilage degeneration is fundamental to the pathogenesis of OA. We propose to study the transcriptional control of MMP-1, a major enzyme involved in the degradation of articular cartilage. Expression of MMP-1 gene and the corresponding protein is markedly increased under osteoarthritic condition. Because cytokines like IL-1 and TNF-α increase expression of MMP-1 and biomechanical factors also influence its expression in osteoarthritic, unstable joints, the objectives are to understand what components of the promoter region of canine MMP-1 gene are influenced by these factors. At present no data is available on canine MMP-1 gene regulation. This proposal is aimed towards understanding the regulation of canine MMP-1 gene expression in response to biomechanical stress and cytokines by isolating canine MMP-1 gene; identifying the regulatory elements in the promoter responsive to biomechanical stress and cytokines; and analyze MMP-1 expression in chondrocytes of articular cartilage from normal and osteoarthritic dogs with the intent to develop novel therapeutic drugs to combat this disease.

Active Grant No. 212:

Development of a New Resource for Positional Cloning of Hip Dysplasia Genes: A High Density SNP Map of Canine Chromosome One

Principal Investigator:

Elaine Ostrander, PhD, NHGRI; Francis Galibert, PhD; CNRS, Rennes, France

Sponsor(s):

Collie Health Foundation, Golden Retriever Foundation, Newfoundland Club of America Charitable Trust, Orthopedic Foundation for Animals

Abstract: Genome maps are essential for identifying disease genes. The current canine map is composed of several thousand markers, and as a result, has proven useful for localizing several disease genes. A much more highly refined map is necessary if we are to actually clone disease genes of interest (not just identify their location) and, subsequently, develop appropriate genetic tests. This proposal aims at developing the technology to do that, focusing on a test case on chromosome one, where two genes associated with hip dysplasia in the Portuguese Water Dog have been mapped. The goal is to determine the location and linear order of many hundred small variants called "SNPs" throughout chromosome one. The resulting SNP map can then be used 1) by ourselves to identify the culprit gene(s) in PWD and 2) by anyone studying hip dysplasia in any breed of dog to determine if the same chromosomal region that is mutated in the Portuguese Water Dog is similarly responsible for disease in other breeds.

Active Grant No. 325:

A Candidate Gene Approach for Skeletal Dysplasia in the Newfoundland, Chesapeake Bay Retriever and Nova Scotia Duck Tolling Retriever

Principal Investigator:

Danika Bannasch, DVM, PhD, University of California, Davis

Abstract: Canine skeletal dysplasias are a poorly classified group of heritable defects leading to disproportionate dwarfism and cartilage abnormalities. The purpose of this study is to examine the type X collagen gene (COL10A1) for defects that could lead to skeletal dysplasia in the Newfound-land, Chesapeake Bay Retriever and Nova Scotia Duck Tolling Retriever. These breeds suffer from an inherited defect of endochondral ossification with phenotypic similarities to human Schmid type Metaphyseal Dysplasia. Several mutations in the COL10A1 gene have been found that lead to the human disease, as well as metaphyseal dysplasia in domestic pigs. The disbursement of the Newfoundland and Chesapeake disease trait throughout several lines suggests that the mutation may have been introduced into the Chesapeake breed during early matings with Newfoundlands. The COL10A1 gene will be investigated as a candidate for the skeletal dysplasia that is segregated through these three breeds.

PROGRESSIVE RETINAL ATROPHY (PRA)

Active Grant No. 2442:

Investigation of Candidate Loci for Progressive Retinal Atrophy

Principal Investigator:

Simon Petersen-Jones, DVM, PhD, Michigan State University

Sponsor(s):

American Belgian Tervuren Club, Inc., Belgian Sheepdog Club of America, Inc., Collie Health Foundation, Papillon Club of America, Tibetan Terrier Club of America

Abstract: Progressive retinal atrophy (PRA) is a common cause of blindness in purebred dogs. It is an inherited disease and there are several different forms resulting from defects in different genes. Most forms are due to a defect in a single gene and are inherited in an autosomal recessive manner. We have been investigating genes that could cause this disease and seeing if they are the cause of PRA in several breeds of dog. In one breed we have evidence that the PRA is caused by a defect at a genetic locus already known to be responsible for PRA in several other breeds. We have shown that this locus is not involved in PRA in the other breeds. We wish to investigate a further 50 genes to see if they are involved in PRA in any breeds. If we identify the gene defect that causes the disease in one or more breeds we will develop a DNA test for the defective gene. Such a rest will allow breeders to eradicate PRA from their breed.

REPRODUCTION

Active Grant No. 2416:

Systemic Inflammatory Response Syndrome in Canine Pyometra

Principal Investigator:

Boel Fransson, DVM, MS, Washington State University

Sponsor(s):

Bulldog Club of America Charitable Health Fund, Inc., Chow Chow Club, Inc., English Setter Association of America

Abstract: Early recognition and aggressive treatment of the Systemic Inflammatory Response Syndrome (SIRS) is imperative to avoid a fatal outcome. SIRS is not a disease in itself but is considered as the overwhelming response of the body to a cascade of inflammatory mediators, released after major trauma, pancreatitis, snake bite, heat stroke or bacterial infection of different organs. Pyometra, a common disease in intact female dogs, is considered to be associated with SIRS. Our cooperation with the Swedish University of Agricultural Science, where female dogs are not routinely spayed, gives us an unique opportunity to receive large numbers of samples from dogs with pyometra. Blood samples from 50 dogs have been successfully transported to WSU. Detection of SIRS today is limited to recognition of clinical criteria defined for SIRS, such as temperature, heart rate, and white blood cell count, but these criteria are not very specific. The proposed study will test if cytokine and acute phase protein levels in the blood are more specific detectors of SIRS than clinical criteria, which could lead to a more accurate and rapid detection of this syndrome. Rapid recognition would enable institution of aggressive treatment earlier in the disease, likely leading to reduced suffering and mortality of these dogs.

Papillon

Pending Grant No. 369:

Analysis of the Ultrastructure of the Canine Zona Pellucida

Principal Investigator:

Shirley J. Wright, PhD,
University of Dayton

Abstract: Our objective is to assess the ultrastructure and molecular composition of the canine zona pellucida (ZP), and examine canine sperm interactions with the ZP. The ZP is the extracellular matrix that surrounds both immature and ovulated oocytes. Sperm must bind to and interact with the ZP for successful fertilization. In other mammals, the ZP is a promising contraceptive target. While contraceptive antibodies targeted against ZP proteins have been developed, they also induce a T cell response in mice that can lead to autoimmune ovarian disease. Clearly there is need for better contraceptive methods. Because of many differences in canine reproductive physiology compared to other mammals, it has not been possible to directly extrapolate reproductive information from other species and apply it directly to dogs. The need for canine-specific, basic research is critical before new applied contraceptive methods can be achieved. The ultimate goal of our research is to create a safe, effective long-acting contraceptive that is reversible, inexpensive, and feasible to administer with little or no side effects.

West Highland White Terrier

RESPIRATORY DISORDERS

Active Grant No. 2401:

Characterization of the Clinical Features of Idiopathic Pulmonary Fibrosis in the West Highland White Terrier

Principal Investigator:

Brendan M. Corcoran, MVB, PhD,
University of Edinburgh, Scotland

Sponsor(s):

Westie Foundation of America, Inc.

Abstract: A chronic respiratory condition has been noted for some time in West Highland White Terriers, and typically affects middle to old-aged dogs resulting in reduced exercise ability, respiratory difficulty and coughing. Eventually the condition results in respiratory failure and the dogs have to be euthanized. The condition develops slowly and consequently the changes are often assumed by the pet owner to be attributable to normal aging. However, on chest auscultation distinct crackling sounds are heard which are indicative of significant lung abnormality. Many veterinarians are aware of this condition and often refer to it as Westie Lung Disease. However, we have recently described this disease in more detail and have evidence to suggest it is caused by scar tissue formation within the lung. The underlying cause is unknown and so we have termed the condition Idiopathic Pulmonary Fibrosis. Because we have limited information on this disease, the aim of our proposed study is to investigate the clinical aspects of this disease with a view to improving understanding of the disease and improve diagnostic accuracy. With that information we can move forward with studies to investigate the cause and explore novel therapeutic approaches to management of the disease.

Active Grant No. 2463:

Evaluation of Pharyngeal Function in Dogs with Laryngeal Paralysis Prior to and After Unilateral Arytenoid Lateralization

Principal Investigator:

MaryAnn Radlinsky, DVM, MS,
University of Georgia

Abstract: Laryngeal paralysis causes difficult breathing, which significantly limits activity and can be life threatening in many large breeds of dogs. Surgical treatment maintains one side of the larynx, or voice box, in an open position. Coughing and gagging associated with eating and drinking and aspiration pneumonia may be present at the time of diagnosis or can develop after surgery. The complication rate associated with surgery in general has been reportedly low, but a recent publication quoted a 34% complication rate, with 28% complication rate following the most common surgical method. The purpose of this study is to determine if swallowing function is abnormal in dogs with laryngeal paralysis and to determine if surgery worsens this condition, thereby increasing the risk of aspiration pneumonia. Real-time radiographs of swallowing, endoscopy and evaluation of laryngeal muscle activity will be used to evaluate laryngeal and pharyngeal function in dogs affected with laryngeal paralysis prior to and after surgical correction. We will compare these results to young, healthy, large breed dogs and older large breed dogs that have no signs of respiratory or swallowing disease.

Pending Grant No. 425:

Determination of Intraluminal Nitinol Stent Size for the Treatment of Tracheal Collapse in Dogs

Principal Investigator:

Gretchen K. Sicard, DVM,
Kansas State University

Abstract: Tracheal collapse is a devastating disease that commonly affects middle-aged small and toy breeds, especially the Yorkshire Terrier. Current surgical treatment options result in significant morbidity with success rates of 40 to 85 percent. Intraluminal stenting is a new, less invasive surgical approach that is presented for the treatment of tracheal collapse to reduce the incidence of complications and to increase success rates. Limited studies using various types of intraluminal stents in dogs have reported complications including stent migration, stent shortening, stent collapse, cough, and infection. The objective of this project is to evaluate the use of intraluminal nitinol stents in clinical cases of tracheal collapse in dogs with greater than 50 percent reduction in tracheal lumen size and in dogs that fail medical management.

SEARCH AND RESCUE

Active Grant No. 2336:

Medical Surveillance of Dogs Deployed to the World Trade Center and the Pentagon

Principal Investigator:

Cynthia Otto, DVM, PhD,
University of Pennsylvania

Sponsor(s):

American Kennel Club, Geraldine Rockefeller Dodge Foundation, Golden Retriever Foundation, Nestle Purina PetCare, PetCo Foundation, Veterinary Pet Insurance Company

Abstract: September 11, 2001, will live on in the memory and psyche of the American people. These events may also alter the lives of the hundreds of dogs and their handlers that served in a time of disaster. Federal (FEMA) Urban Search and Rescue Teams, police and private search dog handlers were involved in the search mission. The dogs were exposed to numerous hazardous materials. Although the acute medical problems were limited, it is impossible to predict the long-term effects of this disaster on the health and behavior of the dogs and the mental health of their handlers. In order to identify problems, we will perform intensive surveillance of the FEMA Team dogs and survey monitoring of the remainder of dogs. The intensive monitoring will include blood work (for evidence of infection, toxic injury and cancer) and chest radiographs over the next three years. Behavior and activity information will be collected at each time period for all dogs. The medical and behavior changes in the search dogs will be compared to controls to determine the lasting effects of this disaster and its response. Psychological effects on the FEMA dog handlers will also be monitored and interactions with the medical and behavioral effects of the dogs will be evaluated.

Active Grant No. 2337:

Assessment of Injuries, Environmental Toxins and Anthrax Exposure in NYPD Search and Rescue and Bomb Detection Canines During World Trade Center Relief Efforts

Principal Investigator:

Philip R. Fox, DVM, Animal Medical Center

Sponsor(s):

American Kennel Club, Geraldine Rockefeller Dodge Foundation, Nestle Purina PetCare, PetCo Foundation, Veterinary Pet Insurance Company

Abstract: Terrorist events of September 11, 2001, caused devastation of extraordinary scale and magnitude. There is little information in the scientific literature that speaks to the risks or medical consequences to search and rescue dogs exposed to environmental toxicities resulting from massive building collapse and incineration, and bioterror agents such as anthrax. We intend to identify and describe acute and chronic injuries, detect environmental-related toxicities, screen for zoonotic disease (anthrax), and assess future wellness and health risks of New York Police Department working patrol canines associated with the WTC disaster relief efforts. This knowledge will greatly facilitate current and future plans for emergency preparedness and management.

Active Grant No. 377:

Management Practices and Descriptive Epidemiology of Morbidity and Mortality of Police Work Dogs

Principal Investigator:

Jeff Bender, DVM, MS,
University of Minnesota

Abstract: This project will describe the management practices and epidemiology of morbidity and mortality of police work dogs (PWD). The study population will consist of 500 work dogs whose handlers are members of the North American Police Work Dog Association (NAPWDA). This telephone administered survey and examination of training and medical records will identify current management practices employed by handlers and the prevalence of work-related injury and death in these dogs.

SKIN DISEASE

Active Grant No. 2290:

Mapping Canine X Chromosome Linked Alopecia

Principal Investigator:

Gary S. Johnson, DVM, PhD,
University of Missouri, Columbia

Sponsor(s):

American Pomeranian Club, Inc., Anonymous, Pomeranian Philanthropists

Abstract: Many young Pomeranians develop a luxurious puppy first hair coat that fails to shed and is not replaced by an adult coat. As the puppy coat ages it breaks off and falls out and can result in a dog that is hairless over much of its body. This disease is sometimes called black skin disease, coat funk or woolly coat. It also occurs in Keeshonden and Alaskan Malamutes. Although females can have the disease, it is much more common in males. This suggests, but does not prove, that the mutation responsible for the disease is on the X chromosome. We propose to determine if a DNA marker from the canine X chromosome associates with the disease. If so, this marker could then be used to distinguish genetically normal puppies from puppies that are likely to develop the disease. This marker could also identify female puppies that will not develop the disease but are likely to pass the disease on to the next generation.

Active Grant No. 294:

Enhancement of Current Background Information and DNA Material Necessary for the Future Development of a Molecular Genetics Study in Collies and Shetland Sheepdogs with Dermatomyositis

Principal Investigator:

Christine Rees, DVM, DACVD,
Texas A&M University

Sponsor(s):

Collie Health Foundation

Abstract: Dermatomyositis a devastating disease of the skin and/or muscle in Collies and Shetland Sheepdogs. The genetics of this medical problem is not well characterized. The mode of inheritance is known in Collies with DM but not in Shetland Sheepdogs. Analyzing pedigrees of DM affected and DM non-affected dogs is necessary to try to determine the mode of inheritance in Shetland Sheepdogs. Sufficient numbers of pedigrees from DM affected and DM non-affected Shetland

Sheepdogs need to be collected in order for be able to achieve this goal. In addition, the development of a blood test to determine whether a dog has DM or not would also be beneficial. In order to develop such a test, we need adequate amounts of extracted DNA from both DM affected and DM affected dogs. Only after an adequate sample size of DNA from these two groups of dogs is collected will we be able to move forward with our research to try to find the gene marker(s) for DM that can be used to make a DM blood test.

Active Grant No. 338:

Does Melatonin Result in Hair Regrowth in dogs with Follicular Arrest (Alopecia X) by Blocking Estrogen Receptors on Hair Follicles?

Principal Investigator:

Linda Frank, DVM, DACVD, University of Tennessee

Abstract: Melatonin has been shown to help re-grow hair in approximately 60% of Pomeranians with follicular arrest. We hypothesize that melatonin works by inhibiting estrogen receptors on hair follicles. Sixteen neutered Pomeranians will be enrolled. Dogs will be evaluated by veterinarians and not necessarily by the principal investigator. They will be diagnosed with follicular arrest by clinical signs and ruling out hypothyroidism and hyperadrenocorticism. A biopsy will be taken from an alopecic area. The histopathology should support the diagnosis of follicular arrest and eliminate diseases that could mimic this condition (sebaceous adenitus, color dilution alopecia, etc.). A second biopsy will be obtained from a similar location after 3 months on melatonin. The biopsies will be evaluated for number of hair parameters. Immunohistochemical detection of estrogen receptors will also be performed. Using morphometric analysis, we will compare estrogen receptor numbers after 3 months of melatonin to baseline for each dog and numbers of estrogen receptors in dogs with hair regrowth on melatonin to those that did not regrow hair.

Active Grant No. 344:

Tacrolimus 0.1% Ointment in the Treatment of Canine Familial Dermatomyositis

Principal Investigator:

Christine Rees, DVM, DACVD, Texas A&M University

Abstract: The goal of this pilot study is to determine whether tacrolimus 0.1% ointment would be beneficial (improvement of clinical signs) in the treatment of canine familial dermatomyositis (DM). A total of 8 dogs with clinical signs and biopsy findings, which are consistent with DM, will be included. Dogs will be monitored at monthly intervals for a 3-month treatment period. Photographs, measurements and scoring of skin lesions will be taken during the initial visit and during each of the monthly recheck visits. A clinical scoring system will be used and the statistical significance between the before and after treatment scores will be determined. Blood work (complete blood counts and serum chemistries) and urinalysis will be performed at the beginning and at each of the monthly visits. Any changes in clinical pathology parameters will be nored.

Pending Grant No. 389:

PCR-Based Detection of Micro-Organisms in Dogs with Lymphoplasmacytic Rhinitis

Principal Investigator:

Lynelle R. Johnson, DVM, PhD, University of California, Davis

Abstract: In our hospital, lymphoplasmacytic rhinitis (LPR) is the third most common cause of nasal discharge second only to nasal neoplasia and nasal aspergillosis. Early studies that reported treatment response in a small number of dogs with LPR suggested that the disorder was immune-mediated or allergic in origin and that steroid therapy was curative. (Burgener, Tasker) Currently, most dogs with LPR are non-responsive to steroid therapy but some are variably responsive to doxycycline or macrolides, suggesting that certain microbes may be involves in the pathogenesis of disease. We propose to initiate investigations into the roles of microorganisms in dogs with LPR. We will use detection and quantization of microbial DNA in nasal biopsies from dogs diagnosed with LPR and will compare these to levels found in dogs with neoplasia or nasal aspergillosis. TaqMan polymerase chain reaction (PCR) technology will be used to document and quantify biopsies of dogs. Information gained from this study will provide valuable insights into the microorganisms that might participate in chronic LPR in dogs and will provide a rationale for the use of anti-microbial therapy in control of clinical disease.

STORAGE DISEASE

Pending Grant No. 198:

Hereditary Ceroid Lipofuscinosis in Tibetan Terriers

Principal Investigator:

Martin Katz, PhD, University of Missouri

Sponsor(s):

Tibetan Terrier Club of America

Abstract: Ceroid-Lipofuscinosis (CL) is an inherited disorder that occurs in a number of dog breeds. This disease is particularly prevalent in Tibetan Terriers. In CL the retina and brain slowly degenerate, resulting in symptoms that include increased nervousness, loss of coordination, loss of training, decreased ability to see in dim light, bumping in to objects or barriers, seizures, increased aggressiveness, and difficulty going up or down stairs. The symptoms eventually become so severe that most affected dogs are euthanized in the later stages of the disease. Dogs only develop CL if they inherit two defective copies of the gene involved in this disease. Carriers, with only one defective copy, show no symptoms, but can pass the defective gene on to their offspring. Because of our inability to identify carriers, and because symptoms do not appear until 4-5 years of age, it will be almost impossible to eradicate CL from Tibetan Terriers by selective breeding until we can screen each dog for the presence of the gene defect. The goal of the proposed research is to identify the gene defect responsible for CL in Tibetan Terriers, and to develop a test to identify the presence of this gene defect in puppies.

THYROID DISEASE

Active Grant No. 2434:

Recombinant Thyrotropin (TSH): Standard for the Next Generation of Canine TSH Immunoassays with Improved Sensitivity

Principal Investigator:

Duncan Ferguson, DVM, PhD, University of Georgia

Sponsor(s):

Airedale Terrier Club of America, Akita Club of America, Inc., American Belgian Malinois Club, American Boxer Charitable Foundation, American German Shepherd Dog Charitable Foundation, Borzoi Club of America, Clumber Spaniel Club of America, Collie Health Foundation, Dalmatian Club of America Foundation, Inc., English Setter Association of America, Golden Retriever Foundation, Italian Greyhound Club of America, Keeshond Club of America, Komondor Club of America, Miniature Pinscher Club of America, Inc., Norwegian Elkhound Association of America, Inc., Petit Basset Griffon Vendeen Club of America, Portuguese Water Dog Foundation, Rhodesian Ridgeback Club of the United States, Scottish Terrier Club of America Health Trust Fund

Abstract: Hypothyroidism, a failure of the thyroid gland, is the most common hormonal abnormality in dogs, causing a variety of medical problems in many breeds, including hair loss and skin infections. The measurement of serum levels of the pituitary hormone thyrotropin (TSH) has been used as a reliable and sensitive screening test for thyroid glandular insufficiency in human medicine for many years, but the "first generation" assays for canine TSH (cTSH) are missing as many as 1 out of 4 cases of hypothyroidism, resulting in no improvement in diagnostic sensitivity compared to total T4 measurement. Furthermore, the available assays have not been sensitive enough to distinguish low values of cTSH from those in the normal range. Toward the goal of improving current and future immunoassay sensitivity based upon a pure recombinant canine TSH (cTSH) hormone standard, our laboratory has succeeded in cloning and sequencing the two peptide subunits of canine TSH and have expressed them in small quantities. Using techniques recently developed in our parallel work on equine TSH, we plan to express and purify recombinant canine TSH in high quantities and validate its use as a pure immunoassay standard to facilitate its worldwide use.

Active Grant No. 2447:

Genetic Determinants of Susceptibility to Hypothyroid Disease in Dogs

Principal Investigator:

George Happ, PhD, University of Alaska, Fairbanks

Sponsor(s):

American Miniature Schnauzer Club, Inc., Bull Terrier Welfare Foundation, Bulldog Club of America Charitable Health Fund, Inc., Collie Health Foundation, Golden Retriever Foundation, Great Dane Club of America, Rhodesian Ridgeback Club of the United States, Scottish Terrier Club of America Health Trust Fund

Abstract: Canine hypothyroid disease is very similar to Hashimoto's disease in humans, which has been shown to be associated with human MHC genes. If we can show in hypothyroid dogs a similar association with canine MHC genes, these could provide useful genetic markers for selective breeding to reduce disease incidence in purebred dogs. Hypothyroid disease is the most common endocrinopathy of dogs, and represents a significant veterinary problem. Definitive diagnosis is difficult since good clinical diagnostic tests are not available. The disease is characterized by low levels of thyroid hormones, but these may result from other diseases and it appears that primary hypothyroid disease is characterized by the presence of autoantibodies to thyroglobulin. It is thought that only 50 percent of dogs with hypothyroid disease have these autoantibodies. We have recently developed an assay to measure thyroglobulin autoantibodies, which will allow us to identify animals with primary disease. There is a clear genetic component to canine hypothyroid disease, and a number of breeds are thought to be more susceptible. The proposed study could lead to a better understanding of this condition and offer new approaches to its reduction in certain breeds.

URINARY INCONTINENCE

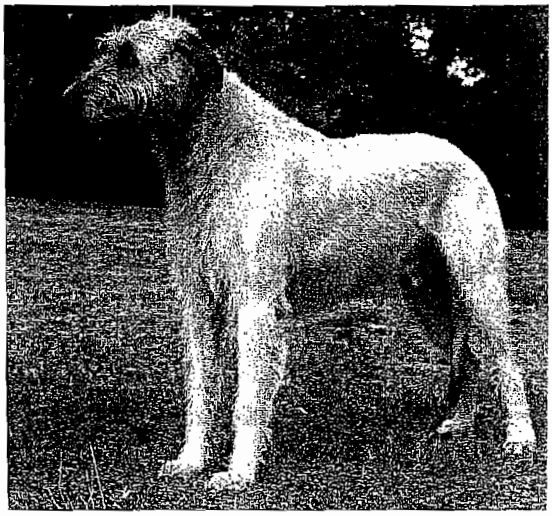
Active Grant No. 248:

Use of an Artificial Urethral Sphincter in Dogs with Urethral Sphincter Mechanism Incompetence

Principal Investigator:

Christopher A Adin, DVM, DACVIM, DACVS, University of Florida

Abstract: Urinary incontinence (urine leakage) occurs in 13.6 percent to 20.1 percent of female dogs after elective spay procedures. Use of drugs to increase urethral tone are effective in many cases, though dogs that fail to respond to medical therapy require surgical intervention. Current surgical techniques have poor long-term success rates, with only 14 percent of dogs maintaining continence after one year in the most recent report. The purpose of this study is to investigate the use of a hydraulic urethral sphincter (HUS) in female dogs with urinary incontinence. Patient-controlled HUS have been used for many years in human beings and are highly effective in restoration of continence. Expense and complexity of design have prevented the patient-controlled HUS from being applied in dogs. We have designed a simple, affordable HUS by combining an inflatable silicone cuff with a subcutaneous injection port. This silicone occluder is placed around the urethra via an abdominal incision, while the injection port is tunneled under the skin in the flank. Preliminary work has demonstrated that inflation of the occluder by injection of fluid into the subcutaneous port effectively increases resistance to urine leakage. Based on this preliminary data, we intend to evaluate the efficacy of the HUS in dogs with naturally occurring incontinence.



Irish Wolfhound

AMERICAN KENNEL CLUB
CANINE HEALTH FOUNDATION, INC.

FINANCIAL STATEMENTS

DECEMBER 31, 2005 AND 2004

AMERICAN KENNEL CLUB
CANINE HEALTH FOUNDATION, INC.

FINANCIAL STATEMENTS

DECEMBER 31, 2005 AND 2004

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INDEPENDENT AUDITORS' REPORT

February 9, 2006

The Board of Directors of
American Kennel Club Canine Health Foundation, Inc.

We have audited the accompanying statement of financial position of the American Kennel Club Canine Health Foundation, Inc. (the "Foundation") as of December 31, 2005 and the related statements of activities and changes in net assets, functional expenses and cash flows for the year then ended. These financial statements are the responsibility of the Foundation's management. Our responsibility is to express an opinion on these financial statements based on our audit. The financial statements of the American Kennel Club Canine Health Foundation, Inc. as of December 31, 2004 were audited by other auditors whose report dated February 8, 2005, expressed an unqualified opinion on those statements.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Foundation as of December 31, 2005 and the results of its activities and its cash flows for the year then ended, in conformity with accounting principles generally accepted in the Unites States of America.

Rumsford & Strickland, P.A.

AMERICAN KENNEL CLUB CANINE HEALTH FOUNDATION, INC.
STATEMENTS OF FINANCIAL POSITION
DECEMBER 31, 2005 AND 2004

ASSETS

	2005	2004
Cash and cash equivalents (Note 1)	$ 662,200	$ 760,551
Investments (Notes 1 and 2)	7,277,736	5,790,323
Investments - operating reserve (Notes 1,2 and 6)	250,000	250,000
Dividends and interest receivable	15,661	6,335
Contributions receivable	169,249	216,043
Prepaid expenses	-	8,298
Furniture, fixtures and equipment, net of accumulated depreciation of $63,890 and $36,903, at December 31, 2005 and 2004 (Note 1)	85,002	86,148
Charitable remainder annuity trust receivable (Note 1)	85,096	81,731
TOTAL ASSETS	$ 8,544,944	$ 7,199,429

LIABILITIES

Accounts payable and accrued expenses	$ 96,216	$ 97,073
Grants payable (Notes 1 and 3)	2,898,361	2,782,833
Deferred contribution income	16,904	77,331
Line of credit (Note 4)	238,813	-
	3,250,294	2,957,237

NET ASSETS

Unrestricted (Notes 1 and 6)		
Operating	(319,354)	(184,743)
Board designated	250,000	250,000
Total Unrestricted	(69,354)	65,257
Temporarily restricted (Notes 1 and 5)	2,591,883	2,243,782
Permanently restricted (Note 1)	2,772,121	1,933,153
TOTAL NET ASSETS	5,294,650	4,242,192
TOTAL LIABILITIES AND NET ASSETS	$ 8,544,944	$ 7,199,429

The accompanying notes are an integral part of the financial statements.

AMERICAN KENNEL CLUB CANINE HEALTH FOUNDATION, INC.
STATEMENTS OF ACTIVITIES AND CHANGES IN NET ASSETS
FOR THE YEARS ENDED DECEMBER 31, 2005 AND 2004

	2005			
	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
REVENUES AND OTHER SUPPORT				
Contributions	$ 900,390	$ 773,702	$ 407,471	$ 2,081,563
Contributions - American Kennel Club, Inc. (Note 7)	1,200,000	-	423,272	1,623,272
Interest and dividend income	260,579	3,365	-	263,944
Net unrealized and realized investment income	300,499	-	-	300,499
Corporate sponsored events and conferences (Note 7)	108,273	960	8,225	117,458
Administrative support - American Kennel Club, Inc. (Note 7)	15,000	-	-	15,000
In-kind donation - American Kennel Club, Inc. (Note 7)	145,000	-	-	145,000
Royalty income	843	-	-	843
Miscellaneous income	18,961	-	-	18,961
NET ASSETS RELEASED FROM RESTRICTIONS				
Satisfaction of program restrictions	429,926	(429,926)	-	-
TOTAL REVENUES AND OTHER SUPPORT	3,379,471	348,101	838,968	4,566,540
FUNCTIONAL EXPENSES				
Canine research and education	2,673,422	-	-	2,673,422
Fund raising	282,145	-	-	282,145
Organizational development	138,939	-	-	138,939
General and administrative	419,576	-	-	419,576
TOTAL FUNCTIONAL EXPENSES	3,514,082	-	-	3,514,082
INCREASE (DECREASE) IN NET ASSETS	(134,611)	348,101	838,968	1,052,458
NET ASSETS - BEGINNING	65,257	2,243,782	1,933,153	4,242,192
NET ASSETS - ENDING	$ (69,354)	$ 2,591,883	$ 2,772,121	$ 5,294,650

The accompanying notes are an integral part of the financial statements.

2004			
Unrestricted	Temporarily Restricted	Permanently Restricted	Total
$ 1,088,099	$ 815,067	$ 144,890	$2,048,056
950,000	-	736,822	1,686,822
154,755	3,232	-	157,987
372,134	-	-	372,134
111,128	-	-	111,128
110,700	-	-	110,700
131,186	-	-	131,186
687	-	-	687
4,552	-	-	4,552
			-
840,650	(840,650)	-	-
3,763,891	(22,351)	881,712	4,623,252
2,415,831	-	-	2,415,831
190,160	-	-	190,160
106,714	-	-	106,714
290,088	-	-	290,088
3,002,793	-	-	3,002,793
761,098	(22,351)	881,712	1,620,459
(695,841)	2,266,133	1,051,441	2,621,733
$ 65,257	$ 2,243,782	$ 1,933,153	$4,242,192

The accompanying notes are an integral part of the financial statements.

AMERICAN KENNEL CLUB CANINE HEALTH FOUNDATION, INC.
STATEMENTS OF FUNCTIONAL EXPENSES
FOR THE YEARS ENDED DECEMBER 31, 2005 AND 2004

	2005				
	Canine Research and Education	Fund Raising	Organizational Development	General and Administrative	Total Expenses
Grants (Note 1)	$ 2,158,129	$ -	$ -	$ -	$2,158,129
Payroll and related expenses	230,851	57,694	57,420	62,045	408,010
Professional fees	19,915	12,068	9,446	88,021	129,450
Travel	10,565	20,197	4,650	6,920	42,332
Meetings	8,840	4,064	2,520	12,914	28,338
Conferences	2,278	69,440	16,281	-	87,999
Printing, telephone, postage and office	17,632	6,155	2,929	5,450	32,166
Equipment rental and repairs	1,812	2,272	2,159	-	6,243
Marketing and advertising	10,993	16,932	3,141	26,907	57,973
Website design and expense	279	282	239	824	1,624
Membership expenses	-	5,807	5,807	-	11,614
New development	-	45,102	10,295	-	55,397
Promotional items purchased	-	-	-	-	-
Depreciation	-	-	-	26,987	26,987
In-kind donation					
Office space and services (AKC)	77,982	22,881	22,881	21,256	145,000
Program support (corporate donor)	124,500	-	-	-	124,500
Miscellaneous	9,646	19,251	1,171	168,252	198,320
TOTAL	$ 2,673,422	$282,145	$ 138,939	$ 419,576	$3,514,082

The accompanying notes are an integral part of the financial statements.

2004				
Canine Research and Education	Fund Raising	Organizational Development	General and Administrative	Total Expenses
$ 1,844,872	$ 105	$ 105	$ 105	$ 1,845,187
182,708	59,420	59,416	51,358	352,902
28,303	8,529	3,317	109,388	149,537
12,121	15,263	1,840	5,493	34,717
5,340	3,656	3,225	5,271	17,492
19,069	20,570	548	-	40,187
39,956	14,675	8,232	7,575	70,438
3,437	2,215	2,215	1,363	9,230
4,662	12,461	1,000	22,607	40,730
1,586	1,246	1,036	1,019	4,887
-	4,201	4,200	-	8,401
-	8,745	-	-	8,745
-	273	-	-	273
-	-	-	21,522	21,522
70,552	20,699	20,699	19,236	131,186
200,000	-	-	-	200,000
3,225	18,102	881	45,151	67,359
$ 2,415,831	$ 190,160	$ 106,714	$ 290,088	$ 3,002,793

The accompanying notes are an integral part of the financial statements.

AMERICAN KENNEL CLUB CANINE HEALTH FOUNDATION, INC.
STATEMENTS OF CASH FLOWS
DECEMBER 31, 2005 AND 2004

	2005	2004
CASH FLOWS FROM OPERATING ACTIVITIES		
Increase in net assets	$ 1,052,458	$ 1,620,459
Adjustments to reconcile increase in net assets to net cash provided by operating activities:		
Depreciation	26,987	21,522
Net unrealized and realized investment gains	(300,499)	(372,134)
Non-cash contribution of securities	(11,967)	(15,706)
Changes in assets and liabilities:		
Dividends and interest receivable	(9,326)	3,877
Contributions receivable	46,794	141,610
Prepaid expenses	8,298	204
Accounts payable	(857)	1,752
Grants payable	115,528	336,015
Charitable remainder annuity trust receivable	(3,365)	(3,232)
Deferred contribution income	(60,427)	77,331
Total adjustments	(188,834)	191,239
NET CASH PROVIDED BY OPERATING ACTIVITIES	863,624	1,811,698
CASH FLOWS FROM INVESTING ACTIVITIES		
Purchase of investments	(3,313,384)	(4,586,195)
Proceeds from sale of investments	2,138,437	2,486,591
Purchase of furniture and equipment	(25,841)	(30,880)
NET CASH USED IN INVESTING ACTIVITIES	(1,200,788)	(2,130,484)
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from line of credit	238,813	-
NET CASH PROVIDED BY INVESTING ACTIVITIES	238,813	-
INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	(98,351)	(318,786)
CASH AND CASH EQUIVALENTS - BEGINNING	760,551	1,079,337
CASH AND CASH EQUIVALENTS - ENDING	$ 662,200	$ 760,551
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION		
Cash paid during the year for interest	$ 8,655	$ 540

The accompanying notes are an integral part of the financial statements.

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

NATURE OF OPERATIONS

The American Kennel Club Canine Health Foundation, Inc. (the "Foundation"), established February 21, 1995, is a not-for-profit organization (exempt from Federal income taxes under Section 501(c)(3) of the Internal Revenue Code) formed for the purpose of furthering the advancement of knowledge of canine diseases and health care by clinical study, laboratory research and publication.

BASIS OF ACCOUNTING

The financial statements of the Foundation have been prepared on the accrual basis of accounting.

ESTIMATES

In preparing financial statements in conformity with generally accepted accounting principles, management makes estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements, as well as the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

CONCENTRATION OF CREDIT RISK

The Foundation places its cash and cash equivalents with high-credit quality institutions. At times these balances may be excess of the FDIC insurance limit. Cash and investments in money market funds and shares of registered investment companies are uninsured.

CASH AND CASH EQUIVALENTS

The Foundation considers demand deposits and all highly-liquid investments with a maturity of three months or less when purchased as cash and cash equivalents for the purpose of the Statements of Cash Flows.

INVESTMENTS

Investments in mutual funds, commercial paper, marketable equity securities, and U.S. government obligations are stated at fair market value with both realized and unrealized gains and losses recognized in the Statements of Activities and Changes in Net Assets.

CHARITABLE REMAINDER ANNUITY TRUST

The Foundation is a beneficiary under a charitable remainder annuity trust agreement under which the donor is entitled to annuity payments for the remainder of his life. Upon the donor's death, the assets in the trust will revert to the Foundation. The Foundation has reflected a receivable in the amount of $85,096 and $81,731 at December 31, 2005 and 2004, respectively, in its Statements of Financial Position, representing the present value of the future benefits to be received by the Foundation.

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)

CONTRIBUTIONS

The Foundation recognizes contributions received, including all unconditional promises to give, as revenues in the period received at their fair values. Conditional promises to give are recognized as revenues when the conditions on which they depend are substantially met. Temporarily restricted support is recorded as unrestricted support if the restriction is met in the same period as the support is received.

The Board of Directors has predicated funding for certain grants on receiving a stipulated amount of donor support. Pledges received on these grants are considered conditional pledges and are not included in revenue until the required donor support level has been obtained. As of December 31, 2005 and 2004, there was $16,904 and $17,500, respectively, of conditional pledges made on grants not meeting the required donor support level. Cash contributions received on these grants are shown on the Statements of Financial Position as deferred contribution income.

CONTRIBUTIONS RECEIVABLE AND ALLOWANCE FOR DOUBTFUL ACCOUNTS

Contributions receivable reflected on the Statements of Financial Position are expected to be received within one year. Contributions receivable are stated at the amount management expects to collect from outstanding balances. Management provides for probable uncollectible amounts through a charge to operations and a credit to a valuation allowance based on its assessment of the current status of individual accounts. Balances that are still outstanding after management has used reasonable collection efforts are written off through a charge to the valuation allowance and a credit to contributions receivable. The Foundation considers all contributions receivable to be fully collectible; accordingly, no allowance for doubtful accounts is required as of December 31, 2005 and 2004.

FURNITURE, FIXTURES AND EQUIPMENT

Purchased property and equipment are carried at cost and consist primarily of furniture, fixtures and equipment. Donated property and equipment are carried at the approximate fair value at the date of donation. Depreciation is computed using primarily the straight-line method. Depreciation charged to operations was $26,987 and $21,522 in 2005 and 2004, respectively.

GRANTS

Unconditional single or multi-year grants are considered incurred and charged to expense at the time of approval by the Board of Directors. Any grant cancellations approved by the Board of Directors are recognized at the time of approval.

The Board of Directors has predicated funding for certain grants on receiving a stipulated amount of donor support. These grants are considered incurred and charged to expense when the donor support level has been obtained. All proposed grants have met the required donor support level at December 31, 2005 and 2004.

Note 1- SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)

NET ASSETS

Unrestricted net assets include contributions and investment income that will be used to fund canine research and educational programs designated by the Board of Directors. Temporarily restricted net assets have been limited by donors to a specific time period or purpose. Permanently restricted net assets have been restricted by donors to be maintained by the Foundation in perpetuity. Investment income from permanently restricted net assets is unrestricted.

ADVERTISING COSTS

The cost of advertising is expensed as incurred.

MEMBERSHIP EXPENSES

All costs related to acquiring new members are expensed as incurred.

FUNCTIONAL ALLOCATION OF EXPENSES

The costs of providing the various programs and activities have been summarized on a functional basis in the Statements of Activities and the Statements of Functional Expenses. Accordingly, certain costs have been allocated among the programs and supporting services benefited.

NOTE 2 –INVESTMENTS

Investments in mutual funds, commercial paper, marketable equity securities and U.S. government obligations with readily determinable fair values are reported at their fair values in the Statement of Financial Position.

Investments are comprised of the following:

	2005	2004
Mutual funds	$5,788,918	$4,766,882
Commercial paper	722,379	499,509
U.S. government obligations	769,125	535,004
Certificates of deposit	247,314	238,928
	7,527,736	6,040,323
Less: Board designated operating reserve	(250,000)	(250,000)
	$7,277,736	$5,790,323

NOTE 2 –INVESTMENTS (Continued)

Schedule of investment income:

	2005	2004
Dividend and interest income	$263,944	$157,987
Unrealized appreciation - portfolio	59,695	347,622
Realized gain - portfolio	240,804	24,512
	$564,443	$530,121

NOTE 3- GRANTS PAYABLE

Grants payable are scheduled to be disbursed as follows:

	December 31, 2005	December 31, 2004
2005	$2,440,656	$2,050,350
2006	457,705	732,483
	$2,898,361	$2,782,833

NOTE 4 - LINE OF CREDIT

The Foundation has a $400,000 unsecured line of credit with a commercial bank. Interest on the line of credit is the bank's prime rate plus three-quarter percent per annum (8.00% at December 31, 2005). At December 31, 2005 and 2004, outstanding balances were $238,813 and -0-, respectively.

NOTE 5 – TEMPORARILY RESTRICTED NET ASSETS

	2005	2004
Specific canine research	$2,506,787	$2,162,051
Annuity trust agreement (for future periods)	85,096	81,731
	$2,591,883	$2,243,782

Temporarily restricted net assets were released for research related to the study of specific diseases.

NOTE 6 –BOARD DESIGNATED FUNDS

The Board of Directors approved an executive committee recommendation to establish an operating reserve account in the amount of $250,000 from unrestricted donor contributions. This account will be available for the needs of the Foundation upon approval of the executive committee.

NOTE 7 –RELATED PARTY TRANSACTIONS

During 2005, the American Kennel Club, Inc. ("the Club) contributed funds to the Foundation totaling $1,638,272 consisting of a general contribution of $1,200,000, administrative support of $15,000 and $423,272 to the endowment. Additionally, the Club has agreed to participate in an endowment campaign being sponsored by the Foundation. The Club will match dollar for dollar all endowment cash contributions made by the Foundation's donors through December 31, 2005 up to a maximum $500,000. The above noted endowment contribution includes $383,875 of matching contributions for the endowment campaign.

During 2004, the American Kennel Club, Inc. ("the Club) contributed to the Foundation funds totaling $1,660,700 consisting of a general contribution of $950,000, administrative support of $110,000, and $736,822 to the endowment. The above noted endowment contribution includes $136,822 of matching contribution for the endowment campaign.

The Foundation's offices are located within the American Kennel Club's operation center in Raleigh, North Carolina. In addition to providing rent-free use of its office space, the Club also provided administrative support services to the Foundation. The total estimated value of these donated items was $145,000 and $131,186 in 2005 and 2004, respectively.

The Foundation's employees are covered under the Club's medical and pension plans as a related organization. The defined benefit pension plan, administered by the Club, is currently overfunded and therefore no pension expense is recorded in the accompanying Statement of Activities.

NOTE 8 -CONTINGENCIES

In 2005, a jury in Cuyahoga County, OH returned a verdict, which was subsequently reduced by the Court, against the Foundation and two of its former officers. The Foundation intends to appeal and vigorously contest the verdict including the resulting award of $270,187 in compensatory damages, $42,281 in punitive damages, and $210,000 in attorneys fees. If the verdict stands, management believes the compensatory damages and attorneys fees will be covered by the Foundation's insurance carrier. However, management believes that it is probable the verdict will ultimately be reversed, in whole or in substantial part and accordingly no provision has been recorded in the accompanying financial statements.

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In Memoriam
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Asa Mays, DVM – 1938 - 2005

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Erika A. Werne, MIM, Director of Canine Research and Education
Jefferson (Jeff) Sossamon, MBA, Director of Development
Ronna E. Dornsife, MS, Research Grants Administrator
Nicole Asbury, Donor Relations Coordinator
Rita Gardner, Executive Administrative Assistant
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