MORRIS ANIMAL FOUNDATION

GOLDEN RETRIEVER LIFETIME STUDY

Golden Retriever Lifetime Study

Necropsy Kit: Collection & Shipping Instructions for Universities and Diagnostic Laboratories

Table of Contents

Necropsy Goals

- Determine the cause of death
- Stage malignancy by sampling visibly or commonly affected organs.
- Harvest samples for a tissue bank, providing a valuable resource for future research.

Necropsy Process Flow Chart

NECROPSY PREPARATION

- Confirm necropsy kit is available
- Open kit, review instructions with kit and outlines provided, and confirm contents needed (tubes, RNAlater bottles, instructions, shipping materials, etc.)

NECROPSY

- Open animal
- Collect **sterile** specimens as needed
- Examine organs to ID lesions (limit gross contamination if possible)
- Collect **RNALater** fresh samples of lesions and normals (not sterile but as clean as possible)
- Collect **formalin** samples
- **Document** findings in Death and Necropsy Questionnaire (DNQ) form and gross report

SAMPLE HANDLING

- Label all tubes as needed (dog name, date, tissue at minimum)
- Handle sterile samples as normal
- Package RNAlater samples for Azenta Life Sciences per instructions
- Either process histopathology in your facility with all primary and secondary tissues OR package formalin jars per instructions

HISTOPATHOLOGY

- Read out, report and close case as normal if performing histopathology in house. Contact GRLS Team to make sure report is communicated and case is logged
- Send blocks and slides to Colorado State for second read. Call GRLS Team at 855-447-3647 for a shipping label

Sample Collection Flow Chart

FORMALIN FIXED TISSUE

ALL LESIONS

NORMAL TISSUES:
Heart, Lung, Liver, Spleen, Kidney, Esophagus, Stomach, Duodenum & pancreas, Jejunum, Ileocecocolic junction, Urinary bladder, Skeletal muscle, Brain, Bone marrow

RNALATER FRESH TISSUE

LESIONS AND MATCHING NORMAL
(if mets, choose two locations for samples)

NORMAL TISSUES:
Heart, Lung, Liver, Kidney, Spleen

Tissue Sample Collection

These instructions are for a full necropsy. For conditions under which ideal sample collection is not possible, use your best judgment, but please try to collect as many diseased and core tissues as possible. In addition to any tumors or lesions, or if no lesions are found, collect samples as described below. **Please collect the five core tissues listed on the next page and as many of the secondary tissues as possible.** Samples may be combined in as few formalin jars as possible, maintaining the ratio of one part sample to 10 parts formalin. Any samples too small to identify on gross examination after fixation, or that have particular importance, should be identified by putting them in a cassette labeled with pencil or by placing them in a separate formalin jar.

For suspected malignant tumors or lesions of interest

- Place a representative tissue sample into a formalin jar, label with the date and "Diseased" tissue type.
  - In the case of multiple metastases, select 2–5 representative lesions to harvest.
- Place a 5 mm cube of diseased tissue into a tube of RNAlater, label with the date and appropriate tissue code, and mark "DISEASED."
- Place a 1 cm cube of normal tissue at least 2 cm away from the tumor/lesion into a separate formalin jar, label with the date and "Healthy" tissue type,
- Place a 5 mm cube of normal tissue at least 2 cm away from the tumor/lesion into a separate tube of RNAlater, label with the date and appropriate tissue code and circle "HEALTHY."

If clinical features indicate bone marrow disease, please collect into formalin marrow collected from either the rib or proximal tibia. Use ronguers or a bone saw to access the marrow. Marrow scooped from the bone can be applied to a strip of paper for support, then placed in formalin jar.

See Appendix 2 for tissue codes. See tissue sample labeling examples on page 8.

In addition to any tumors or lesions, or if no lesions are found, collect formalin-fixed and RNALater samples as described on the next page.

Tissue Sample Collection (Cont.)

Please collect the five core tissues listed below and as many of the secondary tissues as possible. Samples may be combined in as few formalin jars as possible, maintaining the ratio of one part sample to 10 parts formalin. **For each listed tissue, please collect normal representative samples in both RNAlater and formalin**.

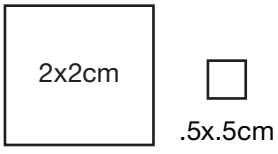
RNAlater samples should be 5mm cubed and the sample label completed as indicated on page 8.

Core Tissues

- **Liver:** 1 cm cube of normal liver.
- **Kidney:** 1 cm wedge from either kidney to include cortex, medulla and pelvis and any lesions.
- **Spleen:** 1 cm cube of normal spleen.
- **Heart:** Provide a gross description of the heart in your report. Submit a full thickness 1 cm wide sample from the right ventricular free wall (ideally through the papillary muscle), the left ventricular free wall (ideally through the papillary muscle) and the interventricular septum.
- **Lung:** 1 cm cube of normal lung.

Secondary Tissues

- **Esophagus:** 2 cm x 2 cm portion of normal esophagus.
- **Stomach:** 2 cm x 2 cm portion of normal stomach.
- **Duodenum and Pancreas Together:** 4 cm length of normal tissue. Rinse intestinal contents with water prior to immersion into a formalin jar.
- **Jejunum:** 4 cm length of normal tissue. Rinse intestinal contents with water prior to immersion into a formalin jar.
- **Ileocecocolic Junction:** 4 cm in each of the three directions. Rinse intestinal contents with water prior to immersion into a formalin jar.
- **Urinary Bladder:** 2 cm x 2 cm piece.
- **Skeletal Muscle:** 2 cm x 2 cm crosssection of semimembranosus/semitendinosus muscle from a hind leg.
- **Nervous System:** brain, spinal cord or both.
- **Bone Marrow:** Collect into formalin marrow collected from either the rib or proximal tibia. Use ronguers or a bone saw to access the marrow. Marrow scooped from the bone can be applied to a strip of paper for support, then placed in formalin jar.



Tissue Sample Collection (Cont.)

Tissue Labeling Examples

Formalin jars should have a completed dog name, ID#, and date sticker with a completed "Diseased [tissue type]" or "Healthy [tissue type]" sticker.

Acct: 4761 **Chart:** 094-012345
Smith, Fido
DATE: 12/1/2015

TISSUE TYPE: Diseased liver

RNAlater jars should each contain a **single tissue sample** and be labeled with the dog name, ID#, date, and tissue code and marked "Diseased" or "Healthy." Tissue codes are in Appendix 2. Always include the tissue type or the biobank will not be able to identify the sample.

MARK ONE

Chart 094-012345
Smith, Fido
DATE: 12/1/2015
Tissue type code: 85
☐ **DISEASED**
☐ **HEALTHY**

Sample Packaging & Shipping

Placing a Service Call for FedEx Shipment(s)
Place a service call to FedEx directly at 800.463.3339. Let them know you have packages for pickup and tell them that the shipping cost is being billed to the Morris Animal Foundation using a "Billable Stamp". If your facility is inadvertently charged any fees, please contact the Study team for reimbursement.

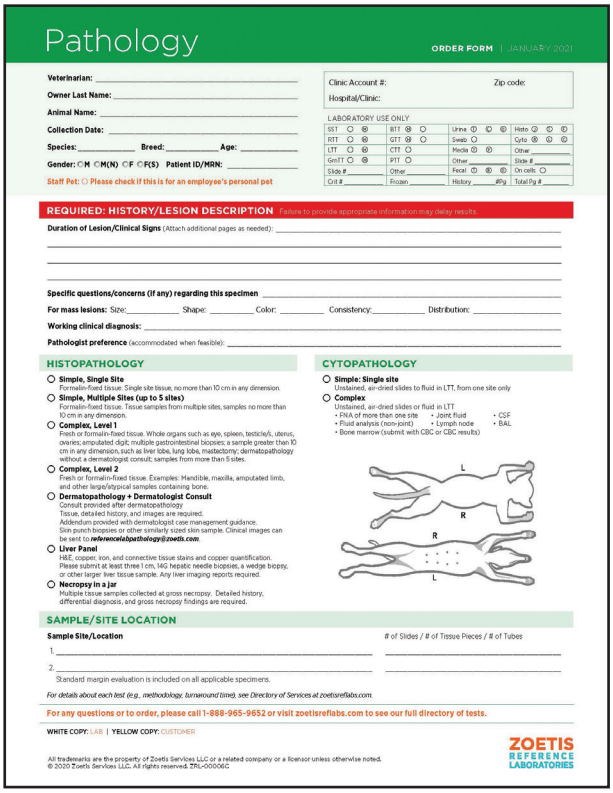
Please notify us by calling 855.447.3647 when you perform a necropsy.

Sample Packaging & Shipping (Cont.)

Zoetis Reference Laboratories Shipment

Formalin containers (if submitting to Zoetis Reference Laboratories and not processing within facility)

- Make sure all formalin jars are tightly sealed.
- Tape the lids to the jars.
- Make sure the labels on all formalin jars have the date, the dog's name, the Study ID# and enclosed tissue type(s) .
- Place all formalin containers into a zip-closure bag or bags. Include a few paper towels per two jars of formalin. Seal the bag(s).
- Complete the green Zoetis Reference Laboratories pathology form. Include your facility information as well as the clinical history for the Study Dog. **Failure to include the clinical history may delay results.**
- Place the completed green pathology form and the preprinted Zoetis References Laboratories Manifest (code: Histopathology - Simple Multiple Sites), a copy of your gross necropsy report, and any other documents or photos into a zip-closure bag.
- Place the sealed bag(s) of formalin jars and the sealed documents bag into a large zip-closure bag and seal.



Pathology

ORDER FORM | JANUARY 2021

Veterinarian: _____
Owner Last Name: _____
Animal Name: _____
Collection Date: _____
Species: _____ Breed: _____ Age: _____
Gender: ○M ○M(N) ○F ○F(S) Patient ID/MRN: _____
Staff Pet: ○ Please check if this is for an employee's personal pet

Clinic Account #: Zip code:
Hospital/Clinic:

LABORATORY USE ONLY

SST ○ ⑩	BTT ⑩ ○	Urine ① ② ③	Histo ① ② ③
RTT ○ ⑩	GTT ⑩ ○	Swab ○	Cyto ⑩ ① ②
LTT ○ ⑩	CTT ○	Media ① ②	Other _____
GmTT ○ ⑩	PTT ○	Other _____	Slide # _____
Slide # _____	Other _____	Fecal ① ② ③	On cells ○
Crit # _____	Frozen _____	History _____ #Pg	Total Pg # _____

REQUIRED: HISTORY/LESION DESCRIPTION Failure to provide appropriate information may delay results.

Duration of Lesion/Clinical Signs (Attach additional pages as needed): _____

Specific questions/concerns (if any) regarding this specimen _____
For mass lesions: Size:_____ Shape: _____ Color: _____ Consistency:_____ Distribution: _____
Working clinical diagnosis: _____
Pathologist preference (accommodated when feasible): _____

HISTOPATHOLOGY

○ Simple, Single Site
Formalin-fixed tissue. Single site tissue, no more than 10 cm in any dimension.
○ Simple, Multiple Sites (up to 5 sites)
Formalin-fixed tissue. Tissue samples from multiple sites, samples no more than 10 cm in any dimension.
○ Complex, Level 1
Fresh or formalin-fixed tissue. Whole organs such as eye, spleen, testicle/s, uterus, ovaries; amputated digit; multiple gastrointestinal biopsies; a sample greater than 10 cm in any dimension, such as liver lobe, lung lobe, mastectomy; dermatopathology without a dermatologist consult; samples from more than 5 sites.
○ Complex, Level 2
Fresh or formalin-fixed tissue. Examples: Mandible, maxilla, amputated limb, and other large/atypical samples containing bone.
○ Dermatopathology + Dermatologist Consult
Consult provided after dermatopathology
Tissue, detailed history, and images are required.
Addendum provided with dermatologist case management guidance.
Skin punch biopsies or other similarly sized skin sample. Clinical images can be sent to reference.dermatology@zoetis.com.
○ Liver Panel
H&E, copper, iron, and connective tissue stains and copper quantification.
Please submit at least three 1 cm, 14G hepatic needle biopsies, a wedge biopsy, or other larger liver tissue sample. Any liver imaging reports required.
○ Necropsy in a Jar
Multiple tissue samples collected at gross necropsy. Detailed history, differential diagnosis, and gross necropsy findings are required.

CYTOPATHOLOGY

○ Simple: Single site
Unstained, air-dried slides to fluid in LTT, from one site only
○ Complex
Unstained, air-dried slides or fluid in LTT
• FNA of more than one site • Joint fluid • CSF
• Fluid analysis (non-joint) • Lymph node • BAL
• Bone marrow (submit with CBC or CBC results)

L R R L

SAMPLE/SITE LOCATION

Sample Site/Location	# of Slides / # of Tissue Pieces / # of Tubes
1.	
2.	

Standard margin evaluation is included on all applicable specimens.

For details about each test (e.g., methodology, turnaround time), see Directory of Services at zoetisreflabs.com.

For any questions or to order, please call 1-888-965-9652 or visit zoetisreflabs.com to see our full directory of tests.

WHITE COPY: LAB | YELLOW COPY: CUSTOMER

ZOETIS REFERENCE LABORATORIES

Zoetis Reference Laboratories Pathology Form

You MUST include a copy of your gross necropsy findings with the tissue samples.

Sample Packaging & Shipping (Cont.)

Formalin container packaging continued

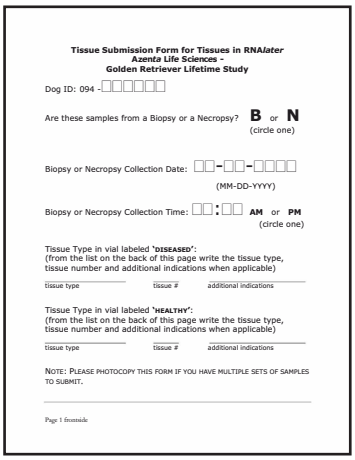
- Place the sealed double bag(s) of formalin jars and documents, into a FedEx Clinical Pak, Necropsy Kit box, or any other appropriate size box.
- Close and seal the Clinical Pak or box. If using a box, ensure that a UN3373 Biological Substances sticker is placed on the outside.
- FedEx Clinical Paks provided in the Study kit contain a FedEx shipping label to Zoetis Reference Laboratories. If you don't have a necropsy kit, the Study will reimburse your shipping expense.
- Call FedEx at 800.463.3339 to arrange for a pick up.

Label: Figure 1

Azenta Life Sciences Shipment

RNAlater tubes

- Place RNAlater tubes into the small padded envelope(s). Include a few paper towels per envelope and seal the envelope(s).
- Place the sealed padded envelope(s) and completed Submission Form(s) for Tissues in RNAlater into a biohazard zip-closure bag and seal the bag.



Tissue Submission Form for Tissues in RNA*later*
***Azenta* Life Sciences –**
Golden Retriever Lifetime Study

Dog ID: 094 -□□□□□□

Are these samples from a Biopsy or a Necropsy? **B** or **N** (circle one)

Biopsy or Necropsy Collection Date: □□-□□-□□□□ (MM-DD-YYYY)

Biopsy or Necropsy Collection Time: □□:□□ **AM** or **PM** (circle one)

Tissue Type in vial labeled "**DISEASED**":
(from the list on the back of this page write the tissue type, tissue number and additional indications when applicable)

tissue type | tissue # | additional indications

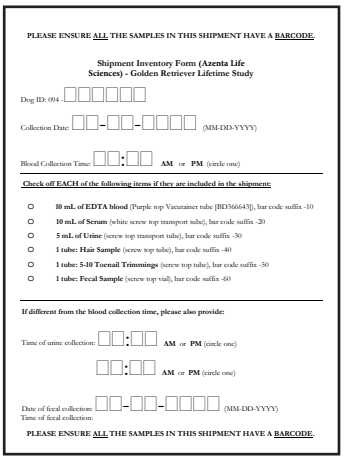
Tissue Type in vial labeled "**HEALTHY**":
(from the list on the back of this page write the tissue type, tissue number and additional indications when applicable)

tissue type | tissue # | additional indications

NOTE: PLEASE PHOTOCOPY THIS FORM IF YOU HAVE MULTIPLE SETS OF SAMPLES TO SUBMIT.

Page 1 frontside

Tissue Shipment Form



PLEASE ENSURE ALL THE SAMPLES IN THIS SHIPMENT HAVE A BARCODE.

Shipment Inventory Form (Azenta Life Sciences) - Golden Retriever Lifetime Study

Dog ID: 094 -□□□□□□

Collection Date □□-□□-□□□□ (MM-DD-YYYY)

Blood Collection Time: □□:□□ **AM** or **PM** (circle one)

Check off EACH of the following items if they are included in the shipment:

- ○ **10 mL of EDTA blood** (Purple top Vacutainer tube [BD366643]), bar code suffix -10
- ○ **10 mL of Serum** (white screw top transport tube), bar code suffix -20
- ○ **5 mL of Urine** (screw top transport tube), bar code suffix -30
- ○ **1 tube: Hair Sample** (screw top tube), bar code suffix -40
- ○ **1 tube: 5-10 Toenail Trimmings** (screw top tube), bar code suffix -50
- ○ **1 tube: Fecal Sample** (screw top vial), bar code suffix -60

If different from the blood collection time, please also provide:

Time of urine collection: □□:□□ **AM** or **PM** (circle one)

□□:□□ **AM** or **PM** (circle one)

Date of fecal collection: □□-□□-□□□□ (MM-DD-YYYY)
Time of fecal collection:

PLEASE ENSURE ALL THE SAMPLES IN THIS SHIPMENT HAVE A BARCODE.

Clinical Pathology Shipment Form

RNALater tubes packaging continued (see Fig 1)

- Place the biohazard bag(s) containing the RNAlater samples into the provided FedEx Clinical Pak pre-addressed to Azenta Life Sciences. Seal the envelope by removing the clear seal to expose the adhesive strip.
- FedEx Clinical Paks provided in the Study kit contain a FedEx shipping label to the Azenta Life Sciences. If you don't have a necropsy kit, the Study will reimburse your shipping expense. Please contact the Study team for shipping information or to request a shipping label.
- Call FedEx at 800.463.3339 to arrange for a pickup.

Your necropsy kit may contain ice packs. Use these at your discretion or keep them for your supply inventory.

Sample Reporting

Test results from Zoetis Reference Laboratories will be available to the patient's registered study veterinarian at grls.morrisanimalfoundation.org within 7-10 business days. The results are posted under the "Lab Results" dropdown.

If the submitting veterinarian is not a Study veterinarian, they will receive an emailed copy of the report. **If histopathology samples were processed at your facility, please be sure to send all histopathology reports to grdogs@caninelifetimehealth.org or fax the report to 303-713-3399.**

Death and Necropsy Questionnaire

A Death and Necropsy Questionnaire is requested whenever a Study dog passes, regardless of cause of death. A hard copy of the questionnaire can be found at the end of this booklet (Appendix 3) for notetaking purposes. **The questionnaire will need to be completed in our online database.**

If you are not a registered Study Veterinarian, you will need to contact the Study Team to set up online access to the questionnaire. Email the Study team at grdogs@caninelifetimehealth.org or call toll-free at 855.4GR.DOGS (855.447.3647). Once you are set up, log on at grls.morrisanimalfoundation.org to complete a Death and Necropsy Questionnaire (DNQ) form for your patient. You can access the form by selecting the appropriate patient from your portal page. If you have any questions, please do not hesitate to email the Study team at grdogs@caninelifetimehealth.org or call 855.4GR.DOGS (855.447.3647). We are here to help!

Appendix 1: Presumed Cause of Death

Consider the following list when completing the cause of death questions within the Death and Necropsy Questionnaire.

Cancer/Neoplasia		Behavioral	Cardiovascular/Respiratory
Adrenal Tumor	Melanoma	Aggression	Arrhythmia
Basal Cell Tumor	Multiple Myeloma	Anxiety	Cardiomyopathy
Bile Duct Tumor	Nasal Tumor	Cognitive Dysfunction (Senility)	Congestive Heart Failure
Bladder Tumor	Osteosarcoma		Heartworm Infection
Brain/Spinal Cord Tumor	Pancreatic Tumor		Pneumonia
Eye Tumor	Perianal Adenocarcinoma		Pulmonary Hypertension
Heart Tumor	Prostate Tumor		Pulmonic Stenosis
Hemangiosarcoma	Soft Tissue Sarcoma		Subaortic Stenosis
Histiocytic Sarcoma	Squamous Cell Carcinoma		Valvular Disease
Kidney Tumor	Stomach/Intestinal Tumor		
Leukemia	Testicular Tumor		
Liver Tumor	Thyroid Tumor		
Lung Tumor			
Lymphoma			
Mammary Tumor			
Mast Cell Tumor			

Dermatologic	Ear-Nose-Throat	Endocrine
Atopy	Epistaxis	Addison's Disease (Hypoadrenocorticism)
Dermatitis	Hearing Problem	Cushing's Disease (Hyperadrenocorticism)
Sarcoptic Mange	Otitis Externa/Media/Interna	Diabetes Insipidus
	Upper Respiratory Infection	Diabetes Mellitus
		Hypercalcemia
		Hyperparathyroidism
		Hypoparathyroidism
		Hypothyroidism
		Pancreatic Insufficiency

Appendix 1: Presumed Cause of Death (Cont.)

Eye	Gastrointestinal	Hematologic
Cataract(s)	Bloat with Torsion (GDV)	Hemophilia
Corneal Ulcer	Bloat without Torsion	Immune-mediated Hemolytic Anemia
Glaucoma	Chronic Colitis	Immune-mediated Thrombocytopenia
Keratoconjunctivitis Sicca (KCS)	Food Allergy/Sensitivity	Pancytopenia
Pigmentary Uveitis	Gastritis/Gastroenteritis	Von Willebrand Disease
Progressive Retinal Atrophy/Degeneration	Gastrointestinal Foreign Body	
Trauma/Injury	Inflammatory Bowel Disease	
Uveitis (Other Than Pigmentary)	Megaesophagus	
	Pancreatitis	

Infectious	Musculoskeletal	Nervous
Babesia	Bone Fracture(s)	Cervical Spondylomyelopathy
Ehrlichia	Cruciate Ligament Rupture	Degenerative Myelopathy
Fungal infection (specify)	Elbow Dysplasia	Epilepsy
Influenza	Growth Deformity	Laryngeal Paralysis
Leishmania	Hip Dysplasia	Limb Paralysis
Leptospirosis	Immune-mediated Polyarthropathy	Lumbosacral Stenosis
Lyme disease	Intervetebral Disc Disease	Meningitis
Rocky Mountain Spotted Fever	Osteoarthritis	Myasthenia Gravis
	Osteochondrosis Dessecans (OCD)	Steroid-responsive Meningitis-arteritis
	Panosteitis	
	Patellar Luxation	
	Rheumatoid Arthritis	
	Spondylosis	
	Trauma/Injury	

Reproductive	Toxicosis	Trauma
Dystocia	Anticoagulant Rodenticide	Bite Wounds
Mastitis	Chocolate	Hit By Car
Prostate Abscess	Ethylene Glycol (Antifreeze)	
Prostatitis		
Pyometra		

Urinary	Other	Unknown
Acute Renal Failure	Specify	
Chronic Renal Failure		
Cystitis		
Bladder Stones		
Crystalluria		
Ectopic Ureter		
Glomerulonephritis		
Incontinence		
Kidney Infection/Pyelonephritis		
Kidney Stones		

Appendix 1: Presumed Cause of Death (Cont.)

Eye	Gastrointestinal	Hematologic
Cataract(s)	Bloat with Torsion (GDV)	Hemophilia
Corneal Ulcer	Bloat without Torsion	Immune-mediated Hemolytic Anemia
Glaucoma	Chronic Colitis	Immune-mediated Thrombocytopenia
Keratoconjunctivitis Sicca (KCS)	Food Allergy/Sensitivity	Pancytopenia
Pigmentary Uveitis	Gastritis/Gastroenteritis	Von Willebrand Disease
Progressive Retinal Atrophy/Degeneration	Gastrointestinal Foreign Body	
Trauma/Injury	Inflammatory Bowel Disease	
Uveitis (Other Than Pigmentary)	Megaesophagus	
	Pancreatitis	

Infectious	Musculoskeletal	Nervous
Babesia	Bone Fracture(s)	Cervical Spondylomyelopathy
Ehrlichia	Cruciate Ligament Rupture	Degenerative Myelopathy
Fungal infection (specify)	Elbow Dysplasia	Epilepsy
Influenza	Growth Deformity	Laryngeal Paralysis
Leishmania	Hip Dysplasia	Limb Paralysis
Leptospirosis	Immune-mediated Polyarthropathy	Lumbosacral Stenosis
Lyme disease	Intervetebral Disc Disease	Meningitis
Rocky Mountain Spotted Fever	Osteoarthritis	Myasthenia Gravis
	Osteochondrosis Dessecans (OCD)	Steroid-responsive Meningitis-arteritis
	Panosteitis	
	Patellar Luxation	
	Rheumatoid Arthritis	
	Spondylosis	
	Trauma/Injury	

Reproductive	Toxicosis	Trauma
Dystocia	Anticoagulant Rodenticide	Bite Wounds
Mastitis	Chocolate	Hit By Car
Prostate Abscess	Ethylene Glycol (Antifreeze)	
Prostatitis		
Pyometra		

Urinary	Other	Unknown
Acute Renal Failure	Specify	
Chronic Renal Failure		
Cystitis		
Bladder Stones		
Crystalluria		
Ectopic Ureter		
Glomerulonephritis		
Incontinence		
Kidney Infection/Pyelonephritis		
Kidney Stones		

Appendix 2: Tissue Coding

Code	Description	Additional Indications
70	Other tissue, source	Tissue: Diseased | Healthy
71	Adrenal Gland	Left | Right | Both
72	Bone	None
73	Bone Marrow	None
74	Brain	None
75	Colon	None
76	Duodenum	None
77	Esophagus	None
78	Eye	Left | Right | Both
79	Gonads	Left | Right | Both
80	Heart	None
81	Ileocecocolic Junction	None
82	Ileum	None
83	Jejunum	None
84	Kidney	Left | Right | Both
85	Liver	None
86	Lung	Specify Lobe:
87	Lymph Node	Left | Right : Axillary | Mesenteric | Prescapular | Mandibular | Popliteal | Other:
88	Oral Cavity	None
89	Pancreas	None
90	Parathyroid Gland	None
91	Prostate	None
92	Rectum	None
93	Skeletal Muscle	None
94	Skin	None
95	Spinal Cord	None
96	Spleen	None
97	Stomach	None
98	Thyroid	None
99	Urinary Bladder	None

Appendix 3: Death and Necropsy Questionnaire

Use this copy of the questionnaire to take notes regarding the end of life visit. Then log in at grls.morrisanimalfoundation.org to enter these notes into the database. **If you do not have an account, contact the Golden Retriever Lifetime Study Team at 855.447.3647 or grdogs@caninelifetimehealth.org.**

GENERAL INFORMATION

Dog Name: _____

Study ID: 094-_____

Dog Sex Status:

□ **Intact Female** □ **Spayed Female** □ **Intact Male** □ **Neutered Male**

Date of Death: ___/___/___ **Was the dog euthanized?** □ **Yes** □ **No**

Drug Name:

□ **Unknown** □ **Fatal-Plus Solution** □ **Beuthanasia-D Special**
□ **Euthasol** □ **Other:**_____

Amount administered and units: _____ **ml** □ **Not noted**

Drug concentration and units: _____ **mg/ml** □ **Not noted**

In your opinion, what was the primary cause of death?: _____

_____

What was the primary organ system involved in the cause of death? Select only one.

□ **Cardiovascular**
□ **Dermatologic**
□ **Endocrine**
□ **Gastrointestinal**
□ **Hematopoietic/lymphoid**
□ **Hepatic**
□ **Musculoskeletal**
□ **Neurologic**
□ **Ear/eye/nose/throat**
□ **Respiratory**
□ **Urinary**
□ **Reproductive**
□ **Unknown**

What was the primary pathophysiologic involved in the cause of death? Select only one.

□ **Cardiovascular**
□ **Congenital**
□ **Degenerative**
□ **Infectious**
□ **Inflammatory**
□ **Metabolic**
□ **Neoplastic**
□ **Toxic**
□ **Traumatic**
□ **Unknown**
□ **Other:** _____
_____

List any factors contributing to the cause of death: _____

_____

NECROPSY

Was a necropsy performed? ☐ **Yes** ☐ **No**

Necropsy performed by: ☐ **Registered study veterinarian** ☐ **Other veterinarian**

☐ **Veterinary Pathologist / Under Supervision of Veterinary Pathologist**

If not the Study Veterinarian, please fill out the following:

Veterinarian Name: _____

Clinic Name: _____

Clinic Email: _____

Clinic Address: _____

Clinic Phone Number: _____ **Clinic Fax Number:** _____

Date of Necropsy: ___/___/___

Approximate number of whole hours between time of death and time of necropsy:

_____ **hrs** ☐ **Unknown**

Do you have any gross findings? ☐ **Yes** ☐ **No**

If yes, please complete the Gross Necropsy Findings section. Otherwise, skip ahead to page 29.

GROSS NECROPSY FINDINGS

Skin

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

_____

_____

Subcutaneous Fat - Quality

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

_____

_____

Left Eye - Dissected Evaluation

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

_____

_____

Right Eye - Dissected Evaluation

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

_____

_____

Thyroid Gland

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

_____

_____

Parathyroid Glands:

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

_____

_____

Esophagus:

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

_____

_____

Thoracic Cavity - In Situ:

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

_____

_____

Heart:

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

_____

_____

Pericardial fluid present?: ☐ **Yes** ☐ **No** ☐ **Not evaluated**

Estimated volume of fluid in milliliters: _____mL

Color of pericardial fluid:

☐ **Black** ☐ **Clear** ☐ **Yellow**

☐ **Brown** ☐ **Red** ☐ **Other:** _____

Clarity of pericardial fluid: ☐ **Clear** ☐ **Opaque** ☐ **Other**

Lungs:

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

_____

_____

Abdominal Cavity - In Situ:

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

_____

_____

GROSS NECROPSY FINDINGS

Abdominal fluid present?

☐ **Normal** ☐ **Abnormal** ☐ **Not evaluated**

Estimated volume of fluid in milliliters: _____mL

Color of pericardial fluid:

☐ **Black** ☐ **Clear** ☐ **Yellow**

☐ **Brown** ☐ **Red** ☐ **Other:** _____

Clarity of pericardial fluid:

☐ **Blood** ☐ **Bile** ☐ **Urine** ☐ **Ascites** ☐ **Other:** _____

Duodenum

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Pancreas

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Jejunum

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Ileum

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Cecum

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Colon

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

GROSS NECROPSY FINDINGS

Liver

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Spleen

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Right Kidney

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Right Adrenal Gland

☐ **Normal** ☐ **Abnormal** ☐ **NotEvaluated** Comments if Abnormal:_____

Left Kidney

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Left Adrenal Gland

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Urinary System (Bladder, Prepuce, Vulva, etc.)

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Reproductive System

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Skeletal Muscles

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

GROSS NECROPSY FINDINGS

Bones Identify specific bones in comments.

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Bone Marrow

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Stomach

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Synovial Fluid

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Lymph Nodes

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Brain

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Spinal Cord

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

Nervous System Other Lesions

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

GROSS NECROPSY FINDINGS

Tumors, Masses, or Other Lesions of Interest

☐ **Normal** ☐ **Abnormal** ☐ **Not Evaluated** Comments if Abnormal:_____

_____

_____

Additional General Gross Necropsy Findings

Comments: _____

_____

_____

SUPPLEMENTAL INFORMATION

Do you have photographs?

☐ **Yes** ☐ **No**

Do you have radiographs?

☐ **Yes** ☐ **No**

Do you have clinical pathology results?

☐ **Yes** ☐ **No**

Additional Remarks/Comments: _____

_____

_____

_____

_____

_____

_____

Thank you again for supporting the Golden Retriever Lifetime Study.

About Morris Animal Foundation

Morris Animal Foundation is a nonprofit organization that invests in science to advance animal health. The foundation is a global leader in funding scientific studies for companion animals, horses and wildlife. Since its founding in 1948, Morris Animal Foundation has invested in studies that have led to significant breakthroughs in diagnostics, treatments, preventions and cures to benefit animals worldwide. Learn more at morrisanimalfoundation.org.

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