

**SAMPLE HANDLING**  
**For Canine DNA Research at the University of Missouri**

**Blood Sample** - The ideal sample for DNA extraction is 5 to 10cc's of whole blood, in **purple-topped (EDTA)** tubes (one or several, depending on tube size). For very small dogs, 3ccs should be sufficient. More volume will yield more DNA, so in this situation, a larger sample is appreciated. The blood sample needs only to be put in the tubes and rocked gently a few times to distribute the anticoagulant - do **not** spin, extract serum, or do anything further. Refrigerate if the sample is being held for any time before shipping, but do not hold the sample longer than 1 week before shipping or it may become unusable.

**Frozen Semen** - Frozen semen stored from deceased sires or affected dogs can be a source of DNA for testing. Please send 2 straws or 10+ pellets. They do not need to be shipped frozen, but do pack them in a crush-proof & leak-proof container. Special handling fee is \$40 for this sample, in addition to the regular testing fee.

**Tissue Sample** - DNA can be extracted from any cell-rich tissue. If a dog is to be tested post-mortem, a 1" cube (or equivalent) of tongue, other muscle, spleen, kidney, or liver will provide a large amount of DNA (one tissue is sufficient - do not send multiple tissues). Tissue samples should be placed in a clearly labeled freezer bag or other sterile container and frozen. **DO NOT place in formalin!** Place the bagged tissue inside another bag, freeze, and ship with a frozen cool pack (do not use dry ice, or ice cubes placed in a ziplock bag). If this is the only sample (no blood sample available), add special handling fee of \$40 to regular testing fee.

**Label sample** with the following:

call name - owner's last name

(If samples from several dogs are sent together, number samples and forms)

The ***Individual Dog Information Form & Survey*** that follow this instruction sheet should be completed, and a ***pedigree copy***, if available, should be included with the sample. If no pedigree information is available, please indicate this on the survey page. ***PLEASE take the time*** to complete the survey form - this information is very important for the ongoing research.

~~Include TESTING FEE of \$50 for dogs with clinical signs of DM, \$65 for dogs with no clinical signs of DM; check or money order payable to "University of Missouri". Credit cards can be accepted also.~~

*No charge for Participation in GSDCA DM Research  
Write "GSD Research" on left side of Form*

**Shipping** - Ideally the sample should be shipped immediately (with a tissue sample make certain it is completely frozen first). If samples are held for a day or over a weekend, blood must be refrigerated, and tissue samples must be kept frozen. Ship via overnight delivery (FedEx, US Mail-Express service, or UPS). ***Do not send on a Friday*** - there will not be anyone to accept the delivery on a weekend, and the sample could be unusable by Monday. Pack in a small insulated container (most vets have these for shipping samples to labs), with one or more cool packs - it is important that blood samples be kept cool but not frozen, and tissue samples be kept as frozen as possible.

**The delivery address is;**

Dr. Gary Johnson - DM Testing  
320 Connaway Hall  
University of Missouri  
Columbia, MO 65211

(NOTE: if UPS does not recognize 320 Connaway as a valid address, use 201 Connaway)

**If you need clarification**, or have any questions about any of these procedures, please contact Liz Hansen by phone (573-884-3712), email (HansenL@missouri.edu), or regular mail (321 Connaway Hall, University of Missouri, Columbia, MO 65211).

**Thank you** for your cooperation and participation!

# UMC CANINE DM DNA TESTING & RESEARCH

Blood – Tissue – FTA-swab – semen - other \_\_\_\_\_ Breed: \_\_\_\_\_

Registered Name \_\_\_\_\_ Call name \_\_\_\_\_

Reg# \_\_\_\_\_ Birth Date \_\_\_\_\_ Male / Female - - Intact / Neutered

Microchip or Tattoo: \_\_\_\_\_ Color \_\_\_\_\_

**Test Being Requested: DM – Degenerative Myelopathy**

Owner: name \_\_\_\_\_ Veterinarian \_\_\_\_\_

address \_\_\_\_\_ address \_\_\_\_\_

city-st-zip \_\_\_\_\_ city-st-zip \_\_\_\_\_

phone (day) \_\_\_\_\_ phone \_\_\_\_\_

phone (eve) \_\_\_\_\_

cell \_\_\_\_\_ Fax \_\_\_\_\_

EMAIL \_\_\_\_\_ EMAIL \_\_\_\_\_

**\*\*\*\*Results are reported via email – please provide complete, legible email address!!\*\*\*\***

Report test results to (please circle): Owner Veterinarian Both

**Does this dog exhibit any of the following conditions? (Please attach history for any Yes answer)**

- |                                   |  |
|-----------------------------------|--|
| Y - N Allergies                   | Y - N Digestive difficulties                       |
| Y - N Arthritis                   | Y - N Heart Problems                               |
| Y - N Autoimmune Disorders        | Y - N Hernia (where? _____ )                       |
| Y - N Bite or Tooth Abnormalities | Y - N Reproductive Problems                        |
| Y - N Cancer / Tumors             | Y - N Seizures                                     |
| Y - N Cataracts / Vision Problems | Y - N Skin / Coat Problems                         |
| Y - N Deafness / Hearing Impaired | Y - N Skeletal Abnormalities (Hip Dysplasia, etc.) |
| Y - N Hindlimb weakness/paralysis | Y - N Temperament Problems (shy, aggressive, etc.) |

other (please list): \_\_\_\_\_

Comments / Questions / Concerns? \_\_\_\_\_

I submit this sample and pedigree for the purpose of DNA testing; I understand that DNA left over following the test may be stored for potential future research; I understand that the results of this test will be reported only to the owner listed on this form and to the veterinarian (if requested) listed here, via email or FAX; and I have supplied complete and accurate information, to the best of my knowledge.

Signed: \_\_\_\_\_ date \_\_\_\_\_

**PAYMENT INFORMATION:**  Check or money order payable to "University of Missouri" enclosed

OR  Charge to VISA-MasterCard-Discover Card# \_\_\_\_\_

Cardholder name: \_\_\_\_\_ Exp Date: \_\_\_\_\_

**FEE:** Clinical signs of DM present, fee=\$50; No DM signs, fee=\$65; frozen semen or tissue, add \$40

**IMPORTANT!! PLEASE COMPLETE THE QUESTIONNAIRE ON THE NEXT PAGE !!**

GSD DM Research Project  
No charge

Please circle your answer to the questions below, and fill in blanks as appropriate.

Has this dog been diagnosed with Degenerative Myelopathy? Y N

Was Degenerative Myelopathy in this dog diagnosed by a veterinarian? Y N

What was the date (month and year) that this dog began showing signs of DM? \_\_\_\_\_

Is this dog still alive? Y N If NO, when did this dog die \_\_\_\_\_

What was the cause of death? \_\_\_\_\_

How long has this dog been showing signs of DM? (Please Circle)

1-3 mos; 4-8 mos; 9-12 mos; 13-18 mos; 19 mos-24 mos; 25 mos-36 mos; >36 mos

Which of the following tests were done to make the diagnosis of DM?

No diagnostic tests, clinical symptoms only	.....	Y	N			
Spinal radiographs (X-rays)	.....	Y	N	.....	result was:	normal abnormal
Myelogram (contrast X-rays)	.....	Y	N	.....	result was:	normal abnormal
CT (CAT) scan	.....	Y	N	.....	result was:	normal abnormal
MRI	.....	Y	N	.....	result was:	normal abnormal

For any abnormal result, please list findings: \_\_\_\_\_

Describe the **FIRST** symptoms of DM in this dog:

One rear leg weaker than other	.....	Y	N
Dragging toes	.....	Y	N
Falling in rear legs	.....	Y	N
Tremors in rear legs	.....	Y	N
Pain in back	.....	Y	N

Describe the **CURRENT** symptoms of DM in this dog (if deceased, symptoms at time of death):

Weakness in one rear leg	.....	Y	N	Loss of muscle mass in rear legs	.....	Y	N
Weakness in both rear legs	.....	Y	N	Loss of muscle mass over entire body	.....	Y	N
Unable to support weight in rear legs	.....	Y	N	Urinary incontinence	.....	Y	N
Unable to move rear legs	.....	Y	N	Fecal incontinence	.....	Y	N
Weakness in front legs	.....	Y	N	Difficulty swallowing	.....	Y	N
Unable to support weight in all limbs	.....	Y	N	Pain in back	.....	Y	N
Unable to move all limbs	.....	Y	N				

Do you know of relatives of this dog who are diagnosed with Degenerative Myelopathy? Y N

If yes, please circle: sire dam sibling grandparent other \_\_\_\_\_

Pedigree (family tree) information is very helpful for this research, and is held in complete confidence by the researchers. Please enclose a pedigree copy or registration copy with this survey.

Pedigree enclosed Pedigree will be mailed or emailed separately Pedigree unknown/not available

Any other information you feel would be useful for the researchers, please list below. Thank you for submitting this sample and completing this information.