SAMPLE HANDLING
For Canine DNA Research at the University of Missouri

**Blood Sample** - The ideal sample for DNA extraction is 5 to 10 cc's of whole blood, in purple-topped (EDTA) tubes (one or several, depending on tube size). For very small dogs, 3 cc's 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.

**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 _____________________________
        cty-st-zip ________________________          cty-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

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

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

Y - N Allergies
Y - N Arthritis
Y - N Autoimmune Disorders
Y - N Bite or Tooth Abnormalities
Y - N Cancer / Tumors
Y - N Cataracts / Vision Problems
Y - N Deafness / Hearing Impaired
Y - N Hindlimb weakness/paralysis
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 __________________

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