

## DNA TEST FOR GLYCOGEN STORAGE DISEASE TYPE IIIa (GSD IIIa) IN CURLY-COATED RETRIEVERS (CCR)

**Using the test** it is possible to identify the gene mutation that causes GSD IIIa in CCR and dogs that are:

- **affected with GSD IIIa** (affected individuals have two copies of the mutant gene). Affected dogs have the clinical disease demonstrated by elevated serum activity of liver enzymes (ALT, AST, ALP). In CCR GSD IIIa, the disease may be undetected, and **all** offspring of an affected dog will be carriers.
- **carriers of GSD IIIa** (have one copy of the mutant gene and one normal gene copy). Carriers have no disease themselves but can pass the defective gene on to the next generation. On average, 50% of offspring of a carrier will be carriers themselves. If offspring receive the mutated gene from **both** parents, they will exhibit GSD IIIa.
- **genetically normal for GSD IIIa** (have two copies of the normal version of the gene). Normal dogs can never produce an affected dog. If **both** parents are GSD normal, none of the offspring will have the disease or be carriers.

### **How accurate is the test?**

The test itself identifies the actual disease-causing mutation and is therefore totally reliable in identifying this form of GSD IIIa. If, however, a second form of GSD were to develop in the breed, the test would not identify it.

**Please take every care to follow the submission instructions and ensure that the brushes are labeled correctly.**

#### **Procedure to collect samples:**

1. We advise that two people collect the DNA sample, one to gently restrain and hold the head, the second to collect the sample. To avoid contamination from dog food, please collect the sample at least 2 hours after the last meal or snack. Dogs may have access to water at any time.
2. Label each brush sleeve with the dog's full name, AKC or UKC registration number and owner's name. Label 2 brush sleeves per dog. Label on the **paper side** of the brush sleeve (labels on the plastic side come off too easily).
3. Wash hands before sample collection **and between dogs** if more than one DNA sample is being collected. We are more interested in the dog's DNA than yours.
4. Peel open the brush package about 1 inch at the arrow (the opposite end from the bristles). Remove the brush, being careful not to touch the bristles.
5. Place the brush between the lip and gum of the dog being tested, and gently brush the inside of the cheek using all sides of the round brush.
6. Place the brush back in the original labeled package, bristles in first.
7. Repeat steps 3-6 with the additional brushes for each dog. Please collect **2 brushes from each dog**.

### **Cost of the test**

The cost of the test is \$85.00 per dog. We regret that we are not able to offer a discount to those sending more than one sample. We will send you a brush sampling kit if you communicate your postal mailing address and how many dogs you wish to test. Please include an additional \$5.00 for the sampling kit (one fee per kit, not per dog) at the time you submit the samples. Please enclose a check for the total made out to: **Michigan State University (CCR Test)**, and include it with the sample brushes. Clients outside the USA should pay by international money order in US dollars. For shipment, tape the ends of each brush package closed, and bundle the brushes for each animal. Brushes for more than one dog can all be returned in the same package. The samples are stable without refrigeration and do not need overnight express mailing.

Include in the package:

- a. **clearly labeled brushes** (please use registered names and registration numbers, if available)
- b. **full payment including for brushes sent to you**
- c. **Please copy and fill out the reverse side for each dog** (3 generation pedigree optional, but appreciated)

The package should be sent by Priority Mail to:

Dr. John C. Fyfe  
Laboratory of Comparative Medical Genetics  
Biomedical Physical Sciences Bldg  
567 Wilson Rd, Rm 2209  
Michigan State University  
East Lansing, MI 48824-4320

### **How will I be informed of the result?**

The result(s) will be mailed to you using the return address that you supplied. You will receive a Certificate with the name of the dog and the result. We regret that we cannot give out results over the telephone, but we will email if an E-address is provided. Communication with the laboratory is most efficient by email. **All results are strictly confidential and will only be released to the person who submitted the samples.**

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IN CURLY-COATED RETRIEVERS (CCR)**

<b>Dog Name:</b>
<b>AKC#:</b>
<b>Color:</b>
<b>Birthdate:</b>
<b>Sire:</b>
<b>Dam:</b>
<b>Owner:</b>
<b>Owner address:</b>
<b>Submitter Email:</b>
<b>Mail results to:</b>
<b>(Submitter)</b>

**Pedigree for:**
