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Dear Carol,

EU LUPA PROJECT: DCM

We are lucky in now taking part in a European wide project with the goal of unravelling dog genetic diseases with a view to also helping humans. This is called the LUPA project. It is investigating a number of genetic diseases in dogs, including DCM - There are details on the following website:

<http://www.eurolupa.org/project/53.html>

I am involved mainly with the DCM part of this project. The leader for Dobermanns is Gerhard Wess, from Munich, who has already raised samples and data from an almost complete cohort of DCM Dobermanns and older Dobermanns (over 10 years old) with normal echos and normal Holters). However, after the initial mapping for differences in genetic markers comparing the Normal and DCM Dobermanns, they will need samples from other countries to map the region of the canine genome more finely, and to find the causal gene defect.

What we need

- UK cohorts of Dobermanns, both NORMAL and DCM.
- Not all cases need to be seen by us in Liverpool – we can collect data from other cardiologists or vets in practice, providing that the diagnosis of NORMAL or DCM has been confirmed.
- We need clinical data and echocardiography data from each dog, together with a pedigree document.
- The Normal dogs need to be 8 years of age or older, with a normal echo (and Holter if done) to be sure that they are genuinely normal. The DCM dogs can be any age.
- To be included, the dog needs to have a blood sample submitted for DNA. This will only be possible if the vet seeing the dog needs to take a blood sample for a clinical reason, perhaps a geriatric health check. In the DCM dogs, blood samples are indicated to check electrolytes, kidney and liver function etc. Any surplus blood should be put into an EDTA (red-top) tube, and submitted to us in Liverpool for DNA extraction (5 mls preferred).
- Dogs with hypothyroidism will be excluded from the DCM / Normal cohorts, but please note that Dobermanns with Hypothyroidism are included in another part of the LUPA project (<http://www.eurolupa.org/project/54.html>; WP 3.3).
- Initially, we will collect samples from any dog screened “Normal” or diagnosed with DCM. However, to be in the final cohort, the dogs should not be related at parental level (and ideally, not at grand-parental level).

As part of this LUPA project, we have appointed a research assistant, who is a young vet. She is called **Hannah Copeland**. She does not start until July, as she is finishing an internship at the Royal Veterinary College. She is a Glasgow graduate. She will need further training in scanning, but will, I

hope, hit the ground running in organising scanning, collection of data and samples from dogs etc. I know you will all welcome her!

Most of the scanning is likely to be done here, but we could arrange some scanning trips (most likely over weekends) if a group of older dogs for screening can be arranged. Doves over 10 years old will be screened free of charge to the owner. We hope to encourage pet dogs as well as those owned by breeders. Of course, we still provide PROTECT screening for eligible Dobermanns, and our heart testing service for younger Dobermanns, at the usual hospital costs.

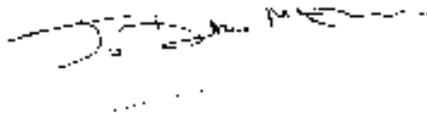
If a Dobermann owner is further away from Liverpool, and sees another cardiologist locally, we are still very happy to receive surplus blood from diagnostic tests, for DNA extraction, and clinical and echo / Holter and pedigree details from this dog. However, we do not have the funding to pay veterinary fees for other centres. In practice, it is most likely that these will be DCM cases, rather than dogs from the Normal cohort.

From our previous studies, we often identified dogs with minor echocardiography abnormalities which were not severe enough to label them as having "DCM". In some cases, these abnormalities do progress over time. In the LUPA project, if we have dogs in this "Equivocal" category, we will recommend seeing them again (e.g. 6 – 12 month's time) to see if they progress to definite DCM.

Please let me know if you require any further information. In the meantime, thank you very much for your interest and desire to help. Please feel free to share this information with your members.

If you peruse the LUPA website, you can see that this is an incredible opportunity for dog diseases in general. Over the whole of Europe, there is an amazing pot of money going to over 20 centres investigating dog genetic diseases, and I am certain the rewards will be high. DCM, and our part in DCM at Liverpool, is relatively small, but we have a great opportunity to make a difference! Please do support this project!

Yours sincerely,



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Investigating Dilated Cardiomyopathy in Dobermanns – the LUPA project

What is the LUPA Project?

The LUPA project is a Europe-wide consortium of vets and geneticists investigating a variety of genetic diseases in dogs. Information about the study can be found on the website www.eurolupa.org. Heart disease is an important group of diseases being investigated, and researchers at the University of Liverpool (Dr Jo Dukes-McEwan and Hannah Copeland) are concentrating on the investigation of dilated cardiomyopathy (DCM) in Dobermanns, and 4 other breeds.

What is Dilated Cardiomyopathy?

Dilated cardiomyopathy (DCM) is, as the name suggests, a disease of the heart where the muscle becomes thin, and the chambers become dilated and rounded, meaning that the heart cannot pump blood efficiently around the body. This is a common disease in large and giant breed dogs, and we know that in Dobermanns and some other breeds, it can be inherited. Dobermanns with the disease can be affected by life-threatening heart arrhythmias, and/or can progress in to heart failure and eventual death.

As most members of the Dobermann community will know, there has been increasing interest in investigating dilated cardiomyopathy in the breed, particularly as part of the PROTECT study. **The LUPA project has different enrolment criteria, strategies and goals to PROTECT, but dogs may be eligible for entry in to one or both of these studies.**

What does the study involve?

The LUPA project aims to identify the gene or genes responsible for DCM in Dobermanns. In order to do this, we need to compare the DNA of Dobermanns with DCM, to that of healthy Dobermanns (50 dogs in each group, unrelated at parental level). Comparing the DNA in this way will hopefully identify differences in genetic markers which may be responsible for the disease.

The leader for Dobermanns is Gerhard Wess, from Munich, who has already raised samples and data from a complete cohort of DCM Dobermanns and older Dobermanns (over 10 years old) with normal echos and normal Holters. However, after the initial mapping for differences in genetic markers comparing the Normal and DCM Dobermanns (which is approaching completion), they will need samples from other countries to map the region of the canine genome more finely, and to find the causal gene defect (fine-mapping).

We therefore need the help of the Dobermann community in order to collect more DNA samples from dogs with DCM, and healthy dogs, to be used for the second phase of the genetic studies (fine-mapping).

What can Dobermann owners/breeders do to help?

We would gratefully receive **DNA samples from Dobermanns that have been diagnosed with DCM or dogs that have been screened as NORMAL by a cradiologist**, provided they meet the following criteria:

- Not all cases need to be seen by us in Liverpool – we can collect data from other cardiologists or vets in practice, providing that the diagnosis of NORMAL or DCM has been confirmed.
- We need clinical data and echocardiography data from each dog, together with a pedigree document.
- The Normal dogs need to be 8 years of age or older, with a normal echo (and Holter if done) to be sure that they are genuinely normal. The DCM dogs can be any age.
- To be included, the dog needs to have a blood sample submitted for DNA. This will only be possible if the vet seeing the dog needs to take a blood sample for a clinical reason, perhaps a geriatric health check. In the DCM dogs, blood samples are indicated to check electrolytes, kidney and liver function etc. Any surplus blood should be put into an EDTA (red-top) tube, and submitted to us in Liverpool for DNA extraction (5 mls preferred).

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- Initially, we will collect samples from any dog screened “Normal” or diagnosed with DCM. However, to be in the final cohort, the dogs should not be related at parental level (and ideally, not at grand-parental level).

LUPA researchers at the University of Liverpool are also looking **for healthy Dobermanns aged 8 or older to be screened for dilated cardiomyopathy**. The aim is identify normal individuals that can go on to form part of the cohort of healthy dogs. You will notice that the age ranges of PROTECT (5-9 years) and LUPA (8+ years) overlap slightly – therefore **LUPA may be particularly of interest to owners of healthy Dobermanns aged 10 years or older, who are not eligible for PROTECT**.

The LUPA screening is provided **free of charge** and includes:

A full clinical examination

A full heart scan (Doppler echocardiography)

An ECG (electrocardiogram)

A Holter monitor (24 hour ECG) to assess heart rhythm

A blood sample to screen for other diseases that may affect older dogs

Blood that is left over from the blood sample is stored for later DNA analysis. Dog owners are required to provide a three-generation pedigree but this information remains strictly confidential and no names of dogs or owners will be published.

We would welcome enquires from people interested in bringing their dog for screening or in submitting a DNA sample from their dog. We would also be happy to answer any questions which may arise about our research. Please direct enquiries, in the first instance, to Hannah Copeland (contact details below).

Thank you

Hannah Copeland BVMS (Hons) MRCVS

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