

Genetic Research project

Hyperkeratosis and Irish terrier



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DNA tests for cats and dogs



Genetic identification and parentage testing
DNA tests for several diseases



Research projects

Cancers

Histiocytosis sarcoma
Bouvier bernois, rottweiler...



Hyperkeratosis

Dogue de Bordeaux,
Irish Terrier



PRA: Border collies ...



Mitral valve disease:
Yorkshire terrier

Dilated cardiomyopathy:
Irish Wolfhound, Boxer...

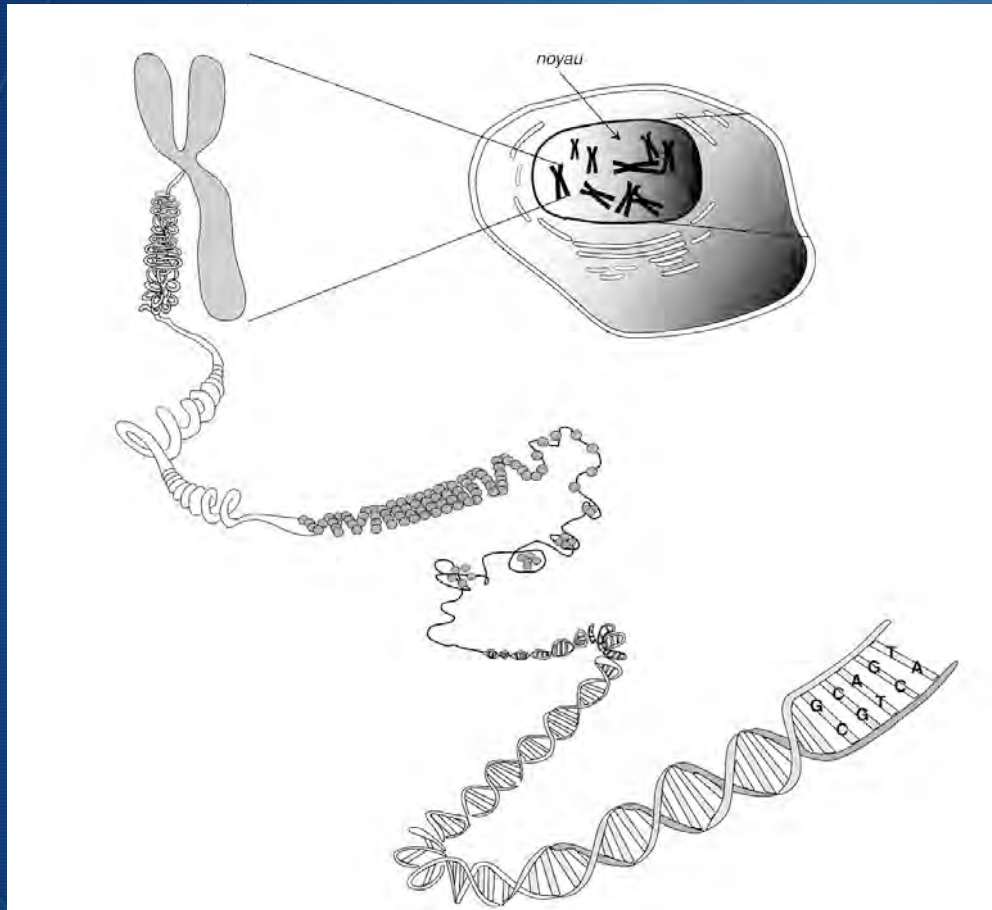


Amyloidosis and familial fever
Shar-Pei

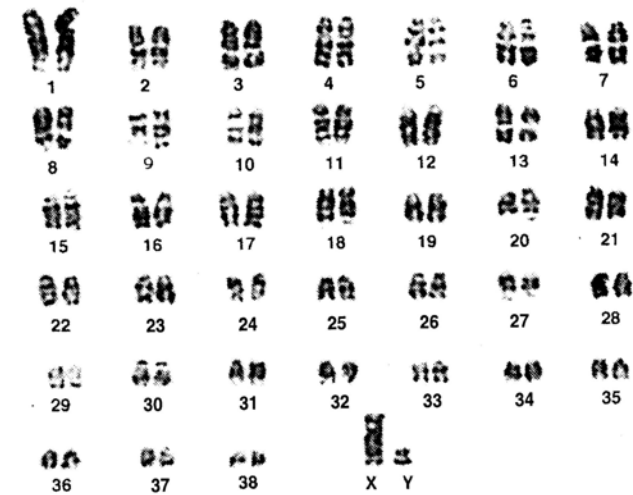
Spinning
Bull Terrier



Canine genome

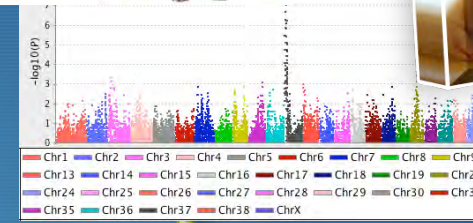


20 000 genes
38 pairs of chromosomes + X/Y
2,4 billions of bases





La génomique au service
du chien et du chat



Research and development

Sampling with clinical data



Locus research



Veterinarians specialised
Vet School
Breeders, clubs

Gene/mutation research



Validation



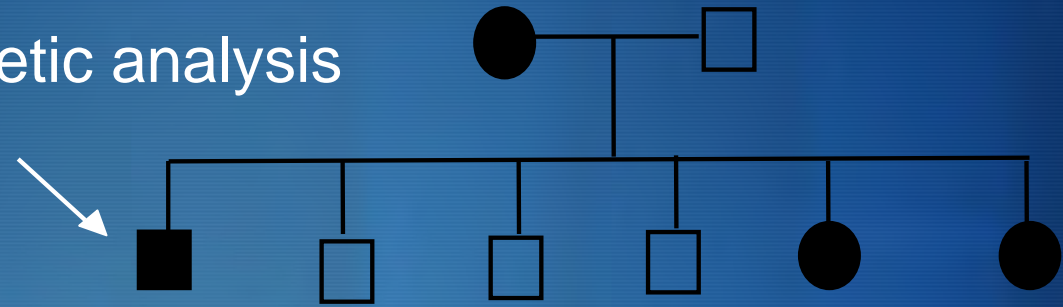
Test development



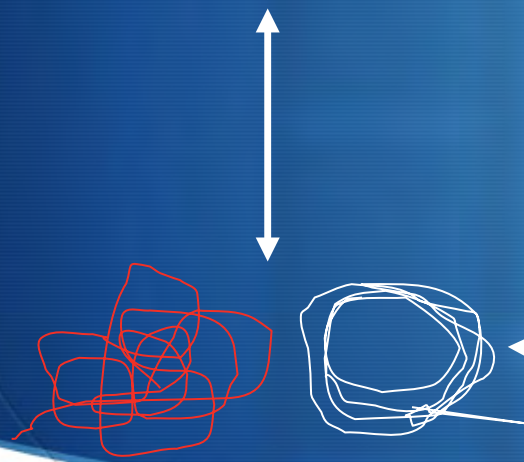
Clinical diagnosis



Genetic analysis

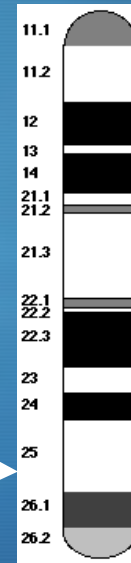


pedigree data+ clinic + Sample



Non functional protein

mRNA



Chromosome

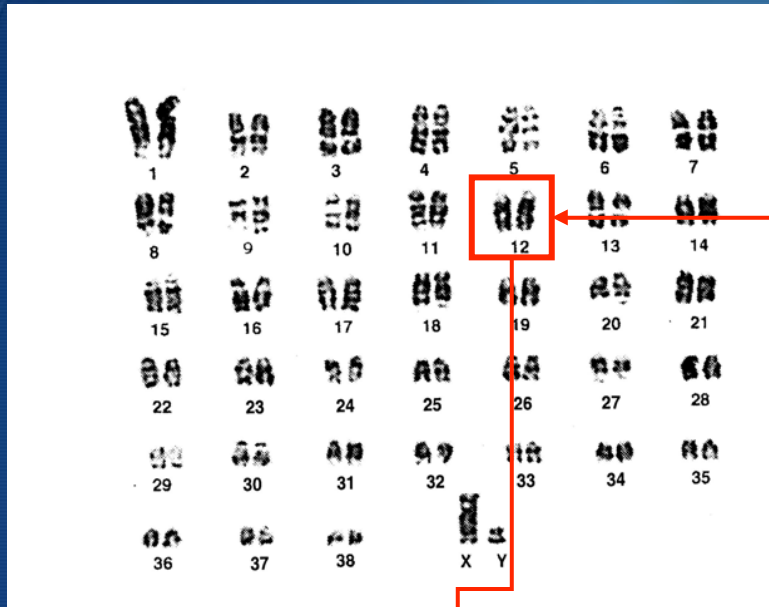
gene

mutation

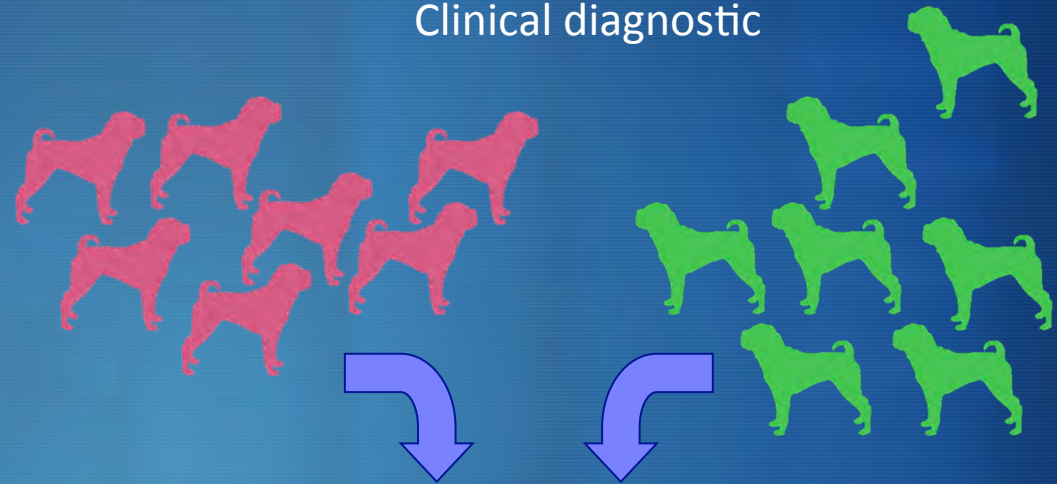
DNA
A G T T / A : mutation
G C T A

Sampling of skin/ footpad (RNA later and formaldehyde)

Dog genome: 2,4 billions of bases, 20 000 genes

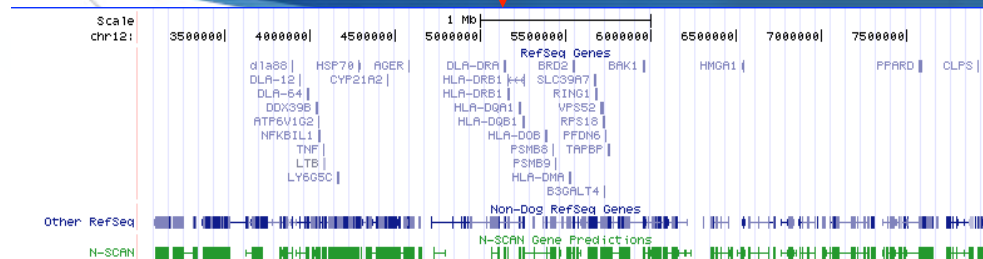
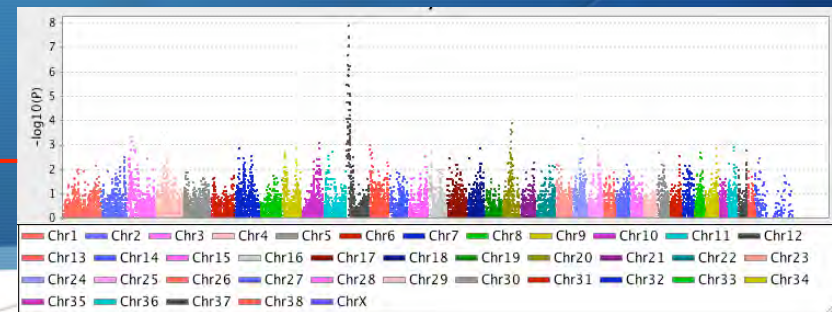


Clinical diagnostic



SNP Arrays
170000 markers

Statistical analysis



Hyperkeratosis:

- Thickening with severe keratinous proliferations



No sex predisposition

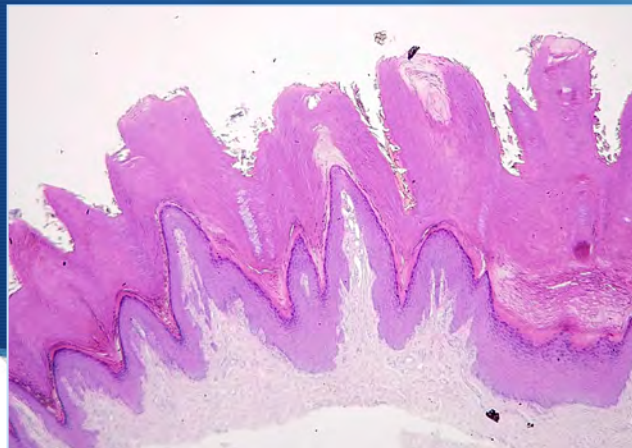
Mean age of onset : between 10 weeks and 16 months



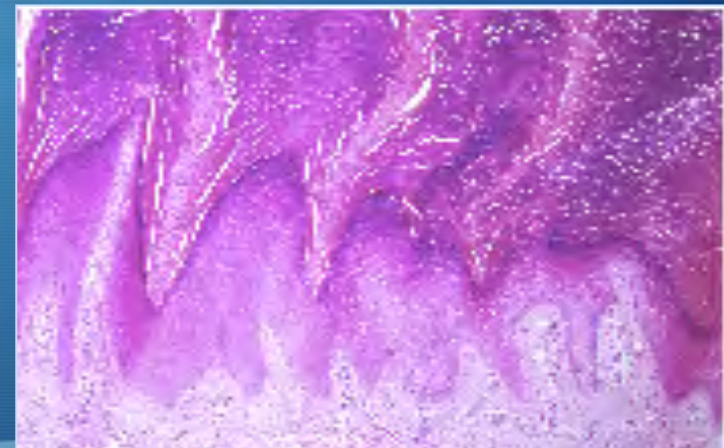
Another breed affected by hyperkeratosis : French Bullmastiff
(dogue de Bordeaux)



French Bullmastiff



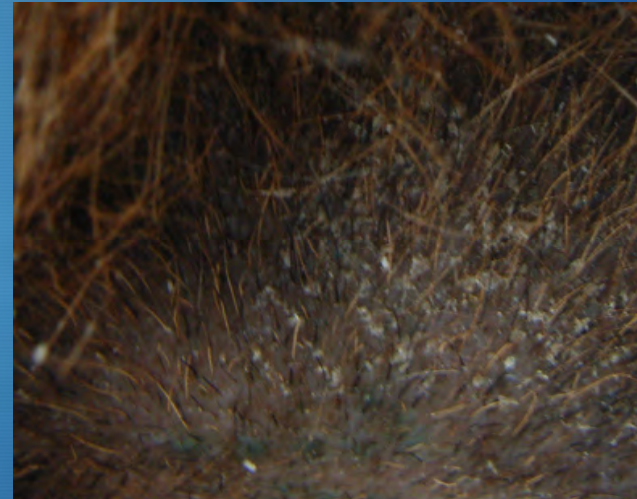
Human striate keratoderma Type 1



-> need of some biopsies of footpad in Irish Terrier to look at the histopathology

Other clinical observations :

- keratoconjunctivitis sicca (lack of tear production))
- ichthyosis dermatosis

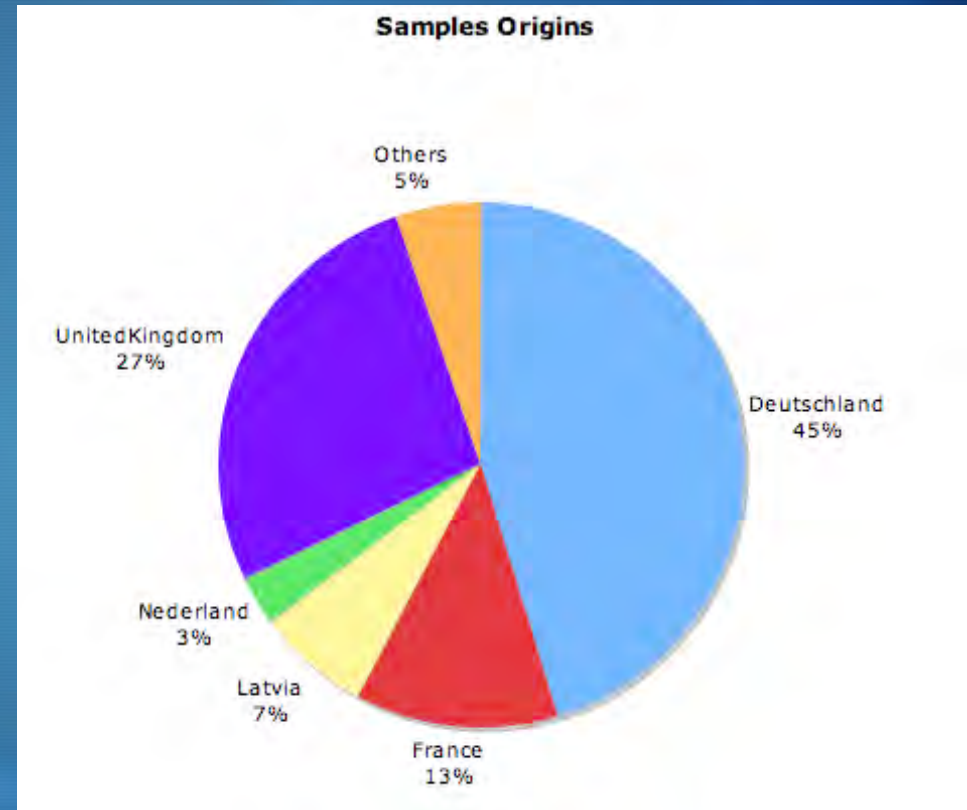


-> need to have information on these two troubles

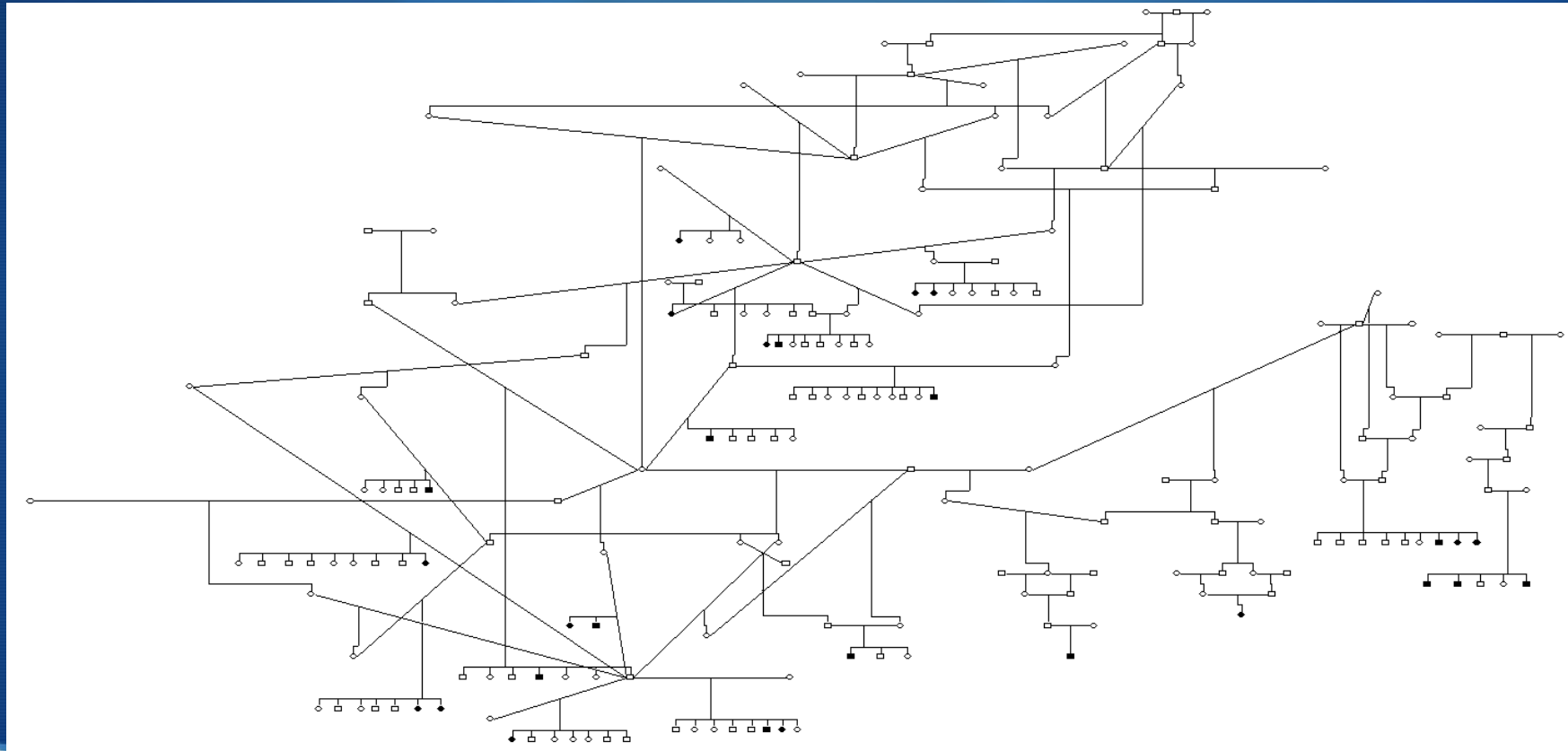
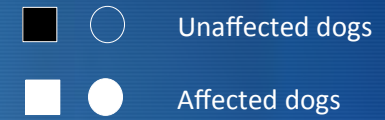
Sampling :

- 578 samples of Irish Terriers

22 are affected by hyperkeratosis

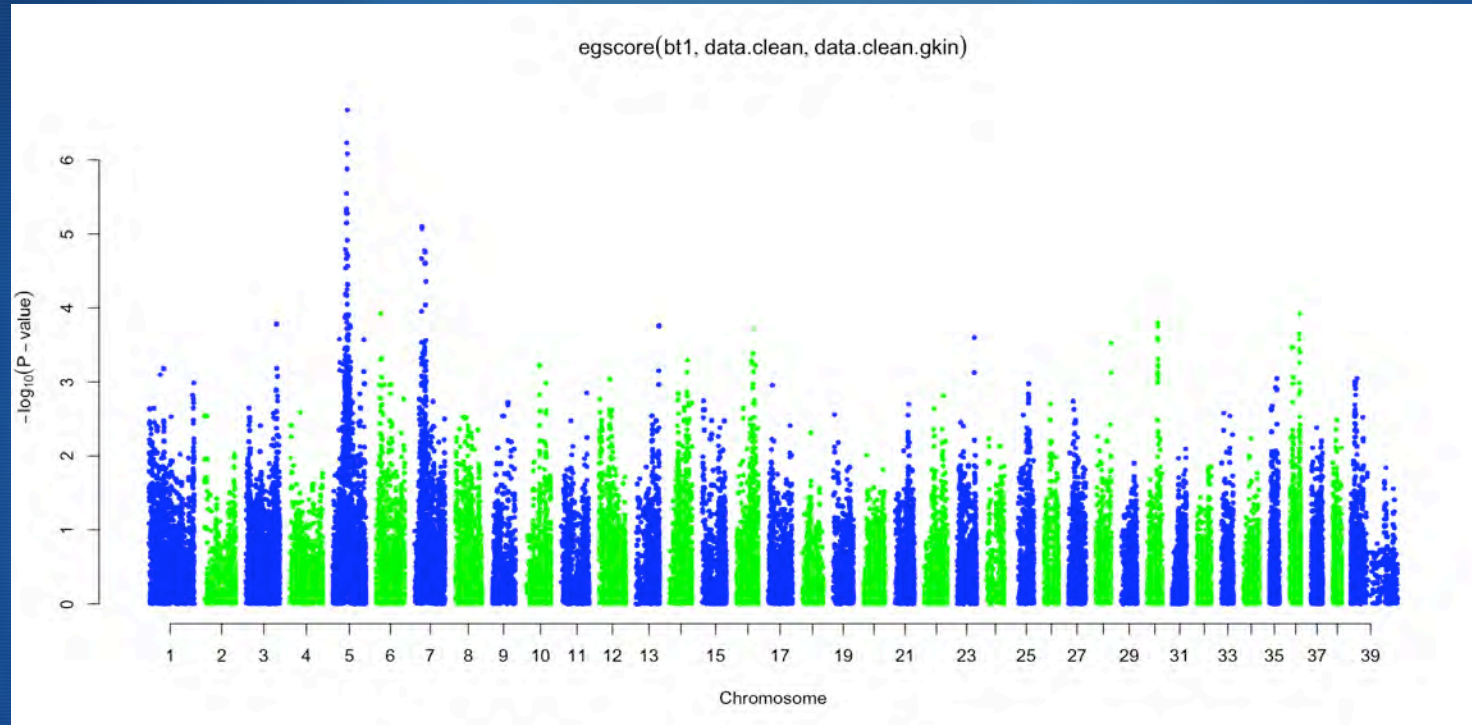


Inheritance:



Monogenic autosomal recessive inheritance

GWAS on 13 cases and 21 controls on the Illumina Canine 170,000 SNP array



One main locus of 2 Mb on CFA 5

Sequencing of two good candidate genes : no mutation !

Sequencing of the complete region on 8 dogs : 4 affected and 4 healthy dogs
-> study of the different variants...ongoing



Sampling :

- Blood sample on EDTA or cheekswab
- copy of the pedigree
- clinical information
- sampling certificate

Document can be upload on www.antagene.com

For affected dogs : if possible, biopsies of affected footpad in formaldehyde and RNA later (provided by Antagene)

Contact: [mageane @ antagene.com](mailto:mageane@antagene.com)

Caroline Dufaure de Citres

Anne Thomas

Thanks to

breeders, owners and veterinarians

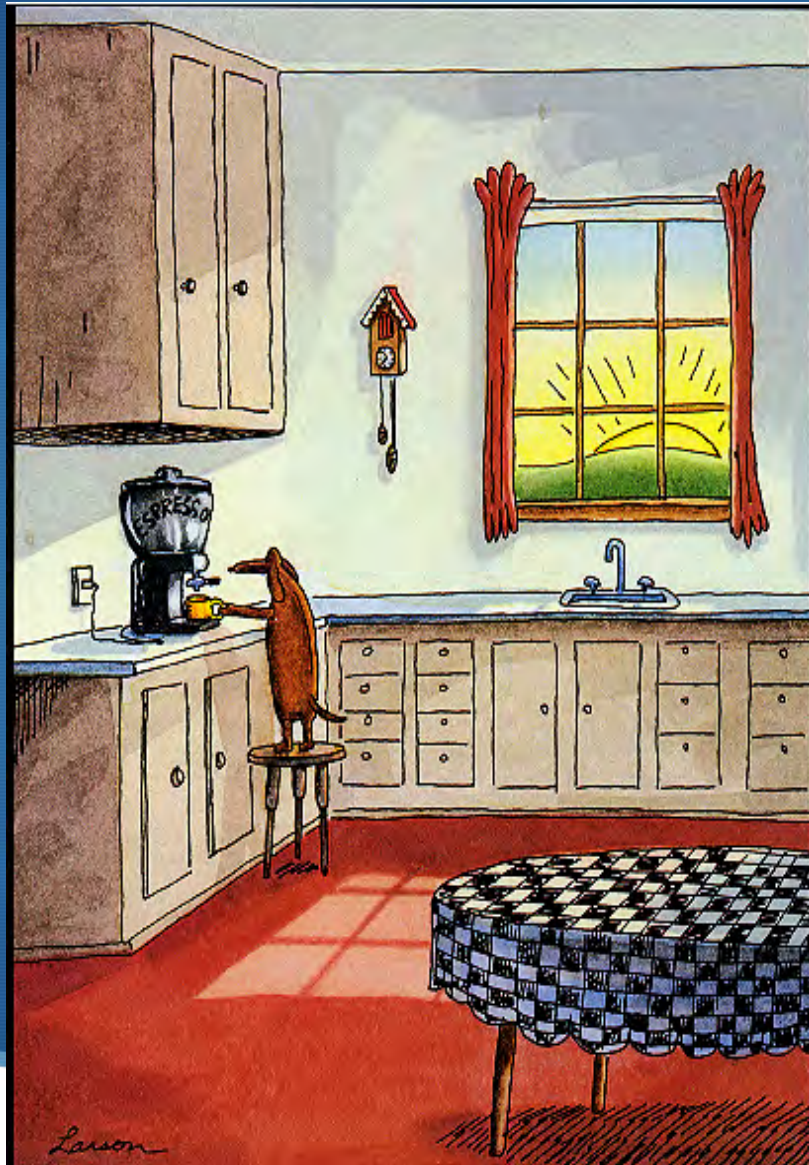
Mrs Susan Seabridge in UK

Mrs Andrea Gasch and Helga Richter-Lönnecke in Germany

Dr Catherine André, Jocelyn Plassais, Christophe Hitte of the team « Canine Genetics » from the CNRS – Rennes University

European LUPA Project
2008-2012





Anne THOMAS – Irish Terrier– 09/11/2013