

## Genomics Laboratory

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## Role

The Hendrix Genetics Genomics Laboratory is the central location for all molecular DNA work in all divisions of Hendrix Genetics. Blood and tissue samples from the divisions and their customers are shipped to the Hendrix Genetics Genomics Laboratory in Ploufragan, France. DNA is extracted from all samples and stored in the BioBank.

DNA samples are used for in-house analysis and genotyping. Another possibility is that the samples are sent to international service laboratories for low, medium and high density SNP genotyping and whole genome re-sequencing. Results of genotyping and DNA sequencing are sent to geneticists of Hendrix Genetics for use in the breeding programs of the breeding divisions or in customer breeding programs.

## Facilities

The Hendrix Genetics Genomics Laboratory covers a space of 165 m<sup>2</sup>. It contains all facilities and equipment that is required for large scale molecular work, ranging from DNA extractions to molecular diagnostics and genotyping. Robots are available to enable handling and processing of large numbers of samples without human error. The laboratory also is equipped for tissue culture and embryo micromanipulation.

## Typical work done:

- DNA extractions from chicken blood samples for single gene genotyping, for medium and high density SNP genotyping (Genomic Selection) and whole genome re-sequencing in chickens of the layer breeding program of ISA.
- DNA extractions from salmon and trout fin clips for low density SNP genotyping for parentage assignment in aquaculture breeding programs of Landcatch in Scotland and Landcatch customers around the world. Also, medium and high density SNP genotyping for Genomic Selection in Atlantic Salmon.

- DNA extractions from pig blood and tissue samples for low, medium and high density SNP genotyping (Genomic Selection) in the pig breeding program of Hypor. Also, low density SNP genotyping for parentage verification in the pig breeding programs of Hypor.
- High quality DNA preparation from turkeys for entire genome re-sequencing, and low to high density genotyping. Medium density genotyping will start in 2016.
- Real Time-PCR analysis for highly specific disease diagnostics in poultry.
- Banking of over hundred thousands of DNA, blood and tissue samples of breeding animals of chicken, pig, turkey, guinea fowl and several fish species.

### Capacity & Equipment

- Currently 100.000 DNA extractions per year and increasing rapidly
- 3840 samples per week capacity for DNA extraction
- 18 refrigerators and freezers for storage (+4°C, -25°C, -86°C)
- 3 liquid handling robots
- Multiskan Spectrum spectrophotometer (DNA concentration reader)
- Sample tracking by barcoding
- In house developed LIMS which is connected with the spectrophotometer and the liquid handling robots.
- 3 thermo cyclers (PCR machine or DNA Amplifier)
- 4 centrifuges
- CO<sub>2</sub> incubator
- Phase contrast microscope with micromanipulation equipment
- High pressure room for sterile working environment

