

Customer Spotlight

Research institute INRAE relies on a unique 'breed' of automation technologies and reagents to advance plant and animal genomic science



Charles Poncet,
IR Genotyping Platform Manager with INRAE

As one of the world's leading institutes for research on agriculture, food, and the environment, the French National Research Institute for Agriculture, Food, and Environment (INRAE) strives to use research and innovation to guide the emergence of sustainable agricultural and food production systems.

From its inception, INRAE has been dedicated to carrying out science "dedicated to life, humans and the Earth"—and to uncovering solutions to some of the world's most critical challenges.

INRAE's international collaborations focus on its integration into research networks, and playing a unique role within global organizations. One such collaboration is with Beckman Coulter Life Sciences, a company widely known as a leader in lab automation and genomic reagents.

In fact, Charles Poncet, IR Genotyping Platform Manager with INRAE, has been collaborating with Beckman Coulter Life Sciences for nearly 20 years.

"My initial contacts (took place) when I was still working in Montpellier," he says.

"Jean-Claude Traore, then a commercial engineer specializing in automation at Beckman Coulter Life Sciences (and now the company's Vice President, Commercial Management & Sales), approached me with a robotic solution for a marker I had published.

"Although we did not collaborate on that specific project at the time, three years later, at GENTYANE in Clermont-Ferrand, I acquired two Beckman Coulter Life Sciences (liquid handlers, which) were initially used for preparing PCR plates for microsatellite marker amplification."

INRAE was formed on January 1, 2020 with the merger of INRA, the French National Institute for Agricultural Research, and IRSTEA, the French National Research Institute of Science and Technology for the Environment and Agriculture.

GENTYANE is a member of the Genomics INRAE infrastructure.

The genesis of GENTYANE



Established in June 2006, the GENTYANE platform was made possible through funding from INRAE, the Auvergne Rhône Alpes Regional Council, GIS IBISA, and European FEDER funds. Over the years, the platform has achieved significant milestones, including:

- Being labeled IBISA, an INRAE Collective Scientific Infrastructure
- Being certified ISO 9001:2015 (since 2012)
- Being certified NF-X 50 900 (since 2014)

According to Mr. Poncet, GENTYANE operates as a sustainable platform led by a team of 12 that includes experts in genotyping and sequencing. Their 5,380-square-foot laboratory meets the latest safety standards and incorporates cutting-edge technologies in SNP genotyping, ultra-high-throughput sequencing, optical mapping, bioinformatics and automated DNA extraction.

GENTYANE offers a wide range of genomic services and expertise to the scientific community, catering to projects of all sizes. Since 2020, their team has completed 1,000 projects encompassing a wide variety of organisms. Approximately half of these projects focused on plants (e.g., wheat, sunflower, rapeseed, apple and pear), 45% on animals—including pigs, horses, bass, bream, sturgeon and bees—and 5% on other organisms ranging from fungi and bacteria to humans.

These projects were carried out for academic research teams as well as for socio-economic partners, highlighting the diverse range of GENTYANE's applications and collaborations.

Creating collaborative synergy for efficient genomic workflows

GENTYANE relies on state-of-the-art instruments from life sciences companies around the world. Among the advanced technologies from Beckman Coulter Life Sciences used at their facility are:

- Three Biomek FX^P 96/384 liquid handlers
- A Biomek i7 Hybrid automated workstation for high-throughput applications
- A Biomek 4000 liquid handler
- Two Allegra X-15R centrifuges
- An Allegra V-15R centrifuge
- An Avanti J-15R centrifuge

Biomek liquid handlers have continuously played a crucial role in GENTYANE's genomic workflows. The Biomek FX^P and i7 automated workstations enable automated preparation of genotyping arrays and high-throughput DNA extraction from various species **(goat, cattle, equine, aquaculture, and poultry) and different sample types (blood, punch, hair, tissues).**

GENTYANE has also successfully developed high-throughput DNA extraction methods using **Beckman Coulter Life Sciences DNAdvance and GenFind V3 extraction kits**, with 4 x 96-well plates per routine run, extracting approximately 80,000 samples per year.

The ease of use, robustness, and efficiency of the Beckman Coulter Life Sciences automated systems, along with the quality of the extraction kits, have been key advantages for GENTYANE. In addition, the exceptional customer support and competitive pricing provided by Beckman Coulter Life Sciences have further strengthened their ongoing collaboration with INRAE/GENTYANE.

Looking ahead, Mr. Poncet says GENTYANE also plans to focus on automated library preparation for sequencing and extraction of ultra-high molecular weight (HMW) DNA.

And by continuing to leverage innovative, "best-of-breed" lab automation and genomic reagents from Beckman Coulter Life Sciences, GENTYANE remains committed to driving advancements in research that contribute to the scientific community's understanding of plant and animal genomics.

Learn more about the GENTYANE platform at gentyane.clermont.inrae.fr

Or contact **Charles Poncet** | charles.poncet@inrae.fr

Learn more about Beckman Coulter Life Sciences Genomic Reagents at beckman.com/reagents/genomic

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