Italfarmaco and Istituto Ronzoni Announce BioSpecNet, a Scientific Consortium: First Private 800 MHz NMR in Italy to Support Rare Disease Research

A strategic structural biology resource will now be available to the broader scientific community

Milan, Italy, October 20, 2025 – Building on over 20 years of scientific collaboration, Italfarmaco S.p.A., a multinational group with a strong research focus, and the Ronzoni Institute for Chemical and Biochemical Research, a non-profit foundation specializing in basic and applied research in chemistry and biochemistry, have launched BioSpecNet, (Biophysical Spectroscopy Network), a new consortium for structural and biochemical research.

The project begins with the joint acquisition of a Bruker Avance NEO 800 MHz NMR spectrometer—the first of its kind installed in the private sector in Italy and the first ever in Northern Italy. This major scientific infrastructure, previously found only in three public university labs in the country and in just over sixty facilities across Europe, marks a significant milestone in Italian private research capacity.

The initiative represents a strategic investment to meet the challenges of modern pharmaceutical research, especially in areas like rare diseases, oncology, and drug discovery, where structural biology techniques are critical for target validation and drug candidate optimization.

"Our collaboration with Italfarmaco dates back to the 1980s," said Marco Guerrini, Director Istituto Ronzoni. "Together, we successfully characterized structurally complex generic drugs, developing analytical methods that are now recognized by regulatory agencies. This consortium is a natural evolution of a decades-long scientific partnership, now further strengthened by this cutting-edge infrastructure."

Christian Steinkuhler, Chief Scientific Officer, Italfarmaco added: "There is no one-size-fits-all approach to research. That's why we are investing in an integrated suite of advanced technologies - from NMR to crystallography, AI, and omics sciences - to validate hypotheses faster, explore novel structures, and accelerate drug development. It wouldn't have made sense to acquire such a sophisticated instrument alone. The consortium with Istituto Ronzoni stems from a shared vision: only by combining expertise and resources we can remain competitive."

The consortium aims to maximize scientific resources by creating an integrated access model, making the instrumentation available to external research groups both nationally and internationally.

"It's unthinkable for a single group to manage instruments of this complexity," concludes – Marco Guerrini, Director Istituto Ronzoni - . "Through this consortium, we aim to catalyze new collaborations and develop joint projects that fully leverage synergies among public institutions, private companies, and research foundations."

NMR Driving Rare Disease Research

The installation of the 800 MHz NMR system complements Italfarmaco's ongoing research programs in rare diseases and oncology, particularly in the clinical and scientific development of givinostat, recently approved as Duvyzat® for the treatment of Duchenne Muscular Dystrophy (DMD).

In parallel, the Istituto Ronzoni will expand its research on natural molecules, mainly polysaccharide-based, with antithrombotic, antitumor, antiviral, and anti-inflammatory properties.

Thanks to this platform, researchers can design and validate new molecular structures using integrated approaches combining drug design, artificial intelligence, and experimental screening. The NMR system will enable verification of molecular interactions with biological targets, enhancing drug selectivity and efficacy.

An Ecosystem for Innovation

The creation of the Consortium is the latest step in Italfarmaco's multidisciplinary approach to New Chemical Entity (NCE) discovery, supported by internal capabilities, strategic partnerships, and advanced technologies.

The New Drug Incubator (NDI) drives early drug discovery through specialized units focused on:

- Medicinal Chemistry: molecular design and synthesis
- Biology: in-vitro proof-of-concept studies
- In-vivo Validation: preclinical animal models
- Antibodies (Exiris, Rome): generation of fully human monoclonal antibodies via phage display

Italfarmaco has also developed ITForge, its in-house platform for AI-driven molecular design, incorporating machine learning and generative chemistry, supported by high-performance computing infrastructure (NVIDIA H100 and L40S GPUs).

About Italfarmaco

Founded in 1938 in Milan, Italy, Italfarmaco is a private global pharmaceutical company that has led the successful development and approval of many pharmaceutical products around the world. The Italfarmaco group has operations in more than 90 countries through directly controlled or affiliated companies. The company is a leader in pharmaceutical research, product development, production and commercialisation with proven success in many therapeutic areas including immuno-oncology, gynaecology, neurology, cardiovascular disease and rare diseases. Italfarmaco's rare disease unit includes programmes in Duchenne muscular dystrophy, Becker muscular dystrophy, amyotrophic lateral sclerosis and polycythaemia vera.

About Istituto Ronzoni

The Giuliana Ronzoni Institute for Chemical and Biochemical Research, founded in 1927 by textile industrialist and philanthropist Luigi Ronzoni, began as a postgraduate training center in industrial chemistry. Since 1952, it has operated as a private non-profit research foundation affiliated with the Italian Ministry of University and Research.

Its research and education programs—ranging from undergraduate theses to master's and PhD programs—are funded through real estate income, public and private grants, and industry-sponsored research contracts, particularly in the pharmaceutical sector.

Over recent decades, the Institute has specialized in natural, mainly polysaccharide-based molecules, with antithrombotic, antitumor, and antiviral properties. Notable scientific contributions, often in collaboration with international groups, include:

- Participation in the development of the life-saving antithrombotic drug Arixtra, originally developed by Organon and now owned by Aspen, is marketed by Viatris
- Contributions to the development and characterization of low molecular weight heparins
- Generation of non-anticoagulant heparin derivatives with antitumor activity, some of which are now in preclinical or clinical development

The Institute also developed NMR analytical methods for characterizing complex molecules, now recognized by international regulatory agencies. These methods were instrumental during the 2008 heparin crisis, when, in collaboration with the FDA and MIT, the Institute played a key role in identifying the contaminant responsible for multiple deaths in the United States.

For information

Italfarmaco
Veronica Carminati
Email: v.carminati@italfarmacogroup.com
Phone: +39 02 6443.3502 - +39 351 7623422