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ICFO receives new BBVA Fundamentos Grant

The research group led by ICFO Prof. Michael Krieg has been awarded a BBVA Foundation "Fundamentals" grant to study disordered proteins in neuronal cells.

October 07, 2025

This past week, the BBVA Foundation announced the recipients of its Fundamentos Program grants. Among the 12 selected projects, the Foundation chose the project led by researchers ICFO Prof. Michael Krieg and Prof. Xavier Salvatella, from IRB Barcelona, which will investigate the role of disordered proteins in neuronal cells. This recognition will help advance the understanding of the physical and biological mechanisms that regulate the activity of these proteins and their connection to key brain processes.

The BBVA Foundation's Fundamentos Program supports cutting-edge scientific research focused on essential questions in basic science. With a **budget of ?3 million**, the program has selected 12 projects in the fields of **Physics and Chemistry, Biology and Biomedicine, and Engineering**. Its goal is to promote research that addresses fundamental scientific questions, fostering both the exploration of core principles within each discipline and the interaction between different fields.

The program stands out for offering established teams the opportunity to work on high-risk projects that would rarely receive funding in more application-oriented calls.

Among the selected projects are studies on power grid stability, urban reconstruction after climate disasters, childhood leukemia, antibiotic resistance, the development of new materials for quantum computing, and more sustainable chemistry. The selected projects will be carried out over a period of **three years** and were chosen from among 633 applications by expert panels.

Disordered proteins in neuronal cells

Within the Biology and Biomedicine projects, the research proposal led at ICFO by Prof. **Michael Krieg**, together with researchers **Montserrat Porta de la Riva** and **Neus Sanfeliu Cerdan**, in collaboration with the IRB team led by Prof. **Xavier Salvatella**, along with researchers **Jesus Garcia Arroyo** and **Carla Garcia Cabau**, has received one of the Fundamentos Program grants to study the role of disordered proteins in neuronal cells. Both groups, with complementary expertise in biology and chemistry, have been collaborating for years on interdisciplinary research that has already resulted in high-impact

publications in journals such as Nature Nanotechnology and Nature Cell Biology. Their previous collaborations focused on how a viscoelastic phase transition of the protein stomatin enable neurons to sense mechanical touch.

As a natural continuation of their previous work, Krieg and Salvatella, along with their research teams, now seek to understand the physical mechanisms underlying the biological activity of disordered proteins. This new project will address fundamental questions such as: How is it regulated when a dynamic assembly stops being dynamic? How has the protein sequence evolved to control this? How do these switches work? How is this connected to pH, and specifically, how does it work in neuronal cells?

Thanks to this support, the two research groups will be able to deepen their study of the physical and biological mechanisms that regulate the behavior of these proteins, opening new perspectives for understanding key neuronal processes.

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From left to right: Montserrat Porta, Neus Sanfeliu, and Michael Krieg