

Jorge Alegre Cebollada

*National Center for Cardiovascular Research
Madrid, Spain*

Friday, 7th April 2017, 10:00 s.t.
Seminarraum Lehar 02, Lehartrakt BC, 2nd floor
TU Wien, Getreidemarkt 9, 1060 Vienna



Tales from spring brakes

The heart is a mechanical machine that has little room for failure. Differently to pumps manufactured by men, the heart is built upon soft tissue. What are the mechanical properties of cardiac tissue and its constituent proteins sustaining the remarkable activity of the heart? How is the elasticity of the myocardium tuned to accommodate the expansion of the ventricles during diastole? How do mutations in proteins with a mechanical role trigger the development of life-threatening cardiomyopathies? Since the mechanical properties of proteins are not accessible to standard bulk biochemical techniques, our lab takes a multidisciplinary approach to try to answer all these questions. We specialize in single molecule methods using atomic force microscopy (AFM), which are able to measure the effects of mechanical forces on proteins. We focus on titin and cardiac myosin binding protein C, two key proteins that enable and modulate contractility of the sarcomere by establishing elastic tethers.

Jorge Alegre Cebollada obtained his PhD in Biochemistry in 2008 from the Complutense University of Madrid. As PostDoc he joined the laboratory of Prof. Julio Fernández at Columbia University working on several research projects to understand how the elasticity of proteins can be regulated by posttranslational modifications. In 2014, he joined the CNIC as an Assistant Professor. Jorge was awarded the SBE-33 prize by the Spanish Biophysical Society "for his studies on the importance of mechanical forces on protein dynamics by using single molecule techniques and AFM". In 2015, Jorge's trajectory was recognized by a Ramón y Cajal award, the top distinction given by the Spanish Government to early career investigators.

All interested colleagues are welcome to this seminar lecture (45 min. presentation followed by discussion)

Friedrich Aumayr
(LVA-Leiter)

Florian Baumgart
(Seminar Chair)