TITLE: “Mechanical characterization of proteins relevant to cardiac function by single-molecule force spectroscopy techniques”

BRIEF DESCRIPTION: 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 and magnetic tweezers, which are able to measure the effects of mechanical forces on proteins.

GROUP INFO: We are a multidisciplinary team of scientists who investigate how mechanical forces determine muscle function at the molecular, cellular, tissue and organismal levels. Our motivation is to improve the understanding, diagnosis and treatment of cardiovascular and musculoskeletal diseases. At the same time, we train scientists, awake vocations in science and contribute to strengthen and disseminate the scientific culture. You can find more info about our group at https://www.cnic.es/en/investigacion/molecular-mechanics-cardiovascular-system

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