seminars

Tuesday 23rd May 2017 12:00h

C/Faraday, 9

Conference Hall

Imdea Nanociencia

Ciudad Universitaria de Cantoblanco

Emergent mechanical properties in biology: from proteins to tissues and back

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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 domutations in proteins with a mechanical role trigger the development of life-threatening car diomyopathies? 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.







