Structure-Function Relationships in Cardiac Myocytes: Implications for Development and Disease

Prof. Dr. William Louch
Institute for Experimental Medical Research (IEMR) Oslo University Hospital and University of Oslo, Norway

Contraction of cardiomyocytes and thus the whole heart is dependent on sub-cellular structures called dyads. Well-organized dyads enable efficient triggering of Ca\textsuperscript{2+} release during the action potential, and powerful contraction. Dyads are formed gradually during development, but are broken down during diseases such as heart failure, with a reversion to an immature phenotype. These alterations include changes in t-tubule morphology and localization of ryanodine receptors. Understanding the regulation of these processes is vital for establishing novel treatment strategies for disease.