

Poster Presentation

MS101.P02

Piecing together the ryanodine receptor with crystal structures and cryo-EM

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The ryanodine receptor is the largest ion channel known. It is responsible for the release of calcium ions from the intracellular stores of the sarcoplasmic/endoplasmic reticulum. The release of calcium signals for a wide assortment of cellular processes, most importantly, muscle contraction in skeletal and cardiac tissue. Only two regions of this receptor have been described by high-resolution crystal structures. In addition these two domains have been docked into low-resolution cryo-EM structures. Here, I will present a x-ray crystal structure of a novel domain from the ryanodine receptor of both skeletal and cardiac isoforms. Stability of the wild-type versus those of mutants will be discussed as well as the implications of the structure of a mutant linked to cardiac hypertrophy and a loss of function phenotype. The docked location of the domain within the whole channel may suggest its functional properties.

Keywords: ion channel, calcium signalling