

Poster presentation

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Subcellular distribution of cGMP signalling proteins in VSMCs of IRAG KO mice

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Stimulation of cGMP signalling cascade in smooth muscle results in decreased intracellular Ca^{2+} levels and thus muscle relaxation. Inositoltrisphosphate Receptor 1 ($\text{IP}_3\text{R1}$) – a Ca^{2+} release channel located in the membrane of sarcoplasmic reticulum (SR) – is inhibited by the phosphorylation of $\text{IP}_3\text{R1}$ associated cGMP kinase dependent substrate (IRAG) via cGMPkinase1 β (cGK1 β). On the other hand, Ca^{2+} is pumped back into SR by the Sarco/Endoplasmic Reticulum Ca^{2+} ATPase (SERCA), which is inhibited by Phospholamban (PLB). Phosphorylation of PLB by cGK1 suppresses its inhibitory effect on SERCA. To characterize the subcellular distribution of these cGMP signalling proteins upon deletion of IRAG, aortic vascular smooth muscle cells (VSMCs) of IRAG KO mice were immunohistochemically analyzed and compared to VSMCs of littermate wild type animals. Furthermore we investigated the effects of treatment with 8Br-cGMP on the distribution of these proteins in IRAG KO VSMCs versus WT VSMCs.