Stem cells in cardiac drug discovery and safety pharmacology

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Abstract

Cardiomyocytes are an important target in drug Discovery and Safety Pharmacology. Many drugs can interfere with human cardiac ion channels and trigger fatal arrhythmia. However, as animal cells do have a different set of cardiac ion channels than human cells the aim for a long time has been to establish a human cell based assay. Here we compare the properties of iPS cell derived cardiomyocytes, ES cell derived cardiomyocytes with a non mammalian primary cardiomyocyte based assay and heterologous expression systems. We compare results from cardiac tissue recordings and Langendorff hearts with our datasets obtained from a variety of stem cell derived cardiomyocytes for a panel of reference compounds.