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# IN SILICO CLINICAL TRIALS: SILICOFCM – COUPLING OF PHYSICAL BASED AND DATA DRIVEN MODELING

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SILICOFCM project [1] present multiscale modeling of familial cardiomyopathy disease comprehensive list of patient specific features such as genetic, biological, pharmacologic, clinical, imaging. We made coupling of physical base and data driven modeling. Machine learning technique was used to predict target attribute as NYHA, and left ventricle geomteriacla parameters from ultrasound examination based on the database for more than 10,000 retrospective patients data set. Left ventricle ejection fraction was also important parameter for drug predition for specific patient. A coupled model which includes multiscale modelling of realistic sarcomeric system, genetics patient profile, electrophysiology, realistic directions of muscle fibers, solid-fluid interaction coupled to electrophysiology of the heart was implemented [2]. Also drug distribution in the heart and effects of different drugs are tested for cardiomyopathy disease. SILICOFCM project connected basic experimental research with clinical study and bioinformatics, data mining and image processing tools using very advanced computer models drug, and patient database and regulative in order to reduce animal and clinical studies.

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