

In silico Evaluation of Drug Efficacy and Safety in Cardiac Systems (TdP*-risk)

Medical Challenge

- Torsade de pointes (TdP) is a **drug-induced** life-threatening **cardiac complication**
- Risk dependent on **age, gender** and **pathologies**
- **High time, cost** and **risk** in **drug** development to include various population in clinical trials (low reliability of design strategies)

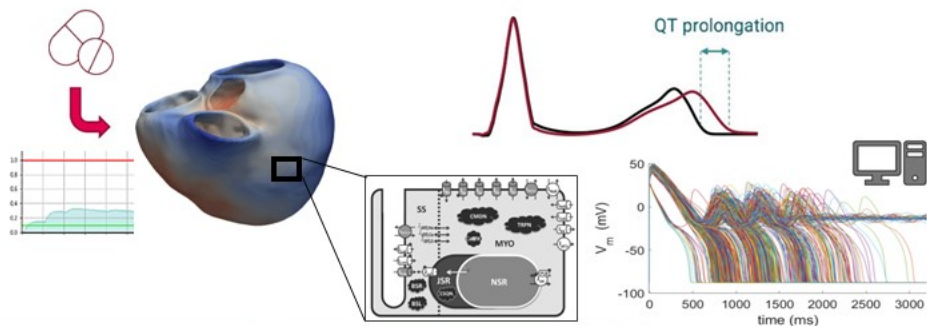
In Silico Solution

- **Predictive tool** for the preclinical assessment of TdP-risk and to **refine** clinical trials **inclusion criteria**
- Assessing the **performance** of a new treatment BEFORE initiating any clinical trial
- Parametric analysis to better define the **safe operating conditions** (safe drug dose, without TdP)

Policy Relevance

- A safer, more cost effective way to assess the performance and toxicity of new and existing drugs
- Proposing a solution accessible to large companies, startup and academic researchers
- Quantifiable, cost effective and scientific sound way to define the most appropriate target population

In Silico Clinical Trial



Pharmacokinetics

+

Electrophysiology

TdP-Risk Classifier

*TdP: Torsade de pointes, a life threatening arrhythmia

“Computational simulations facilitate the assessment of drug cardiac safety. A classifier tool is being built to improve TdP-risk prediction and a population-based approach is expected to better identify safe pharmacological conditions for different individuals”

Beatriz Trenor, Associate Professor
Universitat Politècnica de València

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