

PharmaCoLogic: Preclinical Cardiac Drug Screening

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ABSTRACT

Researchers at the University of California, Davis have developed PharmaCoLogic: a computer based preclinical screening model to predict the effects of developmental drugs and drug induced cardiotoxicity.

FULL DESCRIPTION

Cardiotoxicity is one of the most common and dangerous risks in the development of new drugs. Due to the association between prolonged QT intervals and drug-induced proarrhythmias, QT intervals have become widely accepted as markers for cardiac arrhythmia. QT intervals, however, have become problematic as they are neither sensitive nor selective in cardiotoxicity identification. This results in the unnecessary elimination of potentially useful drugs.

Researchers at the University of California, Davis have developed PharmaCoLogic: a computer based multiscale model to predict the effects of developmental drugs and drug induced cardiotoxicity. The model uses dynamic interactions of drugs and ion channels (at the atomic level) to generate kinetic function parameters. These parameters are then integrated into predictive models at the channel, cell and tissue scales, to expose fundamental arrhythmia vulnerabilities and complex emergent behaviors. The model can be used to predict inherently coexistent risk factors during preclinical drug screening and drug rehabilitation.

APPLICATIONS

- ▶ Preclinical drug screening
- ▶ Drug rehabilitation
- ▶ Drug induced cardiac arrhythmias
- ▶ Drug interaction with inherently coexistent risk factors

FEATURES/BENEFITS

- ▶ Predictive computer based model
- ▶ Able to predict drug effects over multiple time and spatial scales

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,749,383	09/05/2023	2016-665
Patent Cooperation Treaty	Published Application	2017/172825	10/05/2017	2016-665

Additional Patent Pending

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OTHER INFORMATION

KEYWORDS

safety pharmacology,

multiscale, cardiotoxicity,

PharmaCoLogic,

computational model

CATEGORIZED AS

- ▶ **Medical**
 - ▶ Diagnostics
 - ▶ New Chemical Entities, Drug Leads
 - ▶ Screening
- ▶ **Research Tools**
 - ▶ Other

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