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# PharmaCoLogic: Preclinical Cardiac Drug Screening

Tech ID: 27335 / UC Case 2016-665-0

# **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	Туре	Number	Dated	Case
United States Of America	Issued Patent	11,749,383	09/05/2023	2016-665
United States Of America	<b>Published Application</b>	20240127910	04/18/2024	2016-665
Patent Cooperation Treaty	<b>Published Application</b>	2017/172825	10/05/2017	2016-665

#### CONTACT

Raj Gururajan rgururajan@ucdavis.edu tel: 530-754-7637.



# **INVENTORS**

- ▶ Clancy, Colleen
- ▶ DeMarco, Kevin
- ▶ Yang, Pei-Chi

# OTHER INFORMATION

#### **KEYWORDS**

safety pharmacology,
multiscale, cardiotoxicity,
PharmaCoLogic,
computational model

#### **CATEGORIZED AS**

- Medical
  - Diagnostics
  - New Chemical

Entities, Drug Leads

- Screening
- **▶** Research Tools
  - Other

## **RELATED CASES**

2016-665-0

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transfer/

Fax:

530.754.7620