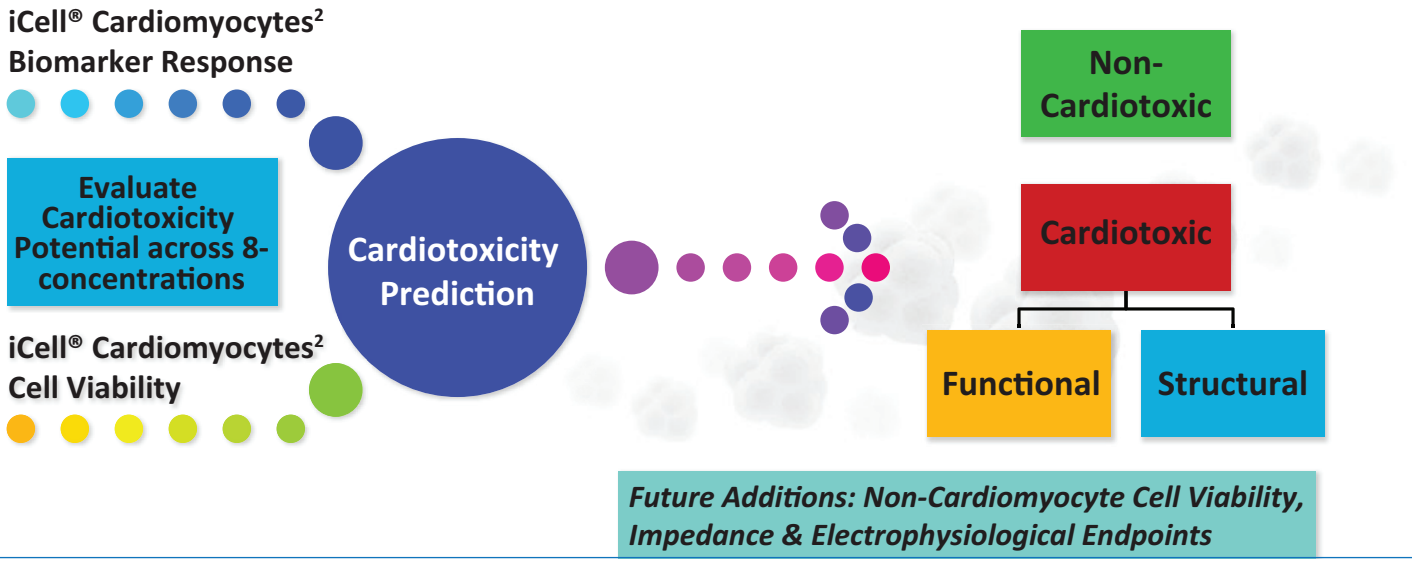
cardio*quick*PREDICT™

Our new cardiotoxicity assay, Cardio *quick*Predict, is now available. The assay indicates the cardiotoxicity potential of drug candidates and other lead compounds, based on changes in human induced pluripotent stem cell-derived cardiomyocyte (iPSC-CM) metabolism and viability.

Cardio *quick*Predict provides an indication of cardiotoxicity and identifies functional or structural cardiotoxicants with a single assay. We plan to offer electrophysiological and non-cardiomyocyte viability endpoints in the future. Stay tuned!

Continued >



DEVELOPMENT PHASE TEST SET PERFORMANCE

Training Set Compounds (N=60)

POSITIVES (N=40)	NEGATIVES (N=20)
STRUCTURAL	Acyclovir
Dexfenfluramine	Amoxicillin
Doxorubicin	Aspartame
Rofecoxib	Erlotinib
FUNCTIONAL	Methapyrilene
Astemizole	Ranitidine
Dofetilide	Sorbitol
Vandetanib	
STRUCTURAL & FUNCTIONAL	
Clozapine	
Isoproterenol	
Sunitinib	

Test Set Predictions with Biomarker/Viability-Based Model at or within 10-fold of the Therapeutic C_{max}

True Negatives			True Positives		
Treatment	**Dose (µM)**	**Prediction**	**Treatment**	**Dose (µM)**	**Prediction**
Acetylsalicylic Acid	10	Negative	Bepridil	3.3	Positive
Cetirizine	0.8	Negative	Busulfan	150	Positive
Loratadine	0.02	Negative	Levomethadyl Acetate	6	Positive
Sildenafil	1	Negative	Nilotinib	3	Positive
Sucrose	1.8	Negative	Rosiglitazone	1.7	Negative
Xylitol	0.5	Negative	Sotalol	45	Positive

Preliminary model was 92% predictive of cardiotoxicity (100% specificity, 83% sensitivity).

Stemina BIOMARKER DISCOVERY

cardio qP quick PREDICT PROCESS

Stemina BIOMARKER DISCOVERY

Human iPSC-Derived Cardiomyocyte Treatment
- 8-point dose response concentration range.
- Collect iPSC-CM spent media for UPLC-HRMS analysis.
- Analyze iPSC-CM cell viability.

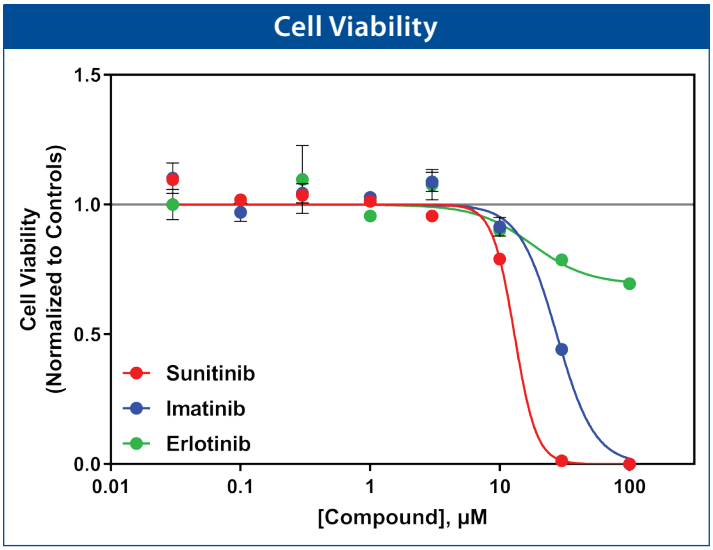
Sample Preparation
- Remove proteins from spent media samples.

Sample Analysis
- Analyze samples using UPLC-ESI-TOF-MS to determine biomarker response.

Data Analysis
- Calculate fold change for each biomarker relative to reference controls.
- Fit nonlinear dose response model.
- Predict potential for cardiotoxicity.

Cell culture

The cardiotoxicity assay is performed using human iPSC-derived cardiomyocytes.



Ultra Performance Liquid Chromatography-Mass Spectrometry

Samples are analyzed using UPLC-HRMS methods that have been optimized for the cardiotoxicity biomarkers of interest, yielding selective and reproducible biomarker measurement.

Data Analysis & Reporting

- SOP-driven analysis
- LIMS-controlled data analysis pipeline
- Identification of critical exposure where cellular metabolism is altered
- Uniform reporting for rapid turnaround
- Custom reporting available

Quality

From start to finish, Stemina has a well-defined, quality program that ensures the integrity of our data.

Experience Counts

Our team has extensive experience in screening a wide variety of proprietary compounds including pharmaceuticals, agri-chemicals, tobacco products, consumer products, and cosmetic ingredients. Stemina was founded in 2006; its state-of-the-art facilities are located in the United States.

Extending Our Global Reach

CiToxLAB

Stemina has partnered with CiToxLAB, which has facilities in Canada, France, Denmark, and Hungary, to provide worldwide service.

EPA ToxCast™ Contractor

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