

## iCell™ Cardiomyocytes: Cytotoxicity Characterization

Cellular Dynamics International (CDI) introduces iCell™ Cardiomyocytes, human induced pluripotent stem (iPS) cell-derived cardiomyocytes suitable for several biochemical assays designed to assess test compound cardiac cytotoxicity.

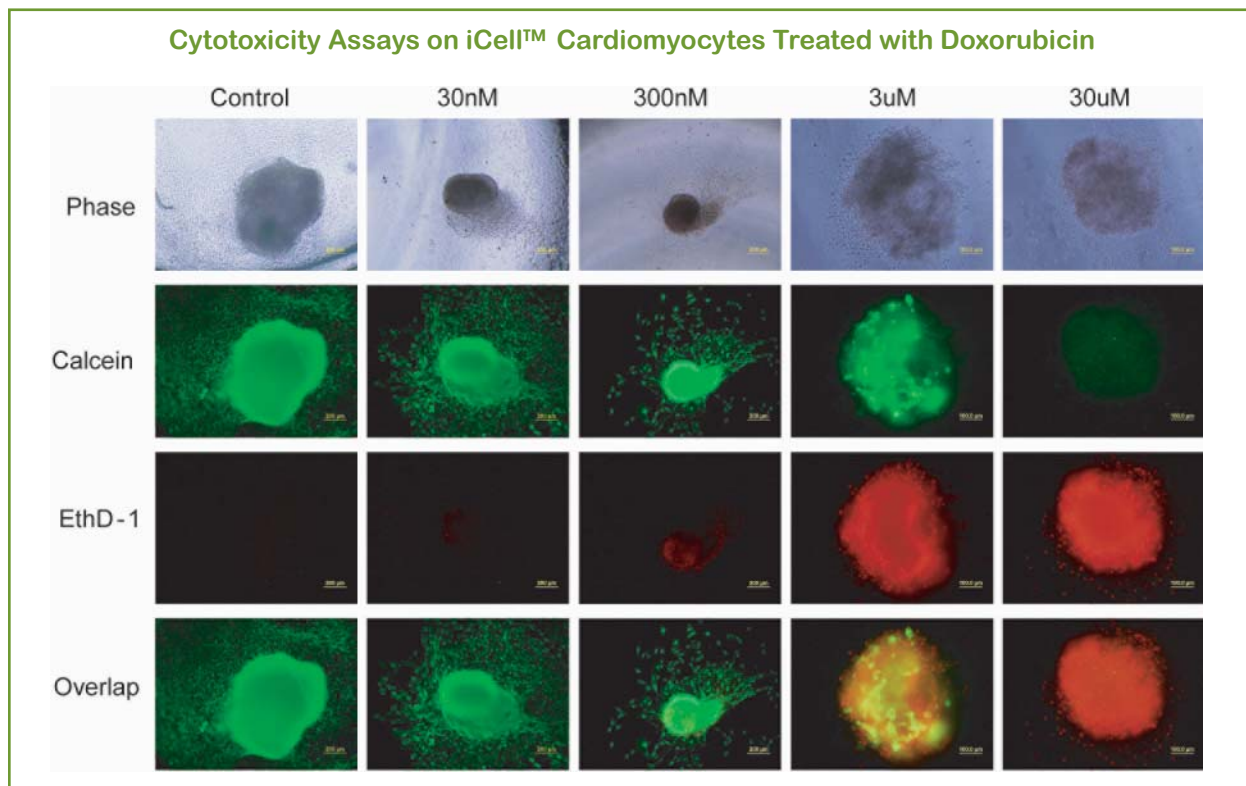
iCell Cardiomyocytes are differentiated from hPSCs that are reprogrammed to their pluripotent state from adult cells, thus avoiding the controversial and ethical issues surrounding embryonic stem cells. These reprogrammed adult human cells overcome the limited potential of human cadaveric or primary cell cultures by providing genetic diversity and an unlimited differentiated cell supply. In addition, using a human model system, rather than a surrogate animal model, for cardiac toxicity testing is expected to generate results that more accurately predict the relevant physiological response, thereby saving valuable time, resources, and compound. iCell Cardiomyocytes remain viable in culture for several months, enabling research teams to assess acute and long-term toxicity.

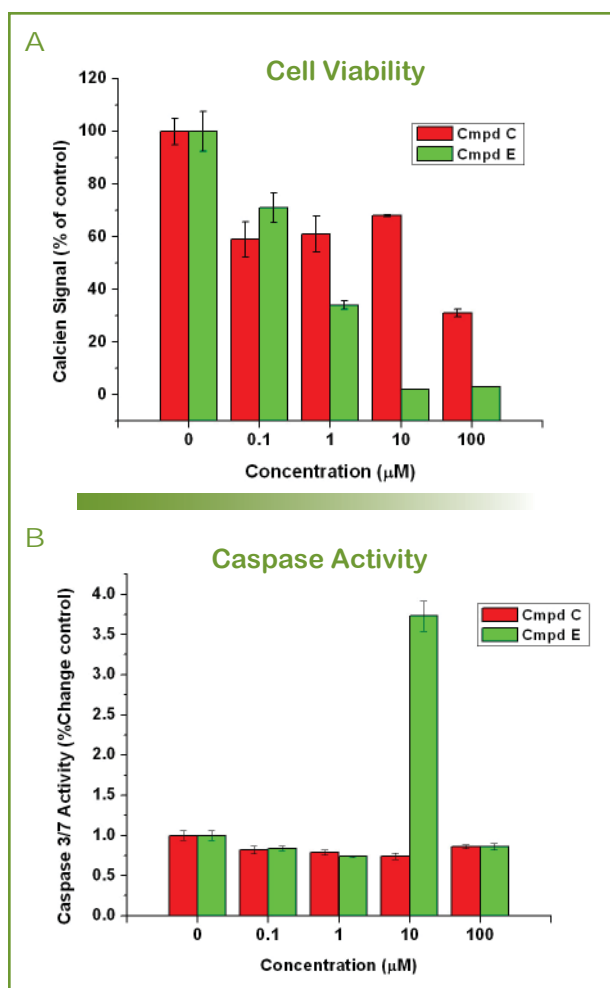
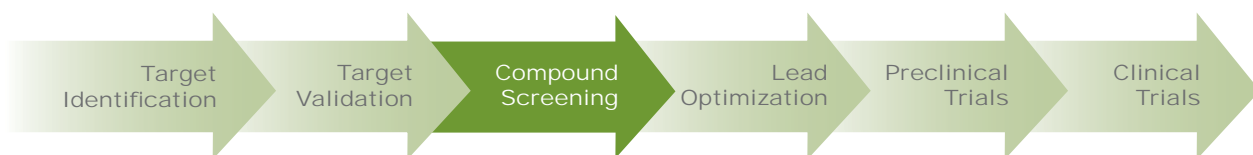
### Cardiac Cytotoxicity Assays

iCell Cardiomyocytes have demonstrated utility in the following biochemical assays:

- Cell viability
- Apoptosis
- ATP production
- Oxidative stress
- Mitochondrial dysfunction

▼ **Figure 1: A Known Cardiac Toxic Compound**  
*iCell Cardiomyocytes were treated with increasing concentrations of Doxorubicin, a known cardiotoxic agent, and stained for live (Calcein-AM) and dead (ethidium homodimer, EthD-1) cells. Doxorubicin showed a dose-dependent toxicity when applied to the cardiomyocytes.*





◀ **Figure 2. Mechanistic Insights into Cardiac Cytotoxicity**

*iCell* Cardiomyocytes were treated with two test compounds. Both compounds showed significantly decreased cell viability (A). However only compound E decreased cell viability through apoptosis (B).

**Drug Safety Screening & Discovery**

**ADVANTAGES**

- Human cardiomyocytes are expected to generate more accurate predictions of human physiological response than surrogate animal models.
- Assays can be performed in 96-well plates, requiring small amounts of compound for a cardiac cytotoxicity profile.
- Cells remain viable in culture for several months, enabling acute and long-term toxicity research.

**For More Information**

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