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## Pluripotent stem cell models: Application in toxicology and beyond

Induced pluripotent stem (iPS) cell technology offers unprecedented opportunities to move beyond a "one size fits all" approach to pharmacology and toxicology, to a model where individual genetic and molecular profiles are used to guide diagnosis, drug development, and therapeutic decisions. Initially described in 2007, human iPS cells are derived from a patient's somatic cells (e.g. blood, skin) and have the potential to differentiate into any cell type in the human body. In the last 5 years, a rapidly growing body of literature has emerged demonstrating the use of iPS cell-derived differentiated cells to demonstrate human relevant toxicity as well as recapitulate human disease phenotypes *in vitro*. These novel human cell models are rapidly becoming the standard of choice for disease research and drug discovery as they offer better opportunities for therapeutic decision-making. Several case studies will be presented demonstrating how iPS cell-derived cardiomyocytes, neurons, and hepatocytes are being used today for drug development and discuss their potential future applications.

## Biography

Carter Cliff has been a leader in the growth of several key technology platform companies in biotech. Over the past five years, he has helped to ensure the commercial success of Cellular Dynamics International (CDI), the premier manufacturer of human induced-pluripotent stem cell products. Prior to that, he spent five years with Meso-Scale Diagnostics implementing Pharma and academic adoption of multiplex immunoassay technologies. He also served as Scientific Consultant for Ingenuity Systems, the gold standard platform for modeling omics data, during their formative years from 2001-2004.

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