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## Use of stem cell as cellular toxicity test models

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Established mammalian cell lines are commonly used to analyze the cytotoxic and genotoxic potential of environmental factors, drugs, biomaterials as well as chemical, physical and biological agents *in vitro*. However, these cells poorly reflect human physiology. Better models for use in pre-clinical testing of potential pharmaceutical compounds in clinical trials may potentially also reduce the costly and time consuming attrition of such compounds at later stages due to unacceptable levels of toxicity or lack of efficacy. Much research is also currently being undertaken to find viable and ethical alternatives for animal testing. Stem cells, due to their innate capacity to regenerate different cell types, *in vitro*, have been validated as a reliable source for *in vitro* developmental toxicology studies. The recent work that demonstrate the potential for the application of various embryonic and adult stem cell types and its derived progenies as plausible cellular models for *in vitro* toxicity testing will be discussed. We will also be discussing on the limitations and issue with existing toxicity test models.

### Biography

Vinoth received his PhD, Masters in Science and post-doctoral training from the National University of Singapore in the field of stem cell research. His Bachelors in Dental Surgery was awarded by Bangalore University. He is currently a Clinician Scientist with the National Dental Centre where he devotes his time to clinics as well as to pursue his research interests in stem cell biology and regenerative dentistry. He is the author of several peer-reviewed international publications.

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