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The search for safe compounds, robust assays and better drug delivery systems for improved anticancer activity

Cancer is a group of diseases characterized by uncontrolled growth of cells in the body. These lesions, if not treated, grow until they become life-threatening or fatal. Traditionally, surgery has been the main form of tumor control, though this is not performed where the growth is deep-seated in the body or located at a site where surgery could itself be life-threatening. Alternatives to, or assisting surgery are chemotherapy and radiotherapy. However, these two traditional forms of cancer therapy suffer due to harmful effects to the healthy parts of the body. To address this, there is a global push to find compounds that are effective against neoplastic cells, but less harmful against normal healthy cells of the body. Complementing this is the search for *in vitro* or *in vivo* assays that are more indicative of antitumor activity. Finally, there has been a growing push to find better drug delivery systems capable of more selective delivery of drugs to tumors in the body. This presentation discusses some of the cell-based assays and small animal models set up by our labs in the past decade, drug delivery systems we have tested so far, and biologicals (protein, nucleic acid, polysaccharide) trialed so far, some of which are undergoing clinical testing.

Biography

Crispin R. Dass has 17 years of cell and molecular biology research experience, mainly focusing on oncological R&D. His research is on systems at various levels – *in silico*, *in vitro*, *in vivo*, ADME/Tox, clinical, and also with biomedical education. He has worked on projects for Johnson & Johnson, GlaxoSmithKline, Amgen, and Novartis. His extensive experience is documented in his 120 papers to date, with publications in *Nature Medicine*, *Journal of the National Cancer Institute*, *Biomaterials*, *Nucleic Acids Research*, *Cancer*, and *Journal of Controlled Release*. He is currently on the editorial board of 3 other journals in his field, and has been invited to chair sessions and to give plenary lectures at national and international conferences. Based currently in St Albans (Melbourne, Australia), he has research links with Thailand, Fiji, USA, China, South Korea, Japan, Iran and India.