

4th World Congress on **PATHOLOGY AND CLINICAL PRACTICE**September 20th, 2022 | Webinar**Breast cancer stem cell models for therapeutic alternatives**

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Rationale: Progression of breast cancer to advanced stage metastatic disease represents a major cause of mortality in women. Therapeutic options of conventional chemo-endocrine and molecularly targeted interventions are associated with spontaneous or acquired resistance and emergence of chemo-resistant cancer initiating premalignant stem cell population. These limitations emphasize development of reliable stem cell models for identifying testable therapeutic alternatives.

Research Outcome: Drug-resistant stem cell models relevant to select clinical breast cancer subtypes exhibit progressive growth and increased tumour spheroid formation in response to cytotoxic concentrations of mechanistically distinct small molecule inhibitors Tamoxifen (TAM), Lapatinib (LAP) and Doxorubicin (DOX). The drug-resistant TAM-R, LAP-R and DOX-R phenotypes exhibit unregulated expressions of cell surface protein CD44 and nuclear transcription factors NANOG and OCT-4. Treatment of LAP-R stem cell model with naturally-occurring vitamin A derivative all-trans retinoic acid (ATRA) and terpene carnosol (CSOL) inhibit tumour spheroid formation and down regulate the expressions of CD44, NANOG and OCT-4.

Conclusions: Development and characterization of drug-resistant stem cell models and inhibitory efficacy of natural products validate a novel mechanism-based experimental approach. This approach may facilitate prioritization of efficacious pharmacological agents, dietary phytochemicals and bioactive compounds from nutritional herbs as testable alternatives against therapy-resistant breast cancer.

Biography

Prof. Nitin Telang obtained his PhD degree in Experimental Embryology in 1974 from the University of Poona, India. He immigrated to the USA in 1976, and obtained his post-doctoral training at the University of Nebraska, Lincoln, NE, American Health Foundation, Valhalla, NY and Sloan-Kettering Institute New York, NY (1976-1985). During his post-doctoral training, he conducted research on the initiation and progression of breast and colon carcinogenesis in organ cultures of target tissue. As a faculty member, Dr Telang served as Attending Biochemist, Department of Surgery, Memorial Sloan-Kettering Cancer Center, New York, NY (1985-1991), and as Associate Professor, Department of Surgery, Weill-Cornell Medical College, New York, NY (1991-2004). His last academic appointment was as Senior Scientist, and Director, Carcinogenesis and Prevention Laboratory, Strang Cancer Prevention Center, New York, NY (2004-2007).

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