

**Title: Next generation cancer models: Drug-resistant stem cells****Nitin Telang**

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**Background:** Progression of breast and colon cancer to advanced stage metastatic disease represents major causes of deaths in women. Conventional and targeted chemo-endocrine therapy is associated with systemic toxicity, spontaneous/acquired resistance and emergence of premalignant cancer initiating stem cells. These limitations emphasize an unmet need to develop reliable cancer stem cell models and utilize these models to identify testable therapeutic alternatives against therapy-resistant breast and colon cancers.

**Published Evidence:** Female clinical breast carcinoma derived cell lines and colonic epithelial cell lines derived from genetically predisposed colon cancer models from female mice have been utilized to develop drug-resistant cancer stem cells. The drug-resistant phenotypes exhibit progressive growth in response to treatment with clinically relevant therapeutic agents. These drug-resistant cells exhibit increased expressions of stem cell specific cellular and molecular markers. Treatment with mechanistically distinct natural products (all-trans retinoic acid, curcumin and carnosol) inhibit formation of tumor spheroids and reduce the expression of stem cell specific cell surface markers CD44, CD133 and nuclear transcription factors OCT-4, NANOG and c-Myc.

**Conclusions:** Drug-resistant stem cell models for breast and colon cancer provide facile experimental approaches to identify stem cell targeting natural products as testable therapeutic alternatives. The present preclinical evidence provides a scientifically robust rationale for future investigations to develop patient-derived cancer stem cell models capable of confirming potential clinical translatability of the data.

**Biography**

Nitin TELANG, Ph.D. (1974), obtained post-doctoral training in USA (1976-1985). He held faculty positions at Memorial Sloan-Kettering Cancer Center, Weill-Cornell Medical College and Strang Cancer Prevention Center, New York (1986-2007). Currently, he directs research for the Cancer Prevention Research Program at Palindrome Liaisons Consultants, New Jersey. Dr. TELANG's research has been funded by the US National Cancer Institute and US Department of Defense. His publication record includes more than 100 peer-reviewed papers, and he serves on the editorial boards of several high impact journals. Dr. TELANG's current research is in areas of preclinical oncology, cancer stem cell biology, and anti-cancer lead compound efficacy.