

3rd International Conference on Translational Medicine

November 03-05, 2014 Las Vegas, USA

Vasculogenic mimicry-forming tumor cells have increased resistance against cytotoxic agents in three-dimensional tumor cell cultures

Klara Valyi-Nagy, Andras Voros, Eva Gagy, and Tibor Valyi-Nagy
University of Illinois at Chicago, USA

Vasculogenic mimicry (VM) patterns are present in a wide variety of malignant tumors, represent the formation of perfusion pathways by tumor cells, and their presence in tumors is associated with adverse outcome. Mechanisms by which VM may contribute to adverse outcome are not well understood. Previous observations in our laboratory indicate that VM-forming tumor cells have increased resistance against herpes simplex virus-mediated oncolysis in three-dimensional (3D) uveal melanoma, prostate, breast and embryonal carcinoma cultures. To determine whether VM-forming tumor cell subpopulations also have increased resistance against cytotoxic drugs, traditional two-dimensional (2D) and extracellular matrix (Matrigel)-containing 3D cultures of C918 uveal melanoma cells were established. In 2D cultures, C918 cells grew in monolayers. In 3D cultures, C918 cells formed a number of morphologically distinct tumor cell subpopulations that included cells that grew in monolayers on the Matrigel surface, cells that formed VM patterns, and cells that formed monolayers on the bottom of the culture dish. Following exposure to cisplatin or cadmium chloride, VM-forming tumor cells demonstrated prolonged survival relative to other tumor cell subpopulations in 3D cultures and cells grown in 2D. These findings suggest that increased drug resistance is a mechanism by which VM-forming tumor cells contribute to adverse outcome.

Biography

Klara Valyi-Nagy, M D is Research Assistant Professor at the Department of Pathology, University of Illinois at Chicago and Associate Director of the University of Illinois Biorepository. Her primary research interests include three-dimensional cultures in oncology research and tissue banking and extracellular matrix – genome interactions in cancer.

klaravn@uic.edu