doi: 10.4172/1948-5956.10000S6

OMICS Group Conferences
Accelerating Scientific Discovery

International Conference & Exhibition on
Cancer Science & Therapy
15-17 August 2011 Las Vegas, USA

Molecular targets of cardiac hormones in cancers

David L. Vesely

James A. Haley Veterans Hospital/University of South Florida Health Sciences Cardiac Hormone Center, USA

One gene in the heart synthesizes four peptide hormones, i.e., long-acting natriuretic peptide, vessel dilator, kaliuretic peptide and atrial natriuretic peptide. These four peptides decrease up to 97% of human pancreatic, breast, colon, ovarian, kidney and prostate adenocarcinomas as well as glioblastomas of the brain, small-cell and squamous cell lung carcinoma cells in cell culture. When infused subcutaneously for 28 days with weekly fresh hormones at 3 nM min^{-1} kg^{-1} body weight in athymic mice, they eliminate up to 80% of the human pancreatic adenocarcinomas, 2/3rds of human breast adenocarcinomas, and up to 86% of human small-cell lung cancers with treated mice living a normal lifespan. These cancers never reoccur in the primary site in the lifespan of the mice. Their mechanisms(s) of action in cancer cells includes a 95% inhibition of Ras, 96% inhibition of ERK 1/2 kinases, and 98% inhibition of MEK 1/2 kinases. Mitogens such as epidermal growth factor which stimulate Ras and ERK 1/2 kinases have their effects completely blocked by these cardiac hormones. The cardiac hormones do inhibit ERK 1/2 kinases in healthy cells. In addition to inhibiting the Ras-MEK 1/2-ERK 1/2 kinase cascade, they enter the nucleus as shown by Immunocytochemical techniques where they inhibit DNA synthesis.

Biography

David L. Vesely, M.D., Ph.D., completed his M.D. and Ph.D. degrees simultaneously in 3 years at the University of Arizona Medical School and did his post-graduate training at the University of Miami Medical School. He is Chief of Endocrinology, Diabetes and Metabolism at the James A. Haley Medical Center and Professor of Medicine, Molecular Pharmacology and Physiology and Director of the Cardiac Hormone Center at the University of South Florida Medical School, Tampa, Florida, USA. He is the author of 315 peer-reviewed articles and 3 books. He received the 2007 Service to America Career Achievement Medal.