



## Anti-proliferative Peptides for Cancer and Cardiovascular Applications

### Overview of Technology:

Dr. Mansoor Husain's group at the UHN has discovered a series of small peptides that can be utilized in cancer and cardiovascular therapeutic areas. These peptides are less than 10 amino acids in length and have been extensively studied in several cancer and vascular models. The peptides described in this invention induce cell cycle arrest as opposed to cytotoxicity. This offers tremendous advantage over current treatments due to potential lower toxicity and side effect profiles.

There are a number of diseases caused by cell proliferation which are not currently treated properly and safely with conventional medicine. Cancer is caused by cells that proliferate uncontrollably. While radiation treatment and surgery are often used for cancer treatment, these treatments produce severe side effects. In addition, despite recent advances in the \$42 billion cancer chemotherapy market, mortality rates remain high. This indicates that there remains an urgent need for less toxic and more effective cancer therapeutics.

Vascular smooth muscle cell proliferation is responsible for a number of diseases, such as restenosis following balloon angioplasty. Restenosis, is a relatively frequent (~10%) consequence of balloon angioplasty procedures performed on occluded or narrowed coronary arteries and/or coronary artery bypass grafts ("CABG"). Angioplasty is now the most common heart procedure performed in the world but current therapies have had limited success in preventing restenosis. As well, concerns surrounding the safety of radioactive stents, and stents that elute chemotoxic agents, highlight the need for alternative strategies aimed at treating this disease. Therefore, the current novel series of peptides can offer a safer, less toxic, alternative to radioactive or chemotoxic-eluting stents. The global drug-eluting stent market is expected to exceed \$5 billion in 2005.

Cancer and heart disease are the two leading causes of death in developed countries. With the aging population in these nations, there is a growing demand for less toxic, more effective treatment strategies in both of these disease areas. These series of peptides can potentially address this need.

### Related Publication:

Choi et. al, "A calmodulin-binding site on cyclin E mediates Ca<sup>2+</sup>-sensitive G1/s transitions in vascular smooth muscle cells." *Circ Res.* 2006, 98(10):1273-81.

### Patent:

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