Columbia Technology Ventures

Novel Kinase Inhibitor Identified to Treat Tumor Progression in Cancer

Technology #2549

“Lead Inventor: Richard T. Ambron, Ph.D.

Cancer tumor growth reduced using treatment with protein inhibitor: Cancer is the second leading cause of mortality in the United States and continues to grow as a major health concern in the developing world. A distinguishing hallmark of cancer is the uncontrollable proliferation and growth of malignant tumor cells. Tumor progression is known to implement complex pathophysiological processes including activation of oncogenes, signaling diverse molecular pathways and angiogenesis, all of which contribute towards the advancement of the cancer. Despite existing treatments and drugs targeting tumor progression, the onset and spread of malignant tumor cells remains a major problem. Development of an effective therapy to inhibit this process remains an active area of research and potential pharmacological agents which effectively targeting tumor progression have immense therapeutic potentials and clinical implications.

Compound halts tumor progression using ARK5 kinase: This technology describes the discovery of a novel inhibitor of a kinase known to mediate tumor progression especially in colorectal cancer, prostate cancer, and multiple myeloma. The kinase targeted, ARK5, is a member of the AMP-activated protein kinase (AMPK) family, which is known to promote tumor cell survival by preventing cell death. Furthermore, ARK5 overexpression has been observed to stimulate tumor cell metastasis and proliferation in colorectal cancer, prostate cancer, and multiple myeloma. This technology describes the first molecular compound halting tumor progression via the ARK5 signaling pathway. This technology also describes the mechanism of inhibition and utilizing this knowledge may give rise to further pharmacologic derivatives of the inhibitor. Thus, this technology presents the discovery of a novel molecular inhibitor of tumor progression and represents the first time a potential therapeutic agent targets the ARK5 pathway.

Applications: • Treatment of tumor progression in cancer, particularly colorectal and pancreatic cancer and multiple myeloma • Allow identification of other AMPK mediated disease pathways as potential targets of therapeutic treatment

Advantages: • First compound to target the ARK5 mediated pathway of tumor progression • Derivatives developed from this compound may give rise to other potential therapeutics • Insight acquired about AMPK kinase inhibition can be used to advance research on other kinase inhibitors

Licensing Status: Available for Licensing and Sponsored Research Support”

Inventors

Richard Ambron