



Hope Funds for Cancer Research

Press Release

Announces Newly Published Research in the on-line edition of the journal *Nature* from Postdoctoral Fellow

For Immediate Release
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Newport, RI - October 22, 2014 - A paper was published today, in the journal *Nature*, from one of the Hope Funds for Cancer Research postdoctoral fellows, Dr. Thales Papagiannakopoulos in Dr. Tyler Jacks' laboratory at the Koch Institute for Integrative Cancer Research at MIT. The paper, "Rapid modeling of cooperating genetic events in cancer through somatic genome editing," illustrates that this genome engineering approach enables functional characterization of putative cancer genes in the lung and other tissues using mouse models. Looking forward this approach will allow for modeling of human mutations in mouse models and subsequent development of novel therapies targeting these mutations.

"Cancer is a multistep process that involves mutations and other alterations in oncogenes and tumor suppressor genes. The challenge is determining which mutations are causally related to tumorigenesis. Through highly innovative research, Thales and his colleague's in the Jacks laboratory have made significant steps towards identifying causes of human lung cancer," stated Prof. Bryan R.G. Williams, a Hope Funds for Cancer Research Trustee and Institute Director & CEO, MIMR-PHI Institute of Medical Research in Melbourne Australia.

The new research published in today's on-line edition of the journal *Nature*, is a step toward a better understanding of lung cancers, which is essential for better treatments of the disease.

To View *Nature* Article, [Click Here](#).

About Thales Papagiannakopoulos, Ph.D.

Dr. Papagiannakopoulos is at the David H. Koch Institute for Integrative Cancer Research at MIT, in the laboratory of Tyler Jacks, Ph.D. His research focuses on lung cancer, which is the leading cause of deaths worldwide. The Jacks laboratory has established an autochthonous mouse model of human lung adenoma and adenocarcinoma. In these genetically engineered mice, lung tumors are induced in by activation of oncogenic mutant *Kras*G12D and deletion of tumor suppressor p53, two genetic lesions that commonly occur in human lung cancer. These mouse model tumors mimic human lung adenocarcinoma tumors in their progression showing similarities both at the molecular and histological level. Using this well-defined lung cancer mouse model Dr. Papagiannakopoulos will determine whether circadian rhythm disruption contributes to lung tumor initiation and progression.

Circadian Rhythms are highly conserved daily oscillations that align physiological functions with the day/night cycles. Disruption of circadian rhythms is a major consequence of a modern lifestyle. Loss of circadian clock synchrony is associated with the range of diseases, including cancer. Epidemiological studies have revealed that the risk for many types of cancer is significantly higher in industrialized societies, particularly among shift-workers. In 2010, the World Health Organization and the International Agency for Research on Cancer published an

assessment on carcinogenicity of shift-work, which concluded: "shift-work that involves circadian disruption is probably carcinogenic to humans." This raises many concerns, since the United States alone, it is estimated that 20% of the work force is subjected to shifting work schedules. Dr. Papagiannakopoulos' studies aim to uncover the functional importance and provide molecular insight into circadian rhythm disruption in lung tumor initiation and progression.

About Hope Funds for Cancer Research

The Hope Funds for Cancer Research was formed in 2006 by a group of concerned individuals who have experience in oncology, intellectual property law, investment banking, philanthropy, sociology, and the arts to establish a funding vehicle that would take a rational scientific, medical, and investment approach to granting money to the most interesting and promising research efforts to address the most difficult-to-treat cancers, including pancreatic, lung, liver, sarcomas, esophageal, brain, gastric, and ovarian cancers. These cancers are insidiously aggressive illnesses that kill most of their victims within months, even with aggressive chemotherapy. The Trustees of the Hope Funds for Cancer Research believe that funding research that could lead to breakthroughs in these areas and increase life expectancy in these types of cancers is at the core of our mission. The Hope Funds for Cancer Research is a 509 (a)(1) charity under 501(c)(3) of the Internal Revenue Service's code. For additional information about the organization, please visit <http://www.hope-funds.org> or call 401-847-3286.

Hope Funds for Cancer Research: Advancing Innovative Research in Understudied Cancers

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