

Annexin V-HPV E7 Fusion Protein for Cancer Treatment

Published date: May 31, 2019

Technology description

Unmet need

Human papillomavirus (HPV) causes the majority of cases of cervical cancer, which affects approximately 500,000 women worldwide each year. Additionally, HPV has been associated with other cancers including penile, vaginal, vulvar, anal, and head and neck cancers. Currently, there are limited treatment options for patients with advanced cervical cancer. Therapies that boost the immune response to cancer-specific antigens are a promising approach to treat advanced cancers. Since HPV oncoproteins, like E7, are drivers of carcinogenesis and are constitutively expressed by cancer cells, they are a promising molecular target for the treatment of cancer. However, novel strategies to effectively deliver HPV antigens into the tumor microenvironment in an immunogenic manner are needed for this approach to be effective.

Technology overview

Johns Hopkins researchers have generated a fusion protein between HPV E7 oncoprotein and Annexin V. This fusion protein, called AnnE7, was tested in a cancer mouse model that expresses HPV protein. Annexin V targets the HPV E7 protein to platelets, which act as antigen presenting cells in the tumor microenvironment. This strategy is particularly promising to treat advanced cervical cancer, because elevated platelet counts are associated with a poor prognosis in cervical cancer and other cancer indications. In vivo, AnnE7 effectively accumulated in the tumor microenvironment and generated a potent tumor-infiltrating E7-specific CD8+ T cell response. This immune response suppressed tumor growth in vivo and enhanced mouse survival rates.

Institution

[Johns Hopkins University](#)

Inventors

[Tae Heung Kang](#)

Research Fellow

[Chien-Fu Hung](#)

Associate Professor

Pathology SOM

[T.c. Wu](#)

Professor

Pathology SOM

联系我们



叶先生

电话 : 021-65679356

手机 : 13414935137

邮箱 : yeyingsheng@zf-ym.com