Kras Peptide Vaccine to Prevent & Treat Cancer

Published date: July 23, 2019

Technology description

Mechanism of Action: We have designed an MHCII-restricted Kras multi-peptide vaccine that consists of four peptides derived from immunogenic “Hot Regions” of K-ras sequence based on a multi-scoring system. Our study has confirmed its >80% anticancer efficacy in a doxycycline-inducible KrasG12D model of lung cancer. This Kras multi-peptide vaccine efficiently expanded Kras-specific CD4+ and CD8+ T cells in the lung draining lymph nodes, and elicited a potent anti-tumor immune response. Importantly, K-ras-reactive T cells from vaccinated mice recognized endogenously presented Kras expressed by tumor cells. Cytokines secreted by splenocytes were measured: the most abundant individual cytokine detected in response to the Kras peptide pool was IFN-γ, suggesting that the immune responses of Th1 but not Th2, were predominantly elicited by our novel KRAS-specific peptide vaccine.

Advantages

Composition of matter claims to Kras-specific peptides from immunogenic “Hot Regions”
Multi-valent vaccine targets multiple forms of Kras-driven cancers, including 30% of lung cancer, > 90% of pancreatic cancer, mucinous adenoma, colorectal cancer
Binding affinity to MHC class II elicits robust Th1 immune response &effectively blocks development of Kras-driven tumors in animal models (1) alone & (2) enhanced protection when combined with immune checkpoint inhibitors (antibodies to PD-L1, VISTA, TIM3, CTLA-4), peptides (PD-1 & PD-L1) or RXR agonists (bexarotene, UAB30, retinoic acid)
Customizable & multipurpose: specific peptide vaccines for different Kras mutations
Safe, minimal allergic/ autoimmune responses
Affordable, large-scale production;
stable in storage: desiccate & freeze

Institution

Medical College of Wisconsin

联系我们

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com