

Universal cancer vaccine targeting tumor vasculature

A DNA vaccine targeting tumor endothelial marker 1 (TEM1) that allows to prevent and delay tumor progression without adverse effect on physiologic angiogenesis

Inventor

[Dr. George Coukos](#)

INTELLECTUAL PROPERTY

- Issued US patent ([9,290,556](#))
- Pending US patent application 15/075,451
- Issued EU patent [2568044](#) validated in France, Germany, Ireland, Netherlands,

REFERENCE MEDIA

Facciponte, J.G.(2014) [Tumor endothelial marker 1-specific DNA vaccination targets tumor vasculature.](#) J Clin Invest.

DESIRED PARTNERSHIPS

Licensing

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Linara Axanova
axanova@upenn.edu
(215) 573-3445

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Technology Overview

Immunization against antigens specifically expressed on tumor vasculature is a very attractive immunotherapy options due to its ability to prevent solid tumor growth. TEM1 (also known as endosialin or CD248) is abundantly expressed on the vasculature of the majority of solid tumors making it a prime candidate for immunological targeting. Dr. Coukos and his team at UPenn have developed a DNA vaccine encoding the full length TEM1 cDNA fused to the minimal domain of the tetanus toxoid (TT) adjuvant. Prophylactic vaccination completely protected immunized mice and significantly decreased tumor growth in tumor-bearing mice. Vaccine generated effective memory responses: mice challenged with tumor cells 6 months later remained tumor free.

State of Development

- Efficacy and safety demonstrated in murine colon, cervix, and two lung cancer models
- Identified mechanism of action

Advantages

- Long lasting adaptive immune response
- Effective as prophylactic or therapeutic vaccine
- No effect on wound healing or reproduction
- Induction of antigens spreading and secondary induction of antitumor CTL
- Universal cancer vaccine. TEM1 is over-expressed in the tumor vasculature of ovarian cancer, renal cancer, breast cancer, cervical cancer, head and neck cancer, leukemia, mesothelioma, pancreatic cancer, gastric cancer, bladder cancer, prostate carcinoma, gastric cancer, colon cancer, lung cancer, uterine cancer, thyroid cancer and liver cancer.
- Could be combined with other cancer vaccines or cancer therapies
- Potential veterinary use

