



Immunotherapy for Cancer via Vector Mediated Carcinoembryonic Antigen Administration

Overview of Technology:

Immunotherapies offer great potential for the treatment of cancer, however most require the generation of patient-specific cell products. This requirement limits the applicability of this approach and greatly increases costs.

An important candidate antigen for cancer immunotherapy is the carcinoembryonic antigen (CEA). CEA is up-regulated in the majority of colon-cancers, non-small cell lung cancer and half of all breast cancers.

Research at UHN has demonstrated that direct injection of a relatively low dose of a viral CEA therapeutic construct can effect actual regression of pre-existing CEA-positive tumors in an animal model of colorectal cancer. This work has demonstrated that tolerance to human CEA can be safely broken and efficient immune activity induced against CEA positive tumours in huCEA transgenic mice.

In addition to tumour regression in most vaccinated mice, response by both the cellular and humoral arms of the immune system was induced. Furthermore, no signs of gross pathological consequences were observed. Vector expression of CEA was sufficient that it was not necessary to administer the viral construct directly to dendritic cells, however this vector could also be used to deliver CEA to the antigen-presenting cells themselves.

The patent filing for this technology includes claims that are not limited to a particular delivery vector system.

Related Publication:

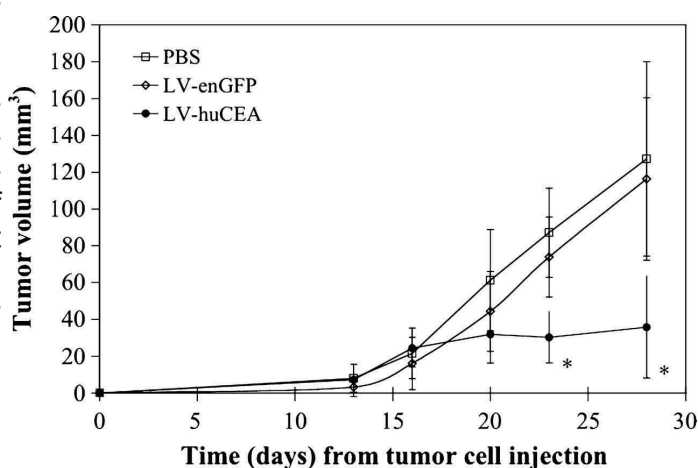
Loisel-Meyer S, Felizardo T, Mariotti J, Mossoba ME, Foley JE, Kammerer R, Mizue N, Keefe R, McCart JA, Zimmermann W, Dropulic B, Fowler DH, Medin JA. Potent induction of B- and T-cell immunity against human carcinoembryonic antigen-expressing tumors in human carcinoembryonic antigen transgenic mice mediated by direct lentivector injection. *Mol Cancer Ther.* 2009 Mar;8(3):692-702. Epub 2009 Mar 10.

Patent:

US12/598,874 - Patent pending

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Direct immunization with LV-huCEA induces huCEA-expressing tumor stabilization. (From Loisel-Meyer et al. *Mol Cancer Ther.* 2009 Mar;8(3):692-702.)

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