IL10 Ig Fusion Protein

Technology #11834

Applications

This technology is an IL10 fusion protein that can be used for the treatment of adenocarcinomas that are characterized by the overexpression of the oncogene Pim-1.

Problem Addressed

Cancers of the colon, breast, and prostate collectively account for 20% of cancer deaths in the U.S, therefore, there exists a significant need for new treatment methodologies. This technology provides a potential new treatment paradigm for adenocarcinomas that demonstrate high levels of the oncogene Pim-1. Overexpression of the oncogene Pim-1 has been linked to a subset of colon, breast, and prostate adenocarcinomas, and has been widely proposed as a therapeutic target. The inventors of this technology demonstrate that treatment with IL10 downregulates Pim-1 in an IL6-dependent manner in a mouse model of colon cancer and outline a method for using an IL10 fusion protein as a treatment for Pim-1 positive adenocarcinoma.

Technology

The short circulating plasma half-life of IL10 has previously precluded its use as a therapeutic. A well-established method of increasing circulatory time of proteins involves fusion to the Fc region of IgG. This invention utilizes a human IL10 IgG Fc fusion protein (IL10-Ig) to increase the circulation time of IL10 to more therapeutically-relevant timeframes. This IL10-Ig fusion protein has a half-life at least double that of normal IL10, and the inventors demonstrate an *in vivo* half-life of >3days in mice. Additionally, treatment of a mouse model of colon adenocarcinoma with a mouse IL10-Ig fusion protein results in normalized Pim-1 levels and an almost complete regression of tumor burden.

Advantages

- Increased IL10 plasma circulation time
- Downregulation of the adenocarcinoma oncogene Pim-1 by an IL10-Ig fusion protein
- Administration of IL10-Ig fusion protein to mice demonstrated regression of colon adenocarcinoma *in vivo*

Categories For This Invention:

Life Sciences
Biotechnology
Clinical Applications
Immunology
Inflammatory Disease
Oncology

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Therapeutics
Peptide
Protein

Intellectual Property:

Interleukin-10 compositions for the treatment of adenocarcinomas
Issued US Patent
7,939,056

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Publications:

Innate immune inflammatory response against enteric bacteria Helicobacter hepaticus induces mammary adenocarcinoma in mice
Cancer Research
2006, 66:7395-7400
Rapid reversal of epithelial invasion in a mouse model of microbially induced colon carcinoma
Carcinogenesis
2007, 28:2614-2623
Nitric oxide and TNF-{alpha} trigger colonic inflammation and carcinogenesis in Helicobacter hepaticus-infected, Rag2-deficient
Proceedings of the National Academy of Sciences
2009, 106(4): 1027-1032

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