Novel therapy for inflammatory disease using fatty acid-bound alpha fetoprotein

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INVENTION NOVELTY

α-Fetoprotein (AFP) is a fetal glycoprotein produced by the majority of human hepatocellular carcinoma tumors and other tumor types. Delineating differences between fetal 'normal' AFP (nAFP) and tumor-derived AFP (tAFP), investigators at UCSF and the Parker Institute for Cancer Immunotherapy have uncovered a novel role for tAFP in altering metabolism via lipid-binding partners. They have developed a pharmaceutical composition comprising AFP bound by a fatty acid which, depending on the fatty acid used, can have an immunosuppressive effect allowing for the treatment of inflammatory diseases. AFP bound to other fatty acids can eliminate the immune suppressive impact and have a neutral effect which allows for the development of dendritic cell (DC) vaccines presenting AFP epitopes which could be used to treat and prevent tumor AFP-expressing cancers.

APPLICATION

- Recombinant tAFP protein coupled with specific fatty acids can be administered to either improve DC function administered in vivo (for example, in treating liver cancer) or to harness and enhance AFP immune suppression against autoimmune diseases.
- There are currently no DC vaccines currently on the market against HCC, ovarian cancer or testicular cancer, and specific AFP+fatty acid compositions can reducxe inherent AFP immune suppression.

RELATED MATERIALS

- Polyunsaturated Fatty Acid–Bound a-Fetoprotein Promotes Immune Suppression by Altering Human Dendritic Cell Metabolism - 05/01/2023

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

Dendritic cell, Alpha fetoprotein, AFP

CATEGORIZED AS

- Medical
  - Therapeutics
  - Vaccines

RELATED CASES

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