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Targeting uPAR Overexpression on Human Glioblastoma

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Category
Life Sciences/Pharmaceuticals

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Recombinant Fusion Protein for Targeted Cancer Treatment

Recombinant fusion proteins have been developed that contain one or more regions of diphtheria toxin and a portion of an ukinase-type plasminogen activator (uPAR). These new recombinant fusion toxins have superior targeting compared to their predecessors and are especially effective in targeting human glioblastoma. The fusion protein targets the first known tumor-specific marker for glioblastoma, an aggressive form of brain cancer. Preliminary in vivo data have shown this fusion protein to be effective in mice models, both shrinking tumor size and improving survival rates. This protein is highly selective and can greatly increase the efficacy of cancer treatment, lowering the toxicity and reducing the risk of drug resistance.

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Need for Target Cell Treatments

Fusion toxins currently being used to treat cancer only contain the killing domain of a toxic protein with weak efficacy due to low targeting abilities. This leads to non-target cell treatment and increased side effects. The currently used toxins lack the translocation enhancing region of recombinant fusion proteins that facilitates entry of the toxin domain into the target cells. Development of fusion proteins that pair the toxin with a targeting domain will be useful for multiple indications of cancer or for other treatments involving target cells.

BENEFITS OF FUSION PROTEIN DTAT'S uPAR FOR SUPERIOR TARGETING AND EFFECTIVENESS:

- Dual activity with diphtheria toxin and uPAR cell targeting region
- Recombinant fusion protein targets tumor and tumor vasculature
- Novel mechanism and potentially superior to current therapeutics
- High affinity for target cell population, glioblastoma
- High efficacy without the undue toxicity
- Large market for drugs that improve effectiveness of chemotherapy

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