Docket #: S23-353

Targeting Ganglioside GM2 to Overcome Ganglioside GD2 Loss in Cancer Immunotherapy

Stanford researchers have suggested ganglioside GM2, which is upregulated with the loss of ganglioside GD2, as a safe alternative target for antibodies and CAR-T cells for cancer immunotherapy.

Gangliosides are a group of glycosphingolipids that are prominently found in the cell membranes, particularly in the nervous system. Ganglioside GD2 is highly expressed in patients with certain types of cancer, making it a target for effective immunotherapy approaches. However, with continued anti-GD2 immunotherapy treatment, patient sensitivity and efficacy of GD2 therapies tend to decrease.

Researchers at Stanford University have shown that ganglioside GM2 could be a safe alternative target for antibodies and CAR-T cells for cancer immunotherapy. When GD2 is downregulated, there is a compensatory increase in surface GM2. The Stanford researchers provided various GM2-targeted therapies to mice with GD2-low neuroblastoma and found that these therapies were more efficacious than their GD2 counterparts. Additionally, bispecific therapies that target both GD2 and GM2 have also been efficacious.

Stage of Development
In vivo data

Applications

- Cancer immunotherapy

Advantages

- Overcomes tumor driven antigen resistance

Patents

- Published Application: WO2025096441

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