Docket #: S24-180

Novel ENPP1 and ENPP3 Inhibitors for Cancer Immunotherapy

Stanford researchers have developed novel ENPP1 and ENPP3 inhibitors for cancer immunotherapy. ENPP1 inhibitors have previously been reported but ENPP3 is a newly discovered target.

ENPP1 is known to be involved in metastasis and immune evasion by promoting immunosuppressive environments in tumors. Similarly, ENPP3 is overexpressed in many cancers. Inhibitors of ENPP1 and ENPP3 can resensitize cancer cells toward the innate immune system. This shift causes the cancer cells to respond better to cancer immunotherapy. However, ENPP1 inhibition alone cannot abolish the key drivers, such as cGAMP hydrolysis, involved in ENPP activity.

To address this, Stanford researchers designed novel ENPP1 and ENPP3 inhibitors for a dual-inhibition treatment strategy that effectively inhibits cGAMP hydrolysis. The treatment strategy has commercial potential as a novel cancer therapeutic and immunotherapy option.

Stage of research
In vitro

Applications

- Cancer Therapeutics
- Immunotherapy

Advantages

- Can be developed as a therapeutic alone or as an adjunct therapy
- More effective dual-inhibition approach

Patents

- Published Application: WO2025240361

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