Integrin Binding to P-Selectin as a Treatment for Cancer and Inflammation

Tech ID: 32672 / UC Case 2022-505-0

ABSTRACT

Researchers at the University of California, Davis have developed a potential drug target for cancer and inflammation by studying the binding of integrins to P-selectin.

FULL DESCRIPTION

P-selectin is a protein found on the surface of blood vessels and blood platelets. It brings a supply of white blood cells and platelets to inflammation and injury sites through intercellular signaling. This process also indirectly provides growth factors for cancer tumors to metastasize with the fresh supply of blood cells and circulation via inflammation. Due to these properties, P-selectin is currently a target for experimental anticancer drugs. Further study of the cellular interactions it's involved with is necessary to advance this field of research and drug discovery.

Researchers at the University of California Davis have found that P-selectin and integrin binding may be a potential target for anticancer and anti-inflammation drugs. Through molecular docking simulations, researchers have found that P-selectin binds directly to a variety of integrins, or receptors on the surface of a cell that helps bind it to other cells. This is the first report of P-selectin and integrin binding, which could revolutionize its role in medicine. A mutation made near the integrin binding site of P-selectin puts it in an inactive state and disrupts carbohydrate binding. In turn, this reduces its ability to generate inflammation, and could even slow cancer metastasis. With a reduced blood supply to the tumor, it becomes more difficult for the tumor to spread and grow. For these reasons, it is believed that P-selectin-integrin binding could be a new target for inflammation and cancer inhibitors.

APPLICATIONS

- Target for new anti-inflammation and anti-cancer drugs
- Identification of inflammatory modulator

FEATURES/BENEFITS

- First analysis of P-selectin and integrin binding

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20260139028	05/21/2026	2022-505

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OTHER INFORMATION

KEYWORDS

P-Selectin, integrin, inflammation, anticancer, cancer metastasis

CATEGORIZED AS

- **Biotechnology**
  - Health
  - Proteomics
- **Medical**
  - Disease: Autoimmune and Inflammation
  - Disease: Blood and Lymphatic System
  - Disease: Cancer
  - Disease: Cardiovascular and Circulatory System
  - New Chemical Entities, Drug Leads
  - Therapeutics

RELATED CASES

2022-505-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Role Of Integrins In Insulin Signaling
- Suppression of sPLA2-Integrin Binding for Treating an Inflammatory Condition or Suppressing Cell Proliferation

- Development of Dominant Negative CD40L Antagonists DACD40L
- Novel Insight into Inhibiting IGF1 Signaling
- The Isolated Heparin-binding Domain (HBD) of VEGF165 and the Isolated D1 Domain of VEGFR2 (KDR)
- Novel Fibroblast Growth Factor 1-Derived Peptides for Therapy and Drug Discovery
- Modulating MD-2-Integrin Interaction for Sepsis Treatment

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