

The Integrin Activation Interface

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BACKGROUND

Integrins are found throughout the animal kingdom where they play important roles in cell adhesion, migration, proliferation, and survival. In humans, integrins play critical roles in development. Aberrant activation is implicated in several disease states, including cancer and heart disease. Thus, drugs aimed at disrupting this specific interaction could lead to therapies for these conditions.

TECHNOLOGY DESCRIPTION

Researchers at UC San Diego have elucidated a novel molecular interface between two proteins, talin and the membrane proximal portion of the beta-sub3 integrin domain. Specifically, the research team has identified and validated a specific structural target that was previously unknown and could aid in the design of therapeutics to block integrin activation. This discovery may enable the engineering of cells with defects in the activation of multiple classes of integrins and offers a new target for therapeutic intervention to treat diseases and conditions such as inflammation, autoimmune diseases, heart disease (including myocardial infarction), and cancer.

ADVANTAGES

- ▶ Can be used with high specificity to modulate the talin-integrin beta-sub3 interaction without the side effects that may occur with presently available therapeutic agents and methods.
- ▶ Offers a new screening method to detect agents that block integrin beta-sub3 activation, as well as a method for screening alterations in talin function.
- ▶ Available as DNA constructs and vectors.

RELATED MATERIALS

- ▶ Wegener KL, AW Partridge, J Han, AR Pickford, RC Liddington, MH Ginsberg, ID Campbell (2007) Structural Basis of Integrin Activation by Talin, Cell, 128:(1)171-182.

INTELLECTUAL PROPERTY INFO

This invention is available for licensing. See international patent application, published 24-July-2008 ([2008/051016](#)).

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,530,621	09/10/2013	2007-053

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OTHER INFORMATION

CATEGORIZED AS

- ▶ **Medical**
 - ▶ Disease: Autoimmune and Inflammation
 - ▶ Disease: Cancer
 - ▶ Disease: Cardiovascular and Circulatory System
- ▶ **Research Tools**
 - ▶ Screening Assays

RELATED CASES

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