Monoclonal Antibody Protease Inhibitors

Tech ID: 32646 / UC Case 2019-764-0

BACKGROUND

Critical for diverse biological processes, proteases represent one of the largest families of pharmaceutical targets. To inhibit pathogenic proteases with desired selectivity, monoclonal antibodies (mAbs) hold great promise as research tools and therapeutic agents. However, identification of mAbs with inhibitory functions is challenging because current antibody discovery methods rely on binding rather than inhibition.

BRIEF DESCRIPTION

Researchers from the University of California, Riverside have identified novel protease inhibitory mAbs including MMP-12, MMP-14, BACE-1, Alp2, and cathepsin mAbs. Matrix metalloproteinases MMP-12 and MMP-14 are involved in normal physiological processes, such as embryonic development, reproduction, and tissue remodeling, as well as in disease processes, such as arthritis and metastasis. This technology is significant because these proteases precisely control a wide variety of physiological processes and thus are important drug targets for use in therapy for a wide range of diseases.

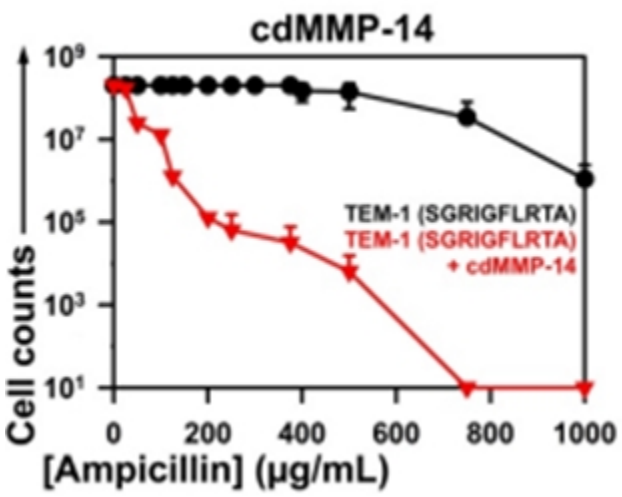

Fig 1: Selection windows for the UCR cdMMP-14 inhibitors. β-lactamase TEM-1 was modified by insertion of the protease specific cleavage peptide sequences (shown in parentheses) between Gly196 and Glu197 of TEM-1.

SUGGESTED USES

- For use as potential therapies for a wide range of diseases including arthritis and metastasis.
- For use as a research tool

PATENT STATUS

Country	Type	Number	Dated	Case

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OTHER INFORMATION

KEYWORDS

MMP-12, MMP-14, monoclonal antibodies, neuropathic pain, inhibitors

CATEGORIZED AS

- **Medical**
  - Disease: Autoimmune and Inflammation
  - Disease: Cancer
  - Disease: Central Nervous System
  - Research Tools

RELATED CASES

2019-764-0

United States Of America	Issued Patent	11,332,546	05/17/2022	2019-764	

RELATED MATERIALS

► Lopez, Tyler & Mustafa, Zahid & Chen, Chuan & Lee, Ki & Ramirez, Aaron & Benitez, Chris & Luo, Xin & Ji, Ru-Rong & Ge, Xin. (2019). Functional selection of protease inhibitory antibodies. Proceedings of the National Academy of Sciences. 116. 201903330. 10.1073/pnas.1903330116. - 08/13/2019

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