Novel Immunoproteasome Inhibitors

Tech ID: 33356 / UC Case 2016-667-0

BACKGROUND

Proteasome inhibition is a validated therapeutic strategy against several forms of cancer. Indeed, FDA approved proteasome inhibitors, bortezomib (BTZ), ixazomib (IXA), and carfilzomib (CAR) have had clinical success in hematological cancers such as multiple myeloma (MM) and mantle cell lymphoma. These proteasome inhibitors effectively target the constitutive proteasome. More recently, the immunoproteasome has become the target of next-generation proteasome inhibitors particularly in autoimmune disorders and inflammatory diseases.

BRIEF DESCRIPTION

Professor Michael Pirrung from the University of California, Riverside has developed immunoproteasome inhibitors that may be used to develop new therapies to treat a variety of diseases like cancer, autoimmune disorders and inflammatory diseases. These inhibitors are from a novel family of compounds called thiasyrbactins. This technology is advantageous because it can potentially lead to novel and effective treatments for a wide variety of conditions including cancer, Huntington's disease, Alzheimer's disease, macular degeneration, inflammatory bowel disease, and rheumatoid arthritis.

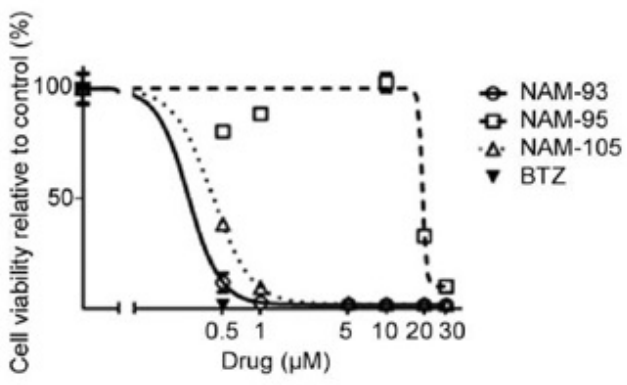

Fig 1: Multiple myeloma (MM) cells were most sensitive to UCR's NAM-93 treatment with EC_{50} values <0.75 μM after 48 hours. BTZ is the control treatment, and NAM-95 and NAM-105 are additional UCR treatments.

APPLICATIONS

- May be used to develop medicines to treat a variety of diseases like cancer, autoimmune disorders and inflammatory diseases.
- For potential use in combination with other proteasome inhibitors, chemotherapeutic and antiviral drugs or immune-modulatory agents.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,584,105	03/10/2020	2016-667

RELATED MATERIALS

- Pierce MR, Bakas NA, Pirrung MC, Bachmann AS. Thiasyrbactins Induce Cell Death via Proteasome Inhibition in Multiple Myeloma Cells. Anticancer Res. 2018, Oct;38(10):5607-5613. doi: 10.21873/anticanres.12895. - 10/31/2018

CONTACT

Grace Yee
grace.yee@ucr.edu
tel: 951-827-2212.

OTHER INFORMATION

KEYWORDS

immunoproteasome, proteasome inhibitors, thiasyrbactin, caspase-like, trypsin-like, chymotrypsin-like, multiple myeloma, inhibitors

RELATED CASES

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University of California, Riverside

Office of Technology Commercialization

200 University Office Building,

Riverside,CA 92521

otc@ucr.edu

research.ucr.edu/