



Small Molecule Antagonists Of The Pro-Survival Protein Mcl-1

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SUMMARY

UCLA Researchers have discovered novel inhibitors to signaling proteins involved in the regulation of apoptosis. MCL-1, which is known to be overexpressed in many cancers, is believed to be upregulated in cancers to prevent the apoptosis pathway.The researchers have developed novel small molecules that inhibit this protein, triggering apoptosis and cancer cell death.

BACKGROUND

Multiple cancer types, including chronic lymphocytic leukemia (CML) have been shown to overexpress signaling proteins involved the inhibition of apoptosis, including BCL-2 and MCL-1.This feature makes these proteins ideal targets for cancer therapeutics.Currently, there is one small molecule that has been FDA approved that targets this signaling pathway, binding to BCL-2.However, 60% of patients each year are resistant to this treatment, highlighting the necessity of targeting other proteins within this pathway, such as MCL-1.

INNOVATION

UCLA Researchers in the Department Chemistry & Biochemistry have developed novel small molecules that bind MCL-1, which in turn promotes the activation of the apoptosis pathway, resulting in cancer cell death.

APPLICATIONS

- ▶ Therapeutic approach to activate the apoptosis pathway, potentially leading to cancer cell death
- ▶ Potentially used as a combination therapy, or as a monotherapy

ADVANTAGES

- ▶ Direct inhibition of the MCL-1 protein
- ▶ Small molecule inhibitor

STATE OF DEVELOPMENT

Successful demonstration in vitro binding of recombinant protein

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10544131	01/28/2020	2014-387
United States Of America	Issued Patent	10,040,780	08/07/2018	2014-387

RELATED MATERIALS

- ▶ Bracken, JD, Carlson, AD, Frederich, JH, Nguyen, M, Shore, GC, Harran, PG. "Tailored fragments of roseophilin selectively anatagonize Mcl-1 in vitro". Tetrahedron Letters 2015 Jun 3; 56(23): 3612-3616.

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INVENTORS

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OTHER INFORMATION

KEYWORDS

Small molecule, MCL-1, apoptosis, inhibitor

CATEGORIZED AS

- ▶ Medical
 - ▶ Disease: Cancer
 - ▶ Therapeutics

RELATED CASES

2014-387-0

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