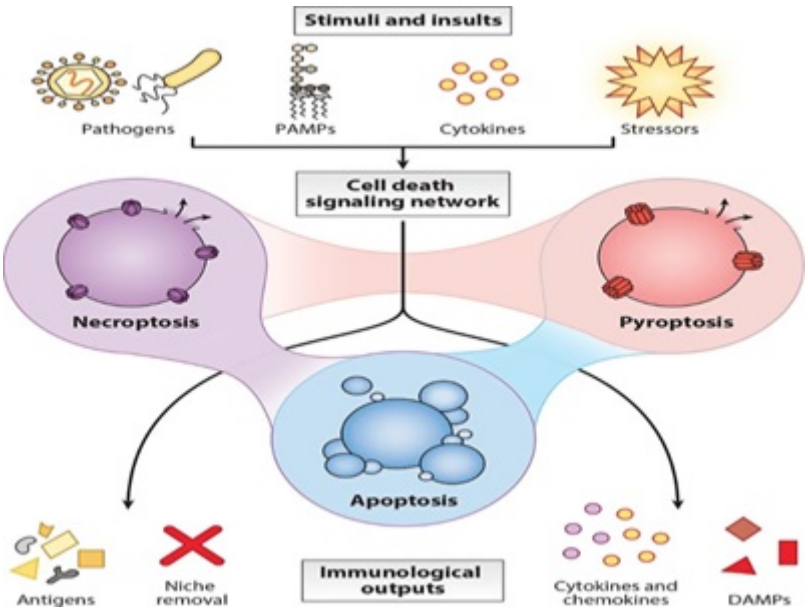
Constitutively Active RIP Kinases/Caspases

The disclosed technology offers recombinant programmed cell death enzymes that can constitutively trigger apoptosis, pyroptosis or necroptosis. These novel proteins have the potential to cause rapid cell death in diseased cells and are available for immediate generation of IND-enabling data.



What is the Problem?

There is currently a lack of effective methods for activating apoptosis to treat diseases like cancer, where programmed cell suicide is downregulated, resulting in uncontrolled cell growth and tumorigenesis. Existing apoptosis activation therapeutics are limited to small molecule drugs that can cause off-target effects and unwanted side effects, making them less than ideal for treating patients.

What is the Solution?

The disclosed technology offers recombinant programmed cell death enzymes that can constitutively trigger apoptosis, pyroptosis, or necroptosis. These novel proteins have the potential to cause rapid cell death in diseases such as cancer. By replacing the regulating interaction domains with constitutively-dimerizing, trimerizing, or oligomerizing domains, these enzymes can directly and rapidly trigger cell death processes. The enzymes include caspase-1, caspase-8, caspase-9, caspase-11, RIPK1, RIPK3, and MLKL.

Technology ID

BDP 8069

Category

Research Tools
Therapeutics/Oncology
Selection of Available Technologies

Authors

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What is the Competitive Advantage?

The competitive advantage of this technology lies in its potential for targeted and effective treatment of cancer by directly triggering cell death processes using recombinant programmed cell death enzymes. This can lead to fewer off-target effects and unwanted side effects compared to small molecule drugs. With the global cancer gene therapy market expected to grow at a CAGR of 23.3% from 2021 to 2030, the innovation offers a promising therapeutic approach for various applications, including intratumoral injection of adenovirus, pro-apoptotic gene therapy, modified bone marrow transplant, and small molecule-activated suicide gene delivery. This technology has the potential to significantly impact cancer treatment and contribute to the growth of the cancer gene therapy market.

Patent Information:

US20210040469A1

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References

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