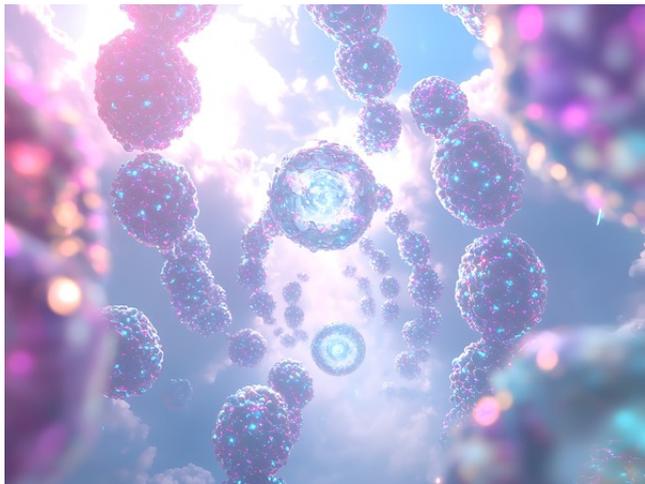




# GRP78 Inhibitors and Degraders for Treatment of Cancer, Viral Infections, and Inflammatory Diseases

TECHNOLOGY NUMBER: 2021-276



## Technology ID

2021-276

## Category

Therapeutics and Vaccines  
Life Sciences  
Accelerate Blue Foundry -  
2025/Life Sciences

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### OVERVIEW

This technology introduces a new class of small molecules and targeted protein degraders that inactivate or eliminate GRP78, a critical protein in cancer and immune cell survival, offering a potentially safer and more effective therapy for hard-to-treat cancers, viral infections, and inflammatory diseases by selectively triggering cell death in diseased cells.

### DESCRIPTION

The invention comprises two breakthrough approaches: (1) small molecule inhibitors that bind directly to GRP78 and block its function within cancer or immune cells, and (2) PROTACs—engineered molecules designed to tag GRP78 for destruction by the cell's own waste-disposal systems. Unlike current cancer therapies that indiscriminately impact both healthy and diseased cells, these agents precisely target the protein machinery cancer cells use to avoid death, forcing them to self-destruct due to accumulated stress. Key advances over conventional solutions include high specificity for diseased cells, demonstrated lack of toxicity in healthy tissues, and the ability to synergize with existing drugs to overcome resistance. These inhibitors and degraders can also be combined with other therapies to enhance overall effectiveness and limit the possibility of relapse.

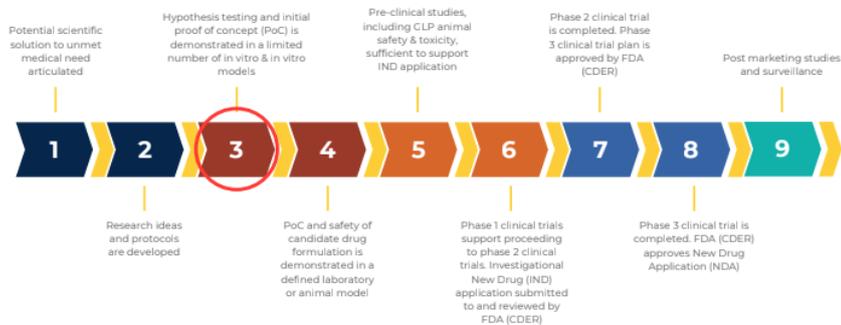


## VALUE PROPOSITION

- **Highly Targeted Mechanism:** Selectively disrupts the survival pathways of cancer and infected cells by disabling or removing GRP78, minimizing impact to healthy tissues.
- **Overcomes Resistance:** Shows strong synergy with approved anti-cancer drugs, offering potential to bypass drug resistance common in current treatments.
- **Versatile Therapeutic Platform:** Applicable to multiple high-impact disease areas (including aggressive and drug-resistant cancers, viral infections, and inflammation).

## TECHNOLOGY READINESS LEVEL

### Therapeutics Technology Readiness Levels



## INTELLECTUAL PROPERTY STATUS

Patent applications pending.

## MARKET OPPORTUNITY

There is an urgent, unmet need for new therapies in aggressive cancers such as pancreatic cancer, where traditional treatments are often ineffective or toxic. Furthermore, this technology's precise mechanism is relevant for diseases where "stress pathway" proteins like GRP78 are essential, including certain viral infections and chronic inflammation, broadening its potential impact beyond oncology. Key industries include pharmaceutical R&D, oncology, and immunotherapy, with value in both standalone and combination therapies.

Market analysis shows global demand for targeted cancer therapies is expected to reach \$150 billion by 2030, with particularly strong growth in approaches that overcome therapeutic resistance.