

# IFN- $\gamma$ Mimetic Peptide

We are looking to out-license the technology for its commercialization.

**Leverages the immune-activating effects mediated through IFN- $\gamma$  receptor for the treatment of cancer and the prevention of viral infection.**

## ◆ Background

Interferon-gamma (IFN- $\gamma$ ) is a glycoprotein composed of 143 amino acid residues and serves as a cytokine bridging innate and adaptive immune responses. It possesses antiviral properties and the ability to induce HLA expression and is already in clinical use for cancer treatment, among other indications. Recent studies have revealed that IFN- $\gamma$ , in synergy with TNF- $\alpha$ , can strongly promote cell death. However, the high manufacturing cost of IFN- $\gamma$  results in expensive therapies, and its pronounced species-specificity necessitates the development of individual IFN- $\gamma$  products tailored to each animal species.

## ◆ Description

Kyoto University researchers have identified a virus-derived peptide composed of 20 amino acids that exerts effects like IFN- $\gamma$ . This peptide can be easily synthesized chemically and induces robust, species-independent cell death synergistically with TNF- $\alpha$  in both human- and murine-derived cells (Fig.1). In addition, the peptide demonstrates its effects at lower concentrations compared to IFN- $\gamma$  (Fig.2). Moreover, intranasal administration of this peptide to mice effectively prevented viral infection (Fig.3).

### ➤ Facile Chemical Synthesis

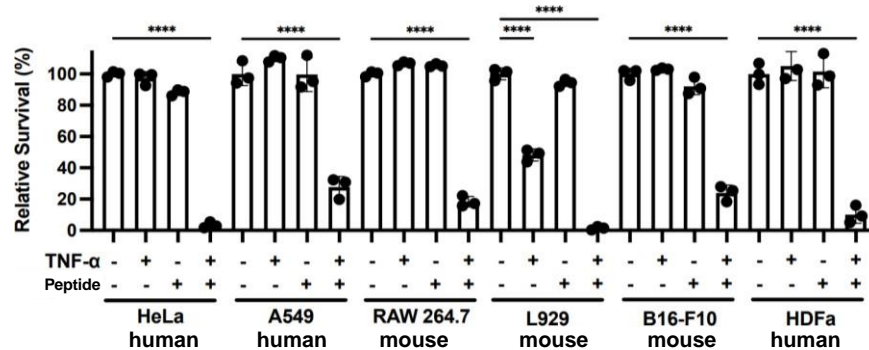
Easily synthesizable peptide contributes to cost reduction both in development and manufacturing.

### ➤ Species-Independent Effect

The peptide shows efficacy without species specificity thus is applicable for various applications.

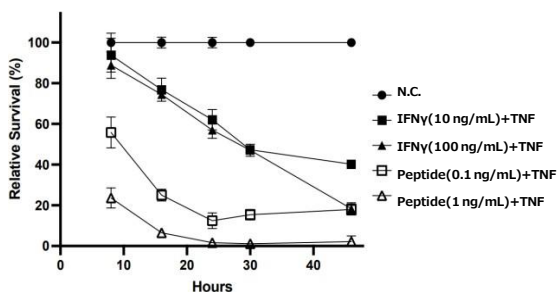
### ➤ Superior Efficacy Compared to IFN- $\gamma$

The peptide is high effective even at low concentrations.



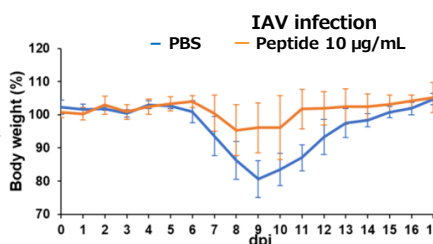
**Fig. 1 Species-Independent Induction of Cell Death**

Co-treatment with the peptide (1 ng/mL) and TNF- $\alpha$  (10 ng/mL) strongly induced cell death across various cell types.



**Fig.2 Cell death-inducing effect of IFN- $\gamma$  vs the found peptide**

Comparing to IFN- $\gamma$ , the peptide demonstrated remarkably high efficacy at low concentrations.



**Fig.3 Prophylactic effects against viral infection**

Intranasal administration of the peptide in mice attenuated body weight loss associated with influenza virus infection.

## ◆ Development Stage

- Validated in-vitro that co-administration with TNF- $\alpha$  induced cell death in human cancer cells.
- Confirmed the prophylactic effects against viral infections in mice.

Technology Readiness Level (TRL): Level 3

## ◆ Applications

Human and veterinary drug development for;

- Cancer treatment
- Viral infection prevention

## ◆ Offers

- Patent License
- Collaborative Research
- MTA for evaluation

## ◆ Contact

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