I-SOL: New broad-spectrum antiviral therapy.

Recombinant protein based on the soluble isoform of IFN- β

Medical need

The development of broad-spectrum, highly effective antiviral agents is a crucial goal in virology and pharmacy. Current strategies focus on two main areas: targeting viral infectivity and modulating the host defense system. However, antiviral development faces challenges due to the parasitic nature of viruses, viral resistance to targeted compounds, and nonspecific side effects.

There is a need to create new, more potent and less toxic antivirals for diseases for which no treatments are available.

Technology

Novel recombinant protein based on sIFNAR2 (I-SOL), a soluble isoform of IFN-β, which possesses antiviral activity.

IFN-ß is a cytokine that mediates a variety of biological responses, including antiviral, antiproliferative and immunomodulatory effects. As a result, I-SOL exhibits activity on its own producing the same responses that IFN-ß mediates.

Oportunidad

Prevalence	Market	Other solutions
Global prevalence in 2023 of the main viruses: VIH:38M Hepatitis B: 296M Hepatitis C: 58M HSV:4,000M SARS-CoV-2: 700M (variable)	Global antiviral drugs: $55,500M By disease: VIH: $28,000M Hepatitis: $15,000M HSV: $5.000M SARS-CoV-2: $3,000M	More than 4,000 antiviral drugs on the market, of which only 459 are on sale in Spain.

Results

The antiviral activity has been tested by bioassay in three independent laboratories. Currently, more than 40 tests have been performed to validate the activity on different viruses, such as: HIV, SARS-CoV-2 or respiratory syncytial virus.

In vitro and in vivo toxicity studies are also available.

Roadmap

IBIMA plataforma BIONAND is looking for a partner to further develop the technology through a co-development or licensing agreement.

Patent:
Two patent families
Priority: 20/07/2018 and 31/03/2022

Team:
IBIMA Plataforma BIONAND research group of Neuroimmunology and Neuroinflammation