TITLE: USE OF IFIT5 AS ANTIVIRAL AGENT

DESCRIPTION OF TECHNOLOGY

The technology of the present patent consists in the coding of the IFIT5 gene (protein induced by interferon with 5 tetratricopeptide repeats) in a plasmid vector. The IFIT5 protein belongs to a family of type I interferon-induced proteins (IFIT), which have recently emerged due to their participation in innate antiviral immunity. A wide variety of mechanisms have been attributed to this family of IFIT proteins to decrease virus replication. In fish, a few IFIT gene sequences similar to mammalian IFIT1 / 5 have been identified, thus it has been suggested that IFIT proteins are part of an ancient immune defense mechanism in these vertebrates. Our studies have shown that the treatment of rainbow trout cells with the plasmid vector encoding IFIT5 confers protection to the cells against infection by the viral hemorrhagic septicemia virus (VHSV), which is why this technology is proposed as a therapeutic antiviral.

BUSINESS APLICATIÓN SECTORS

In terms of exploitation, we can consider two main market segments within the aquaculture market: aquaculture feed companies and animal health companies. Initially, aquaculture feed companies are our key target for establishing collaboration contracts. Finally, our end users of antiviral therapies would be veterinarians and fish farmers, both public and private.

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

In recent decades aquaculture seems to be the only real alternative for the world's fish supply. Its production has reached 110 million tons, giving rise to a world fish production from aquaculture of 54.5% compared to the total, this being 9% higher than that of extractive fishing, according to the APROMAR report of 2017. The aquaculture market size was valued at more than $ 232 billion in 2018 and is expected to witness a compound annual growth rate (CAGR) of 7.7% between 2019-2027.
However, one of the most important aspects that this industry has to solve is the protection of farmed fish populations against diseases mainly caused by bacteria and viruses, since the losses that are generated lead to a decrease in the rate of production and economic profitability (6 billion dollars in losses per year worldwide). That is why the search for effective antiviral compounds and vaccines approved worldwide against these pathogens is currently being explored.
The aquaculture market constitutes the global market for our technology. The market is expected to be huge as viral infections are a huge problem with huge costs for the aquaculture sector around the world.

TECHNOLOGY DEVELOPMENT LEVEL

Currently, the technology has been developed and tested on a laboratory scale, so it is at a technological maturity level 3 or TRL3.

TITULO:

INTELLECTUAL PROPERTY RIGHTS

Spanish patent filed on November 13th, 2020.
Reference P202031141
Ownership: 100% UMH

COLLABORATION SEARCHED

Contact has been established and collaborations have been planned with two companies in the field of aquaculture food:

RELATED IMAGES

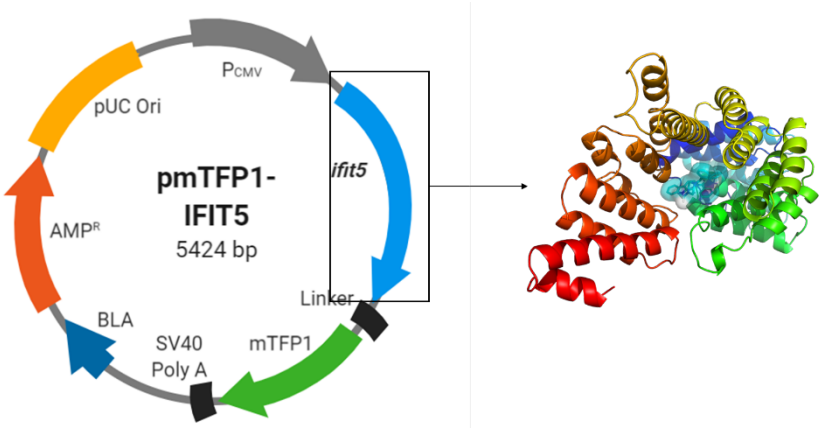

Imagen 1: Graphic representation of the plasmid vector cloned with the IFIT5 gene from rainbow trout (left). Structural model of the IFIT5 protein from rainbow trout obtained using molecular modeling techniques (right).

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