

# TITLE: GPCRA RECEPTOR AGONIST APTAMERS

## FIELD OF INTEREST

Biotechnology (Receptor agonist molecules, Treatment)

## CLINICAL NEED

G protein-coupled receptors (GPCRs) make up the largest family of membrane-bound receptors in the human genome. GPCRs modulate a wide variety of physiological processes and numerous mutations have been described in the genes that encode these disease-associated receptors. Therefore, they constitute the main therapeutic targets of the drugs that currently exist.

Rhodopsin-like GPCRs (GPCRA) is the most studied group from the structural and functional point of view and is divided into 19 subfamilies. Currently, multiple agonists and antagonists are known for these receptors, thus presenting a great variety of functions in different systems. However, these agonists present serious disadvantages in relation to their low activity and availability in the area where the wound is located, which is why the use of repetitive applications of the peptides and high doses of them are required, which can lead to toxicity. and undesirable side effects.

There is a need to provide new molecules capable of interacting with, and specifically binding to, rhodopsin-like G-protein coupled receptors and activating the cascade of reactions associated with them, useful in the treatment of different pathologies associated with defects in said receptors, specifically, in the treatment of wound healing.

## DESCRIPTION OF THE INVENTION

Researchers have developed aptamers that act as rhodopsin-like GPCR receptor agonists (GPCRA). These aptamers are tools with great diagnostic and therapeutic value. They are a therapeutic tool of great relevance for all those diseases characterized by the receptor being totally / partially inhibited or inactivated, or in those diseases in which there is no availability of the endogenous ligands of the receptor or there is availability of endogenous ligand, but an extra contribution exogenous ligand may be beneficial. These aptamers are useful for the treatment of some epithelial diseases, such as dystrophic epidermolysis bullosa.

## TECHNOLOGY KEYWORDS

Aptamers, receptors, GPCRA, diagnosis, therapeutic, wound healing.

## IPR STATUS

Patent application number: P201930524 and PCT/ES2020/070378.

Applicants: UC3M, CIEMAT, FIBHURYC, APTUS BIOTECH, S.L., and FIIS-FJD.

## TYPE AND ROLE OF PARTNER

Looking for commercial partners interested in licensing.

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