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# Albumin Activation of Human Voltage-Gated Proton Channels: Therapeutic Peptide Modulators

Tech ID: 32566 / UC Case 2020-678-2

## BRIEF DESCRIPTION

This technology introduces novel peptide modulators of human voltage-gated proton channels (hHv1) that can be exploited for fertility treatments, and inflammatory disease management..

## FULL DESCRIPTION

Researchers at the University of California, Irvine have discovered the role of albumin in activating human voltage-gated proton channels, influencing sperm capacitation and the innate immune response. This activation mechanism is pivotal in processes such as the capacitation of sperm within the female reproductive tract and the production and release of reactive oxygen species by neutrophils. Exploiting these findings, specific peptides have been developed to modulate hHv1 channels, offering new avenues for therapeutic intervention in fertility and inflammatory diseases.

## SUGGESTED USES

Development of novel peptide-based therapeutics for fertility and inflammatory diseases

## ADVANTAGES

Specific peptide modulators of the hHv1 proton channel offers a novel approach to therapeutics for acute and chronic inflammatory diseases and managing fertility treatments, potentially aiding in both the facilitation and prevention of fertilization

## PATENT STATUS

| Country                   | Type                           | Number         | Dated      | Case     |
|---------------------------|--------------------------------|----------------|------------|----------|
| Patent Cooperation Treaty | Reference for National Filings | WO 2022/251637 | 12/01/2022 | 2020-678 |

Patent Pending

## RELATED MATERIALS

» Zhao, R., Dai, H., Arias, R.J. et al. Direct activation of the proton channel by albumin leads to human sperm capacitation and sustained release of inflammatory mediators by neutrophils. Nat Commun 12, 3855 (2021).

## CONTACT

Ronnie Hanecak  
rhanecak@uci.edu  
tel: 949-824-7186.



## INVENTORS

- » Goldstein, Steven A.N.
- » Zhao, Ruiming

## OTHER INFORMATION

## CATEGORIZED AS

- » **Medical**
  - » Disease: Autoimmune and Inflammation
  - » Disease: Cancer
  - » Disease: Respiratory and Pulmonary System
  - » New Chemical Entities, Drug Leads
  - » Therapeutics

## STATE OF DEVELOPMENT

Pre-clinical studies

## RELATED CASES

2020-678-2

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

▶ [hHv1 Polypeptide Modulators](#)

**UCI** Beall  
Applied Innovation

5270 California Avenue / Irvine, CA  
92697-7700 / Tel: 949.824.2683



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