



# Proton-sensing G Protein-coupled Receptor 4 Knockout

Tech ID: 20139 / UC Case 2006-625-0

## BACKGROUND

G protein-coupled receptor 4 (GPR4) has recently been identified as a novel proton-sensing receptor. GPR4 is expressed in vascular endothelial, smooth muscle, and several other cell types. UCLA researchers developed a GPR4 knockout mouse in order to better understand the in vivo role of GPR4 and investigate the hypothesis that GPR4 acts as a pH sensor in blood vessels.

## INNOVATION

Utilizing homologous recombination, UCLA researchers successfully developed a GPR4 -/- mouse line. GPR4 null mice had abnormalities in the formation and organization of blood vessels. Further testing revealed the loss of GPR4 alters the response of blood vessel growth at acidic pH. Additional abnormalities were seen in the lung and kidney. The GPR4 knockout mouse can be utilized to develop and test therapeutic compounds that modulate this receptor, and to test therapeutics intended to regulate blood vessel growth and function under acidic conditions.

## APPLICATIONS

- ▶ A research tool to study the pH sensing mechanisms of blood vessels and other organs
- ▶ Develop and test therapeutic compounds to modulate blood vessel formation in clinical conditions such as tumor growth, enhance vascular growth in ischemic heart disease, or other diseases with defective pH homeostasis

## RELATED MATERIALS

- ▶ [Vascular abnormalities in mice deficient for the G protein-coupled receptor GPR4 that functions as a pH sensor Mol and Cell Bio 2007](#)

## OTHER INFORMATION

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## INVENTORS

- ▶ Witte, Owen N.

## OTHER INFORMATION

### KEYWORDS

research tools

### CATEGORIZED AS

- ▶ **Biotechnology**
  - ▶ Health
- ▶ **Medical**
  - ▶ Research Tools
- ▶ **Research Tools**
  - ▶ Animal Models

### RELATED CASES

2006-625-0

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Nucleic Acid Tetramers For High Efficiency Multiplexed Cell Sorting](#)
- ▶ [Mouse Model Deficient for the Proton Sensing Gpcr T-cell Death-associated Gene 8 \(tdag\)](#)
- ▶ [Anti-Human Deoxycytidine Kinase \(dCK\) Monoclonal Antibody](#)
- ▶ [Novel Non-Immunogenic Positron Emission Tomography Gene Reporter](#)
- ▶ [Targeted Mass Spectrometry Approaches To Detect Kinase Pathways For Personalized Medicine](#)
- ▶ [G2A GPCR Deficient Mouse Model and G2A Monoclonal Antibody](#)
- ▶ [Derivation Of A Human Neuroendocrine Prostate Cancer Cell Line With Defined Oncogenic Drivers](#)
- ▶ [Novel Polyclonal Antibody to Detect a Bruton's Tyrosine Kinase Phosphorylation Site](#)
- ▶ [Non-Immunogenic Positron Emission Tomography Gene Reporter Systems](#)

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