Pituitary Adenylyl Cyclase-activating Peptide (PACAP) Deficient Mice

Tech ID: 20535 / UC Case 2001-466-0

BACKGROUND

Pituitary adenylate cyclase-activating polypeptide (PACAP) is a 38-amino acid peptide that was first isolated from ovine hypothalamic extracts. It has been previously observed that light information reaches the suprachiasmatic nucleus through a population of retinal ganglion cells that contain PACAP, however the involvement of PACAP and its receptor is not well studied. In order to study the role of PACAP in vivo, a new mouse model was developed in which the gene encoding for PACAP was disrupted by homologous recombination.

INNOVATION

PACAP deficient mice exhibit significant impairment in the magnitude of the response to brief light exposures. Researches observed about a 50% reduction in the magnitude of both light-induced phase delays and advances of the circadian system in the PACAP deficient mice. Overall, loss of PACAP produced selective deficits in the light response of the circadian system.

APPLICATIONS

- Research tool for the study of circadian rhythms
- Development of drugs that overcome the phenotype observed in the PACAP deficient mice
- To study additional biological effects PACAP may have an effect on other areas of the body.

RELATED MATERIALS

- Selective deficits in the circadian light response in mice lacking PACAP. *Am J Physiol Regul Integr Comp Physiol.* (2004)

OTHER INFORMATION

To complete a **Ready-to-Sign Agreement** for this case, please view this document. [PDF]

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OTHER INFORMATION

KEYWORDS

research tools mouse models drug development

CATEGORIZED AS

- **Research Tools**
  - Animal Models

RELATED CASES

2001-466-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Vasoactive Intestinal Peptide (VIP) and Peptide Histidine Isoleucine (PHI) Knockout Mice

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