Editorial

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Editorial

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Highlights From the Literature

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EMERGING TECHNOLOGY

Engineered GPCRs as Tools to Modulate Signal Transduction

Ying Pei, Sarah C. Rogan, Feng Yan, and Bryan L. Roth

This review discusses using engineered GPCRs as ideal tools to study GPCR functions selectively in specific cellular populations.

REVIEWS

Heterodimers and Receptor Mosaics of Different Types of G-Protein-Coupled Receptors

Kjell Fuxe, Daniel Marcellino, Diego Guidolin, Amina S. Woods, and Luigi F. Agnati

The expanding field of heterodimers and receptor mosaics of GPCRs is explored with emphasis on their physiology and pharmacology based on their role as integrators of receptor signaling.

Can O₂ Dysregulation Induce Premature Aging?

Robert M. Douglas and Gabriel G. Haddad

Oxygen dysregulation, whether it is hypoxia or hyperoxia, can lead to pathologically altered homeostasis that predisposes one to advancing disease risk.

Inflammation and Stem Cells in Gastrointestinal Carcinogenesis

Michael Quante and Timothy Cragin Wang

Review of the link between inflammation and gastrointestinal carcinogenesis and the relationship between stem cells and cancer stem cells.

Breathtaking TRP Channels: TRPA1 and TRPV1 in Airway Chemosensation and Reflex Control

Bret F. Bessac and Sven-Eric Jordt

New studies have revealed essential roles for TRPA1, a sensory neuronal TRP ion channel, in airway responses to noxious chemical exposures and in airway inflammation.

Imaging CNS Modulation of Pain in Humans

Ulrike Bingel and Irene Tracey

Review of research on the involved circuitry and important mechanisms that underlie the experience of pain are a major focus of contemporary neuroscientific research and potentially provide new insights to prevent and treat chronic pain states.

On the cover: CD1 mice were exposed to combined hypoxia/hypercapnia (5%O₂/5%CO₂) for 10 days, and brain cryosections were stained with an antibody to cleaved caspase 3 to detect apoptotic cells. Top: a negative control where the primary antibody was omitted. Magnification ×40; zoom ×2. Bottom: coronal sections from exposed mice showing DAPI in blue and cleaved caspase 3 in red and demonstrating co-localization of cleaved caspase 3 and damaged and morphologically deranged nuclei (arrows). See Douglas and Haddad, p. 333.

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