

The Journal of
PHARMACOLOGY
And Experimental Therapeutics

A Publication of the American Society for Pharmacology and Experimental Therapeutics

January 2021

Vol. 376, No. 1

Contents

MINIREVIEW

- A Biomarker-Centric Approach to Drug Discovery and Development: Lessons Learned from the Coronavirus Disease 2019 Pandemic 12
Kelly A. Fader, Jiangwei Zhang, Joseph P. Menetski, Ravi I. Thadhani, Elliott M. Antman, Gary S. Friedman, Shashi K. Ramaiah, and Vishal S. Vaidya

CARDIOVASCULAR

- K_{ATP} Channel Openers Inhibit Lymphatic Contractions and Lymph Flow as a Possible Mechanism of Peripheral Edema 40
Brittney R. Garner, Amanda J. Stolarz, Daniel Stuckey, Mustafa Sarimollaoglu, Yunmeng Liu, Philip T. Palade, Nancy J. Rusch, and Shengyu Mu
- Functional Interaction of Endothelin Receptors in Mediating Natriuresis Evoked by G Protein-Coupled Estrogen Receptor 1 98
Eman Y. Gohar, and David M. Pollock
- Amphetamine-like Neurochemical and Cardiovascular Effects of α-Ethylphenethylamine Analogs Found in Dietary Supplements 118
Charles W. Schindler, Eric B. Thorndike, John S. Partilla, Kenner C. Rice, and Michael H. Baumann
- Metoprolol Impairs β1-Adrenergic Receptor-Mediated Vasodilation in Rat Cerebral Arteries: Implications for β-Blocker Therapy 127
Christopher L. Moore, David S. Henry, Samantha J. McClenahan, Kelly K. Ball, Nancy J. Rusch, and Sung W. Rhee

DRUG DISCOVERY AND TRANSLATIONAL MEDICINE

- Downregulation of Interferon-γ Receptor Expression Endows Resistance to Anti-Programmed Death Protein 1 Therapy in Colorectal Cancer 21
Chunxiao Lv, Dongfen Yuan, and Yanguang Cao
- Characterization of Negative Allosteric Modulators of the Calcium-Sensing Receptor for Repurposing as a Treatment of Asthma 51
Polina L. Yarova, Ping Huang, Martin W. Schepelmann, Richard Bruce, Rupert Ecker, Robert Nica, Vsevolod Telezhkin, Daniela Traini, Larissa Gomes dos Reis, Emma J. Kidd, William R. Ford, Kenneth J. Broadley, Benson M. Kariuki, Christopher J. Corrigan, Jeremy P.T. Ward, Paul J. Kemp, and Daniela Riccardi
- Mechanistic Analysis of an Extracellular Signal-Regulated Kinase 2-Interacting Compound that Inhibits Mutant BRAF-Expressing Melanoma Cells by Inducing Oxidative Stress 84
Ramon Martinez, Weiliang Huang, Ramin Samadani, Bryan Mackowiak, Garrick Centola, Lijia Chen, Ivie L. Conlon, Kellie Hom, Maureen A. Kane, Steven Fletcher, and Paul Shapiro
- Inhibiting Sialidase-Induced TGF-β1 Activation Attenuates Pulmonary Fibrosis in Mice 106
Tejas R. Karhadkar, Thomas D. Meek, and Richard H. Gomer

GASTROINTESTINAL, HEPATIC, PULMONARY, AND RENAL

- Mechanism of Diuresis and Natriuresis by Cannabinoids: Evidence for Inhibition of Na⁺-K⁺-ATPase in Mouse Kidney Thick Ascending Limb Tubules 1
Joseph K. Ritter, Ashfaq Ahmad, Shobha Mummalaneni, Zdravka Daneva, Sara K. Dempsey, Ningjun Li, Pin-Lan Li, and Vijay Lyall
- Therapeutic Effect of Neuraminidase-1-Selective Inhibition in Mouse Models of Bleomycin-Induced Pulmonary Inflammation and Fibrosis 136
Irina G. Luzina, Erik P. Lillehoj, Virginia Lockatell, Sang W. Hyun, Katerina N. Lugkey, Akihiro Imamura, Hideharu Ishida, Christopher W. Cairo, Sergei P. Atamas, and Simeon E. Goldblum

METABOLISM, TRANSPORT, AND PHARMACOGENETICS

- █ Transporter Activity Changes in Nonalcoholic Steatohepatitis: Assessment with Plasma Coproporphyrin I and III
Sagnik Chatterjee, Sambuddho Mukherjee, L.V.J. Sankara Sivaprasad, Tanvi Naik, Shashyendra Singh Gautam, Bokka Venkata Murali, Avinash Annasao Hadambar, Gowtham Raj Gunti, Vijaykumar Kuchibhotla, Avisek Deyati, Sushma Basavanthappa, Manjunath Ramarao, T. Thanga Mariappan, Bradley A. Zinker, Yueping Zhang, Michael Sinz, and Hong Shen

29

- █ Refined Prediction of Pharmacokinetic Kratom-Drug Interactions: Time-Dependent Inhibition Considerations
Rakshit S. Tanna, Dan-Dan Tian, Nadja B. Cech, Nicholas H. Oberlies, Allan E. Rettie, Kenneth E. Thummel, and Mary F. Paine

64

TOXICOLOGY

- █ A Preclinical Safety Study of Thyroid Hormone Instilled into the Lungs of Healthy Rats—an Investigational Therapy for ARDS
Craig M. Flory, Beverly J. Norris, Nicole A. Larson, Lia G. Coicou, Brenda L. Koniar, Margaret A. Mysz, Timothy P. Rich, David H. Ingbar, and Robert J. Schumacher

74

ERRATUM

- Correction to “Characterization of Ubrogepant: A Potent and Selective Antagonist of the Human Calcitonin Gene–Related Peptide Receptor”

147

█ Supplemental material is available at jpet.aspetjournals.org.

About the cover: End-to-End Biomarker Strategy to Accelerate Drug Development for Unmet Medical Needs. See the article by Fader et al. (dx.doi.org/10.1124/jpet.120.000204).