

MOLECULAR PHARMACOLOGY

March 2011

Volume 79

Number 3

molpharm.aspetjournals.org

ISSN 0026-895X

PERSPECTIVEFlapping Loops: Roles for Hinges in a Ligand-Binding Domain of the Nicotinic Receptor 

337

Joe Henry Steinbach

ARTICLES

Progesterone Receptor Membrane Component 1 Inhibits the Activity of Drug-Metabolizing Cytochromes P450 and Binds to Cytochrome P450 Reductase

340

Elzbieta Szczesna-Skorupa and Byron Kemper

 Glycine Hinges with Opposing Actions at the Acetylcholine Receptor-Channel Transmitter Binding Site

351

 Prasad Purohit and Anthony Auerbach

A Novel Gemini Vitamin D Analog Represses the Expression of a Stem Cell Marker CD44 in Breast Cancer

360

Jae Young So, Hong Jin Lee, Amanda K. Smolarek, Shuby Paul, Chung-Xiou Wang, Hubert Maehr, Milan Uskokovic, Xi Zheng, Allan H. Conney, Li Cai, Fang Liu, and Nanjoo Suh

A Serotype 5/3 Adenovirus Expressing MDA-7/IL-24 Infects Renal Carcinoma Cells and Promotes Toxicity of Agents That Increase ROS and Ceramide Levels

368

Margaret A. Park, Hossein A. Hamed, Clint Mitchell, Nichola Cruickshanks, Rupesh Dash, Jeremy Allegood, Igor P. Dmitriev, Gary Tye, Besim Ogretmen, Sarah Spiegel, Adly Yacoub, Steven Grant, David T. Curiel, Paul B. Fisher, and Paul Dent

Beneficial Effects of Adenylyl Cyclase Type 6 (AC6) Expression Persist Using a Catalytically Inactive AC6 Mutant

381

Mei Hua Gao, Tong Tang, Ngai Chin Lai, Atsushi Miyano, Tracy Guo, Rouying Tang, Amy L. Firth, Jason X. Yuan, and H. Kirk Hammond

THRX-198321 Is a Bifunctional Muscarinic Receptor Antagonist and β_2 -Adrenoceptor Agonist (MABA) That Binds in a Bimodal and Multivalent Manner

389

Tod Steinfeld, Adam D. Hughes, Uwe Klein, Jacqueline A. M. Smith, and Mathai Mammen

 G Protein-Coupled Estrogen Receptor 1/G Protein-Coupled Receptor 30 Localizes in the Plasma

400

Membrane and Traffics Intracellularly on Cytokeratin Intermediate Filaments

Caroline Sandén, Stefan Broslid, Louise Cornmark, Krister Andersson, Joanna Daszkiewicz-Nilsson, Ulrika E. A. Mårtensson, Björn Olde, and L. M. Fredrik Leeb-Lundberg

The  symbols in the table of contents identify articles discussed in the Perspective.

Molecular Pharmacology (ISSN 0026-895X) is published monthly (two volumes per year beginning in January and July) by the American Society for Pharmacology and Experimental Therapeutics, 9650 Rockville Pike, Bethesda, MD 20814-3995; e-mail: subscriptions@aspet.org; Web site: aspet.org. Periodicals postage paid at Bethesda, MD, and at additional mailing offices. POSTMASTER: Send address changes to *Molecular Pharmacology*, 9650 Rockville Pike, Bethesda, MD 20814-3995. Subscription rates: U.S.: \$714; outside the U.S.: \$806. Single copy: \$63. GST Tax Number for Canadian subscribers:

BN:13489 2330 RT. Indexed or abstracted by *Biochemistry & Biophysics Citation Index®*, *Biological Abstracts*, *Current Awareness in Biological Sciences*, *Current Contents®/Life Sciences*, *EMBASE/Excerpta Medica*, *Index Medicus*, *Medical Documentation Service®*, *Reference Update®*, *Research Alert®*, *Science Citation Index®*, and *SciSearch®*. Copyright © 2011 by the American Society for Pharmacology and Experimental Therapeutics. All rights reserved. Printed in the U.S.A.

<p>§ Verapamil Block of T-Type Calcium Channels <i>Pamela Bergson, Gregory Lipkind, Steven P. Lee, Mark-Eugene Duban, and Dorothy A. Hanck</i></p> <p>Functional and Biochemical Properties of Ryanodine Receptor Type 1 Channels from Heterozygous R163C Malignant Hyperthermia-Susceptible Mice <i>Wei Feng, Genaro C. Barrientos, Gennady Cherednichenko, Tianzhong Yang, Isela T. Padilla, Kim Truong, Paul D. Allen, José R. Lopez, and Isaac N. Pessah</i></p> <p>Plasticity of GABA_A Receptors after Ethanol Pre-Exposure in Cultured Hippocampal Neurons <i>Yi Shen, A. Kerstin Lindemeyer, Igor Spigelman, Werner Sieghart, Richard W. Olsen, and Jing Liang</i></p> <p>Molecular Dissection of Dual Pseudosymmetric Solute Translocation Pathways in Human P-Glycoprotein <i>Zahida Parveen, Thomas Stockner, Caterina Bentele, Sandra Pferschy, Martin Kraupp, Michael Freissmuth, Gerhard F. Ecker, and Peter Chiba</i></p> <p>Identification and Mechanism of Action of the Acylguanidine MRT-83, a Novel Potent Smoothed Antagonist <i>Hermine Roudaut, Elisabeth Traiffort, Tatiana Gorjankina, Ludwig Vincent, Helene Faure, Angele Schoenfelder, Andre Mann, Fabrizio Manetti, Antonio Solinas, Maurizio Taddei, and Martial Ruat</i></p> <p>G_{i/o}-Coupled Receptors Compete for Signaling to Adenylyl Cyclase in SH-SY5Y Cells and Reduce Opioid-Mediated cAMP Overshoot <i>Erica S. Levitt, Lauren C. Purington, and John R. Traynor</i></p> <p>The Novel UDP Glycosyltransferase 3A2: Cloning, Catalytic Properties, and Tissue Distribution <i>Peter I. MacKenzie, Anne Rogers, David J. Elliot, Nuy Chau, Julie-Ann Hulin, John O. Miners, and Robyn Meech</i></p> <p>Myeloperoxidase-Dependent Oxidation of Etoposide in Human Myeloid Progenitor CD34⁺ Cells <i>Irina I. Vlasova, Wei-Hong Feng, Julie P. Goff, Angela Giorgianni, Duc Do, Susanne M. Gollin, Dale W. Lewis, Valerian E. Kagan, and Jack C. Yalowich</i></p> <p>Different Effects of the Different Natural CC Chemokine Receptor 2b Ligands on β-Arrestin Recruitment, Ga_i Signaling, and Receptor Internalization <i>Yamina A. Berchiche, Stéphanie Gravel, Marie-Eve Pelletier, Geneviève St-Onge, and Nikolaus Heveker</i></p> <p>Reactive Oxygen Species-Dependent Apoptosis by Gugulipid Extract of Ayurvedic Medicine Plant <i>Commiphora mukul</i> in Human Prostate Cancer Cells Is Regulated by c-Jun N-Terminal Kinase <i>Dong Xiao, Yan Zeng, Lakshmi Prakash, Vladimir Badmaev, Muhammed Majeed, and Shivendra V. Singh</i></p> <p>Suppression of Cytokine-Mediated Complement Factor Gene Expression through Selective Activation of the Ah Receptor with 3',4'-Dimethoxy-α-naphthoflavone <i>Iain A. Murray, Colin A. Flavenvy, Christopher R. Chiaro, Arun K. Sharma, Rachel S. Tanos, Jennifer C. Schroeder, Shantu G. Amin, William H. Bisson, Siva K. Kolluri, and Gary H. Perdew</i></p> <p>Site-Directed Mutations near Transmembrane Domain 1 Alter Conformation and Function of Norepinephrine and Dopamine Transporters <i>Bipasha Guptaroy, Rheclare Fraser, Aalisha Desai, Minjia Zhang, and Margaret E. Gney</i></p> <p>The Large Isoforms of A-Kinase Anchoring Protein 18 Mediate the Phosphorylation of Inhibitor-1 by Protein Kinase A and the Inhibition of Protein Phosphatase 1 Activity <i>Arpita Singh, John M. Redden, Michael S. Kapiloff, and Kimberly L. Dodge-Kafka</i></p> <p>Bioactivation of Pentaerythrityl Tetranitrate by Mitochondrial Aldehyde Dehydrogenase <i>Martina Griesberger, Alexander Kollau, Gerald Wölkart, M. Verena Wenzl, Matteo Beretta, Michael Russwurm, Doris Koesling, Kurt Schmidt, Antonius C. F. Gorren, and Bernd Mayer</i></p>	411 420 432 443 453 461 472 479 488 499 508 520 533 541
---	--

Organization of NADPH-Cytochrome P450 Reductase and CYP1A2 in the Endoplasmic Reticulum— Microdomain Localization Affects Monooxygenase Function <i>Lauren Brignac-Huber, James R. Reed, and Wayne L. Backes</i>	549
Nitric Oxide Stimulates NCX1 and NCX2 but Inhibits NCX3 Isoform by Three Distinct Molecular Determinants <i>Agnese Secondo, Pasquale Molinaro, Anna Pannaccione, Alba Esposito, Maria Cantile, Pellegrino Lippiello, Rossana Sirabella, Takahiro Iwamoto, Gianfranco Di Renzo, and Lucio Annunziato</i>	558
■ Transmembrane Peptide as Potent Inhibitor of Oligomerization and Function of Human Organic Anion Transporter 1 <i>Peng Duan, Shanshan Li, and Guofeng You</i>	569
Histidine 6.55 Is a Major Determinant of Ligand-Biased Signaling in Dopamine D _{2L} Receptor <i>Nuska Tschammer, Stefan Bollinger, Terry Kenakin, and Peter Gmeiner</i>	575
■ Evidence for a Second Receptor for Prostacyclin on Human Airway Epithelial Cells That Mediates Inhibition of CXCL9 and CXCL10 Release <i>Sylvia M. Wilson, Neil A. Sheddan, Robert Newton, and Mark A. Giembycz</i>	586
Further Characterization of the Electrogenicity and pH Sensitivity of the Human Organic Anion-Transporting Polypeptides OATP1B1 and OATP1B3 <i>Pablo Martinez-Becerra, Oscar Briz, Marta R. Romero, Rocio I. R. Macias, Maria J. Perez, Carlos Sancho-Mateo, Maria P. Lostao, Jose M. Fernandez-Abalos, and Jose J. G. Marin</i>	596
Celecoxib Antagonizes the Cytotoxicity of Cisplatin in Human Esophageal Squamous Cell Carcinoma Cells by Reducing Intracellular Cisplatin Accumulation <i>Le Yu, Minghui Chen, Zhijie Li, Jing Wen, Jianhua Fu, Dan Guo, Yong Jiang, Shuguang Wu, Chi-Hin Cho, and Shuwen Liu</i>	608
Targeting Group II Metabotropic Glutamate (mGlu) Receptors for the Treatment of Psychosis Associated with Alzheimer's Disease: Selective Activation of mGlu2 Receptors Amplifies β -Amyloid Toxicity in Cultured Neurons, Whereas Dual Activation of mGlu2 and mGlu3 Receptors Is Neuroprotective <i>Filippo Caraci, Gemma Molinaro, Giuseppe Battaglia, Maria Laura Giuffrida, Barbara Riozzi, Anna Traficante, Valeria Bruno, Milena Cannella, Sara Merlo, Xushan Wang, Beverly A. Heinz, Eric S. Nisenbaum, Thomas C. Britton, Filippo Drago, Maria Angela Sortino, Agata Copani, and Ferdinando Nicoletti</i>	618

ERRATA

Correction to "Tetrandrine Inhibits Wnt/ β -Catenin Signaling and Suppresses Tumor Growth of Human Colorectal Cancer"	627
Correction to "Quantification of Functional Selectivity at the Human α_{1A} -Adrenoceptor"	627
Correction to "Curcumin Dually Inhibits Both Mammalian Target of Rapamycin and Nuclear Factor- κ B Pathways through a Crossed Phosphatidylinositol 3-Kinase/Akt/I κ B Kinase Complex Signaling Axis in Adenoid Cystic Carcinoma"	628

■ Supplemental material is available online at <http://molpharm.aspetjournals.org>.

About the cover: An extracellular pathway for verapamil inside the inner pore of the T-type channel. See article by Bergson et al. on page 411 of this issue.