Marie E. Burns, Ph.D.

Clinical Interests

Trained as a biochemist and electrophysiologist, Marie E. Burns studies the temporal regulation of signal transduction mechanisms in neurons. Much of her work has investigated the deactivation of the G protein cascade in photoreceptor cells of the retina. Her future studies will seek to understand the mechanisms by which different G protein cascades yield signals of varying amplitude and durations, such as in the rod and cone photoreceptors in the retina.

Title

Professor

Specialty

Ophthalmology

Department

Ophthalmology and Vision Science

Division

Ophthalmology

Center/Program Affiliation

Center for Neuroscience
Eye Center

Education

Ph.D., Duke University, Durham, North Carolina, 1996
M.S., Duke University, Durham, North Carolina, 1994

Fellowships

Stanford University, Palo Alto, California, 1996-00

Professional Memberships

Association for Research in Vision and Ophthalmology
Biophysical Society
Society for Neuroscience

Select Recent Publications

Burns, M.E. and Pugh, Jr. E.N. (2009). RGS9 concentration matters in rod phototransduction. Biophysical J. 97, 1538-1547.

Song, X., Vishnivetskiy, S.A, Gross, O.P., Emelianoff, K., Mendez, A, Chen, J., Gurevich, EV., Burns, M.E., and Gurevich, VV. (2009). Enhanced arrestin mutant facilitates photoresponse recovery and protects rod photoreceptors in the absence of rhodopsin phosphorylation. Curr. Biol. 19,700-5.

Lobanova, E.S., Finkelstein, S., Herrmann, R, Chen, Y.-M., Kessler, C., Michaud, N.A, Trieu, L.H., Strissel, K.J., Burns, M.E. and Arshavsky, V.Y. (2008). Transducin gamma-subunit set expression levels of alpha- and beta-subunits and is crucial for rod viability. J. Neurosci. 28, 3510-20.

Martemyanov, K.A, Krispel, C.M., Lishko, PV., Burns, M.E., and Arshavsky, V.Y. (2008). Functional comparison of RGS9 splice isoforms in a living cell. Proc. Natl. Acad. Sci. 105,20988-

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Krispel, C.M., Sokolov, M., Chen, Y.-M., Song, H., Herrmann, R, Arshavsky, V.Y. and Burns, M.E. (2007). Phosducin regulates the expression of transducin l3y subunits in rod photoreceptors and does not contribute to phototransduction adaptation. J. Gen. Physiol. 130, 303-312.
Chan, S., Rubin, W.W., Mendez, A, Liu, X., Song, X., Hanson, S.M., Craft, C.M., Gurevich, V.V., Burns, M.E., and Chen, J. (2007). Functional comparisons of visual arrestins in rod photoreceptors of transgenic mice. Invest Ophthalmol Vis Sci. 48,1968-75.
Kerov, V., Rubin, W.W., Natochin, M., Melling, N.A, Burns, M.E. and Artemyev, N.O. (2007). N-terminal fatty acylation of transducin profoundly influences its localization and the kinetics of photoresponse in rods. J. Neurosci. 27,10270-10277.
Krispel, C.M., Chen, D., Chen, Y.-J., Melling, N., Martemyanov, K.A, Quillinan, N., Arshavsky, V. Y., Wensel, T.G., Chen, C.K., and Burns, M.E. (2006). RGS expression rate-limits recovery of rod photoresponses. Neuron 51, 409-416.
Burns, M.E., Mendez, A, Chen, C.-K., Almuete, A, Quillinan, N., Simon, M.I., Baylor, D.A, and Chen, J. (2006). Deactivation of phosphorylated and nonphosphorylated rhodopsin by arrestin splice variants. J. Neurosci., 26, 1036-1044.
Moussaif, M., Rubin, W.W., Kerov, V., Reh, R, Chen, D., Chen, C.-K., Hurley, J.B., Burns, M.E. and Artemyev, N.O. (2006). Phototransduction in a transgenic mouse model of Nougaret night blindness. J. Neurosci. 26, 6863-6872.

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