

Stephen Wedgwood, Ph.D.

Clinical Interests	Our research investigates the roles of elevated reactive oxygen species (ROS) in the development of pulmonary hypertension associated with neonatal diseases including persistent pulmonary hypertension of the newborn (PPHN) and bronchopulmonary dysplasia (BPD). By identifying the sources of ROS and the molecular signaling pathways they influence, we aim to develop better detection and treatment strategies for newborns with PPHN and BPD.
Title	Associate Researcher
Specialty	Pediatric Neonatology
Department	Pediatrics
Division	Neonatology
Education	Ph.D., University of Edinburgh, Edinburgh, UK, 1996 B.S., University of Edinburgh, Edinburgh, UK, 1991
Fellowships	Northwestern University, Evanston, IL, 2001 University of Leeds, United Kingdom, 1999
Professional Memberships	American Heart Association American Thoracic Society Society for Free Radical Biology and Medicine
Honors and Awards	Visiting Professor Nationwide Children's Hospital, Columbus, Ohio, 2008 Children's Memorial Hospital Seed Grant Award, 2003 Cancer Research Campaign (U.K.) Postdoctoral Research Fellow, 1999 BBSRC (U.K.) Postgraduate Trainee Award, 1996 British Council Exchange Scholarship, National Institute of Genetics, Japan, 1994
Select Recent Publications	Farrow KN, Lee KJ, Perez M, Schriewer JM, Wedgwood S, Lakshminrusimha S, Smith CL, Steinhorn RH, Schumacker PT. Brief Hyperoxia Increases Mitochondrial Oxidation and Increases PDE5 Activity in Fetal Pulmonary Artery Smooth Muscle Cells. <i>Antioxid Redox Signal</i> . 2012 17 460-470. Wedgwood S, Lakshminrusimha S, Farrow KN, Czech L, Gugino SF, Soares F, Russell JA, Steinhorn RH. Apocynin Improves Oxygenation and Increases eNOS in Persistent Pulmonary Hypertension of the Newborn. <i>Am J Physiol Lung Cell Mol Physiol</i> . 2012 302 L616-L626. Perez M, Lakshminrusimha S, Wedgwood S, Czech L, Gugino SF, Russell JA, Farrow KN,

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- Steinhorn RH. Hydrocortisone Normalizes Oxygenation and cGMP Regulation in Lambs with Persistent Pulmonary Hypertension of the Newborn. *Am J Physiol Lung Cell Mol Physiol*. 2012 302 L595-L603.
- Wedgwood S, Lakshminrusimha S, Fukai T, Russell JA, Schumacker PT, Steinhorn RH. Hydrogen peroxide Regulates Extracellular Superoxide Dismutase Activity and Expression in Neonatal Pulmonary Hypertension. *Antioxid Redox Signal*. 2011 15: 1497-1506.
- Lakshminrusimha S, Steinhorn RH, Wedgwood S, Savorgnan F, Nair J, Mathew B, Gugino SF, Russell JA, Swartz DD. Pulmonary Hemodynamics and Vascular Reactivity in Asphyxiated Term Lambs Resuscitated with 21% and 100% Oxygen. *J. Appl. Physiol*. 2011 111: 1441-1447.
- Farrow KN, Wedgwood S, Lee KJ, Czech L, Gugino SF, Lakshminrusimha S, Schumacker PT, Steinhorn RH. Mitochondrial Oxidant Stress Increases PDE5 Activity in Persistent Pulmonary Hypertension of the Newborn. *Respir Physiol Neurobiol*. 2010 174: 272-281.
- Sud N, Kumar S, Wedgwood S, Black SM. Modulation of PKCdelta signaling alters the shear stress-mediated increases in endothelial nitric oxide synthase transcription: role of STAT3. *Am J Physiol Lung Cell Mol Physiol*. 2009 296:L519-L526.
- Kumar S, Sun X, Wedgwood S, Black SM. Hydrogen peroxide decreases endothelial nitric oxide synthase promoter activity through the inhibition of AP-1 activity. *Am J Physiol Lung Cell Mol Physiol*. 2008. 295: L370-L377.
- Black S.M, DeVol J.M, Wedgwood S. Regulation of Fibroblast Growth Factor-2 expression in pulmonary arterial smooth muscle cells involves increased reactive oxygen species generation. *Am. J. Physiol. Cell Physiol*. 2008. 294: C345-C354.
- Farrow KN, Lakshminrusimha S, Reda WJ, Wedgwood S, Czech L, Gugino SF, Davis JM, Russell JA, Steinhorn RH. Superoxide dismutase restores eNOS expression and function in resistance pulmonary arteries from neonatal lambs with persistent pulmonary hypertension. *Am J Physiol Lung Cell Mol Physiol*. 2008 295:L979-L987.

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