



NAMASIVAYAM AMBALAVANAN, M.D.

Professor, Departments of Pediatrics, Cell Biology,
and Pathology

ACADEMIC APPOINTMENTS

1. Associate Professor with Tenure, Department of Pediatrics, Division of Neonatology, University of Alabama at Birmingham (UAB): Oct 1, 2007 – present
2. Secondary appointments in Department of Cell Biology, and Department of Molecular and Cellular Pathology
3. Associate Director, Division of Neonatology, University of Alabama at Birmingham (UAB): 2003 – present
4. Director, Newborn Care Unit, Cooper Green Hospital: Oct 2001-present

EDUCATION

| Institution | Degree | Year |
|---|--|--------------|
| 1. Medical School Jawaharlal Institute of PostGraduate Medical Education and Research (JIPMER) Pondicherry, India | MBBS | 1988 |
| 2. JIPMER Pondicherry, India | Internship | 1990 |
| 3. Post Graduate Institute of Medical Education and Research (PGIMER) Chandigarh, India | MD (Pediatrics) | 1993 |
| 4. University of Alabama at Birmingham Birmingham, Alabama, USA | 1 yr Pediatric Residency 3 yrs Neonatology Fellowship | 1996 1997 |

AWARDS/HONORS

1. President, Southern Society for Pediatric Research, 2005-6
2. Grant Reviewer (Cardiac Biology/Regulation); American Heart Association, 2008->present
3. Grant Reviewer (Ad hoc): American Association for the Advancement of Science (AAAS) Research Competitiveness Program, 2007; Raine Medical Research Foundation, 2005; PSI Foundation, Canada, 2003; Yale CreFF, 2002
4. Best Doctors in America, 2005-present

MAJOR RESEARCH INTERESTS

Basic research: Mechanisms underlying neonatal pulmonary vascular remodeling and neonatal pulmonary hypertension, in association with Dr. Yiu-Fai Chen and Dr. Suzanne Oparil of the Hypertension and Vascular Biology program at UAB, and Dr. Joanne Murphy-Ullrich of the Department of Pathology and the Cell Adhesion and Matrix Research Center.

Clinical research: Neonatal nutrition (specifically vitamin A), feeding practices, and probiotics. In collaboration with Dr. Waldemar Carlo, director of the neonatal division at UAB and Dr. Catharine Ross of Penn State University.

Epidemiological research: prediction of neonatal outcomes, in association with Dr. Waldemar Carlo and the Research Triangle Institute (RTI)/NICHD Neonatal Research Network.

GRANTS

1) R01 HL092906 (Ambalavanan) 07/01/2008 - 6/30/2013

NIH Annual Direct Costs: \$250,000

“Transforming Growth Factor -Beta Mediates Effects of Hypoxia in Newborn Lung”

Role: PI

Major Goal: To determine the mechanisms by which hypoxic exposure during lung development activates TGF- β resulting in abnormal pulmonary arterial remodeling (PAR) and inhibition of alveolar development (IAD). Specific Aim 1 will test the hypothesis that TGF- β signaling is necessary for hypoxia-induced PAR and IAD. Specific Aim 2 will assess the mechanistic role of Thy-1 in TGF- β activation and the pathogenesis of IAD in the presence or absence of hypoxia. Specific Aim 3 will test the specific hypothesis that hypoxia-induced increases in ET-1 stimulate TGF- β synthesis and activation

2) U10 HD34216 Carlo (PI) Ambalavanan (Co-Investigator) 04/01/96 – 03/31/11

NIH/ NICHD

Multi-center Network of Neonatal Intensive Care Units

The major goals of this project are to work with the NICHD and the Steering Committee to prioritize, plan, implement, analyze, interpret, and report a series of randomized and observational studies.

3) R01 HD059140 (PI: Ardythe Morrow) Ambalavanan (Co-Investigator) 12/01/2008-11/30/2013

Novel genetic and salivary glycan biomarkers for risk of NEC in ELBW infants

The Aims of this project are to test *FUT2* genotype and salivary H-2 and sLe^a phenotypes as novel biomarkers of subsequent risk of NEC and examine the pattern of intestinal bacterial colonization in ELBW infants in relation to their glycan genotype, phenotype and NEC outcome and determine the predictive value of multivariate models that include multiple putative biomarkers for risk of NEC, including gene polymorphisms, salivary glycans, and measures of early inflammation.

MANUSCRIPTS

Peer-reviewed publications (selected from over 60 MEDLINE indexed publications):

BASIC SCIENCE

1. Ambalavanan N, Nicola T, Li P, Bulger A, Murphy-Ullrich J, Oparil S, Chen YF. Role of matrix metalloproteinase-2 in newborn mouse lungs under hypoxic conditions. *Pediatr Res* 63:26-32, 2008
2. Bhandari V, Choo-Wing R, Lee CG, Yusuf K, Nedrelow JH, Ambalavanan N, Malkus H, Homer RJ, Elias JA. Developmental regulation of NO-mediated VEGF-induced effects in the lung. *Am J Resp Cell Mol Biol* 39: 420-30, 2008
3. Isbell TS, Sun C-W, Wu L-C, Teng X, Vitturi DA, Branch BG, Kevil CG, Peng N, Wyss JM, Ambalavanan N, Schwiebert L, Ren J, Pawlik KM, Renfrow MB, Patel RP, Townes TM. SNO-Hemoglobin not essential for red blood cell dependent hypoxic vasodilation. *Nat Med* 14: 773-777, 2008
4. Ambalavanan N, Nicola T, Hagood J, Bulger A, Serra R, Murphy-Ullrich J, Oparil S, Chen YF. Transforming growth factor-beta signaling mediates hypoxia-induced pulmonary arterial remodeling and inhibition of alveolar development in newborn mouse lung. *Am J Physiol Lung Cell Mol Physiol* 295:L86-95, 2008.
5. Nicola T, Hagood JS, James ML, Macewen MW, Williams TA, Hewitt MM, Schwiebert LM, Bulger A, Oparil S, Chen YF, Ambalavanan N. Loss of Thy-1 inhibits alveolar development in the newborn mouse lung. *Am J Physiol Lung Cell Mol Physiol*. 296:L738-50, 2009
6. Dasgupta C, Sakurai R, Wang Y, Guo P, Ambalavanan N, Torday JS, Rehan VK. Hyperoxia-induced neonatal rat lung injury involves activation of TGF- β and Wnt signaling, protection by rosiglitazone. *Am J Physiol Lung Cell Mol Physiol*. 296:L1031-41, 2009

CLINICAL SCIENCE:

7. Ambalavanan N, Carlo W, Bobashev G, Mathias E, Poole K, Fanaroff AA, Stoll BJ, Ehrenkranz R, Wright LL. Prediction of mortality for extremely low birth weight neonates. *Pediatrics* 116:1367-73, 2005
8. Ambalavanan N, Baibergenova A, Carlo WA, Saigal S, Schmidt B, Thorpe KE, and the TIPP Investigators. Early prediction of poor outcome in extremely low birth weight (ELBW) infants by classification tree analysis. *J Pediatr* 148:438-44, 2006
9. Ambalavanan N, Carlo WA, Shankaran S, Bann CM, Emrich SL, Higgins RD, Tyson JE, O'Shea TM, Laptook AR, Ehrenkranz RA, Donovan EF, Walsh MC, Goldberg RN, Das A, and Follow-up Investigators for the NICHD Neonatal Research Network. Predicting outcome of neonates diagnosed with hypoxemic-ischemic encephalopathy. *Pediatrics* 118: 2084-93, 2006
10. Fabres J, Carlo WA, Phillips V, Howard G, Ambalavanan N⁺. Both extremes of arterial carbon dioxide pressure and the magnitude of fluctuations in arterial carbon dioxide pressure are associated with severe intraventricular hemorrhage in preterm infants. *Pediatrics* 119:299-305, 2007
11. Ambalavanan N, El-Ferzli G, Roane C, Johnson R, Carlo WA. Nitric oxide administration using an oxygen hood: A pilot trial. *PLoS One* 4(2):e4312, 2009
12. Ambalavanan N, Carlo WA, D'Angio CT, McDonald SA, Das A, Schendel D, Thorsen P, Higgins RD for the NICHD Neonatal Research Network. Cytokines associated with bronchopulmonary dysplasia or death in extremely low birth weight infants. *Pediatrics* 123: 1132-41, 2009
13. McKee LA, Fabres J, Howard G, Peralta-Carcelen M, Carlo WA, Ambalavanan N^{*}. P_aCO₂ and neurodevelopment in extremely low birthweight infants. *J Pediatr* 2009 May 16. [Epub ahead of print]