Curriculum Vitae: Rubin M. Tuder 03/17/2010

DEMOGRAPHIC AND PERSONAL INFORMATION.

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EDUCATION AND TRAINING:

1979	M.D., São Paulo University School of Medicine, São Paulo, Brazil
1980-1982	Research Fellow, Cell Biology Laboratory, Oncology Research Foundation, São Paulo, Brazil
1982 -1984	Residency in Anatomic Pathology, Department of Pathology, São Paulo University School of Medicine, Brazil.
1984-1987	Postdoctoral fellow in Pathology, Department of Pathology, Stanford University Medical School.

PROFESSIONAL EXPERIENCE:

Brazil:

1982-1990	Attending Pathologist, Heliopolis Hospital, Brazilian National Social Security Institute, São Paulo, Brazil
1983-1984	Attending Pathologist, Autopsy service for the city of São Paulo, Department of Pathology, São Paulo University School of Medicine, Brazil.
1984-1990	Attending Pathologist and Medical Supervisor, Department of Pathology, University Hospital, São Paulo University School of Medicine, Brazil.
1988-1990	Research Associate, Transplantation Laboratory, INCOR, University of Sao Paulo School of Medicine, University Hospital.

University of Colorado Health Sciences Center:

1990-1991	Instructor, Department of Pathology.
1991-1997	Assistant Professor of Pathology and Medicine, Departments of Pathology and Medicine, Division of Respiratory Sciences and Critical Care Medicine.
1997-2001	Associate Professor of Pathology and Medicine, Departments of Pathology and Medicine, Division of Respiratory Sciences and Critical Care Medicine.

Johns Hopkins University School of Medicine

2001–2003	Associate Professor of Pathology, Director, Division of Cardiopulmonary Pathology, Department of Pathology, Johns Hopkins University School of Medicine.
2001-2003	Associate Professor of Medicine, Department of Medicine, Division of Pulmonary and Critical Care Medicine, Johns Hopkins University School of Medicine. Active Staff, Johns Hopkins Hospital
2003-2008	Professor of Pathology, Director, Division of Cardiopulmonary Pathology, Department of Pathology, Johns Hopkins University School of Medicine.

2003-2008	Professor of Medicine, Department of Medicine, Division of Pulmonary and Critical Care Medicine, Johns Hopkins University School of Medicine.
	Active Staff, Johns Hopkins Hospital.
2005-present	Joint Appointment with Johns Hopkins University, Bloomberg School of Public Health, Department of Environmental Health and Human Sciences

University of Colorado Denver School of Medicine

2008-present	Hart Professor of Medicine, Director of the Program in Translational Lung Research, Division of Pulmonary Sciences and Critical Care Medicine, University of Colorado Denver School of Medicine
2008-present	Professor of Pathology, Department of Pathology, University of Colorado Denver School of Medicine

COMMITTEE MEMBERSHIP:

2005-2006	Director of Program Evaluation, Alpha 1 Foundation.

RESEARCH ACTIVITIES.

Publications:

A. Peer-reviewed scientific articles.

1. Tuder RM e Pinto RV. Necro-hermorrhagic pancreatitis due to corticosteroid Rev. Hosp. das Clínicas da Faculdade de Medicina da USP. 37(3):152, 1982. (Port.)
2. Tuder RM e Moraes CF. Primary Semimalignant Schwannoma of the Liver: Light and electron microscopic studies. Path Res Pract 1984;178:345.
3. Delmonte VLC, Tuder RM, Vieira WTT, Cunha VMS, Nakaguma IS, Bonasser Filho F, Capitani CM. Acquired immunodeficiency syndrome: description of two autopsy cases. Rev Inst Med trop São Paulo 1984; 26(40):222. (Port.)
4. Tuder RM e Naves JMB. Mixed undifferentiated small and large cell carcinoma of the lung. Rev Hosp Clín Fac São Paulo 1984; 39(2):88. (Port.)
5. Tuder RM. Myocardial Infarct in Disseminated Mucormycosis: case report with special emphasis on the pathogenetic. Mechanisms Mycopathologia 1985; 89:81.

6. Tuder RM, Ibrahim RE, Godoy CE, De Brito T. Pathology of the Human Pulmonary Paracoccidioidomycosis. Mycopathologia 1986; 92:179.
7. Tuder RM, Renya GS, Bensch K. Mycobacterial Coronary Arteritis in a Heart Transplant Recipient. Human Pathol 1986;17:1072.
8. Tuder RM. Malignant Disease of the Pleura: a histopathological study with special emphasis on diagnostic criteria and differentiation from reactive mesothelium. Histopathology 1986;10:851.
9. Tuder RM, Bensch K. Cardiac Involvement by Metastatic Tumor. Path Res Pract 1987; 182:293-297.
10. Tuder RM, Young R, Karasek M, Bensch K. Adult Cuntaneous Hemangiomas Are Composed of Nonreplicating Endothelial Cells. J Invest Derm 1987; 89(6):594-597.
11. Tuder RM, Karasek M, Bensch K. Cyclic Adenosine Monophosphate levels and the function of skin microvascular endothelial cells. J Cell Physiol 1989; 142:272-283.
12. Tuder RM, Weinberg A, Panajatopulos N, Kalil J. Cytomegalovirus Enhances PBML binding and HLA class I expression on cultured endothelial cells. Transpl Proc 1991; 23:91.
13. Tuder RM. Vulvar destruction by lymphoma. Gynecol Oncol 1992; 45:52.
14. Koine K, Moore FA, Moore EE, Pogeth RS, Tuder R, Banerjee A. Endotoxin after gut ischemia/reperfusion causes irreversible lung injury. J Surg Res 1992; 52:652-662.
15. Neumann J, Spadefora-Ferrara M, Goldberg AC, Tuder R, Macaubas C, Sabbaga E, Kalil J. Reactivity of renal transplant sera against a 17 kD mononuclease cell antigen. Transpl Internat 1992; 5[suppl1]:S617-620.
16. Tuder RM, Groves B, Badesch DB, Voelkel NF. Exuberant endothelial cell growth and elements of inflammation are present in plexiform lesions of pulmonary hypertension. Am J Pathol 1994 Feb; 144(2):275-285.
17. Halbower AC, Mason RJ, Abman SH, Tuder RM. Agarose infiltration improves morphology of cryostat sections of lung. Lab Invest 1994 Jul; 71(1):149-153.
18. Schwarz MI, Lynch DE, Tuder R. Bronchiolitis obliterans: The lone manifestation of rheumatoid arthritis? Europ J Respir Dis 1994 Apr; 7(4):817-820.
19. Tuder RM, Weinberg A, Panajotopoulos N, Kalil J. Cytomegalovirus infection amplifies class I major histocompatibility complex expression on cultured human endothelial cells. J Heart Lung Transplant 1994Jan-Feb; 13(1 Pt):129-138.

20. Kinnard WV, Tuder RM, Papst P, Fisher JH. Regulation of Alveolar Type II Cell Differentiation and Proliferation in Adult Rat Lung Explants. Am J Resper Cell Mol Biol 1994 Oct; 11(4):416-425.
21. Halbower AC, Tuder RM, Franklin WA, Pollock JS, Förstermann U, Abman SH. Maturation-related changes in endothelial nitric oxide synthase immunolocalization in the developing ovine pulmonary circulation. Am J Physiol 1994 Nov; 267(5 Pt 1):L585-L591.
22. Voelkel NF, Tuder R, Bridges J, Arend WP. Interleukin-1 receptor antagonist treatment reduces pulmonary hypertension generated in rats by Monocrotaline. Am J Respir Cell Mol Biol 1994 Dec; 11(6):664-675.
23. Schwarz MI, Sutarik JM, Nick JA, Leff JA, Emlen JW, Tuder RM. Pulmonary capillaritis and diffuse alveolar hemorrhage: A primary manifestation of polymyositis. Am J Respir Crit Care Med 1995 Jun; 151(6):2037-2040.
24. Abraham E, Bursten S, Shenkar R, Allbee J, Tuder R, Woodson P, Guidot DM, Rice G, Singer JW, Repine JE. Phosphatidic acid signaling mediates lung cytokine expression and lung inflammatory injury following hemorrhage in mice. J Exp Med 1995 Feb; 181(2):569-575.
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27. Shenkar R, Cohen AJ, Vestweber D, Miller YE, Tuder R, Abraham E. Hemorrhage and resuscitation alter the expression of ICAM-1 and P-Selectin in mice. J Inflamm 1995; 45(4):248-259.
28. Poggetti RS, Moore EE, Moore FA, Koike K, Tuder R, Anderson BO, Banerjee A. Quantifying oxidative injury in the liver. Am J Physiol 1995 Mar; 268(3 Pt 1):G471-G479.
29. Nick J, Tuder R, May R, Fisher J. Polyarteritis nodosa with pulmonary vasculitis. Am J Respir Crit Care Med 1996 Jan; 153(1):450-453.
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33. Weinberg A, Zhang L, Tuder RM. NK recognition of cytomegalovirus-infected endothelial cells depends on viral replication and MHC class I expression. Viral Immunol 1996; 9(2):131.
34. Shea LM, Beechler C, Schwartz M, Shenkar R, Tuder R, Abraham E. Hyperoxia activates NF-B and increases TNF-α and IFN-γ gene expression in mouse pulmonary lymphocytes. J Immunol 1996 Nov; 157:3902-3908.
35. Garg K, Zamora MR, Tuder R, Armstrong JD, Lynch DA. Lung transplantation: Indications, donor and recipient selection, and imaging of complications. Radiographics 1996 Mar; 16(2):355-367.
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37. Jennings CA, King TE, Tuder R, Cherniack RM, Schwarz MI. Diffuse alveolar hemorrhage with underlying isolated, pauciimmune pulmonary capillaritis. Am J Respir Crit Care Med 1997 Mar; 155(3):1101-1109.
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infiltrates. Chest 1998 Oct;114(4):1205-1209.

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54. Chan ED, Kalayanamit T, Lynch DA, Tuder R, Arndt P, Winn R, Schwarz MI. Mycoplasma pneumoniae-associated bronchiolitis causing severe restrictive lung disease in adults: Report of three cases and literature review. Chest 1999 Apr; 115(4): 188-1194.
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pulmonary hypertension: evidence for a process of disordered angiogenesis. J Pathol 2001 Oct;195(3):367-374.

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113. Tuder RM, Yoshida T, Fijalkowska I, Biswal S, Petrache I. Role of Lung Maintenance Program in the Heterogeneity of Lung Destruction in Emphysema. Proc Am Thorac Soc. 2006 Oct; 3(8): 673-679.
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130. Henson PM, Tuder RM: Apoptosis in the Lung: Induction, Clearance and Detection. Am.J.Physiol Lung Cell Mol.Physiol. 2008 Apr;294(4):L601-11.
131. Grath-Morrow S, Rangasamy T, Cho C, Susson T, Neptune E, Wise R, Tuder RM, Biswal S: Impaired Lung Homeostasis in Neonatal Mice Exposed to Cigarette Smoke. Am.J.Respir.Cell Mol.Biol. 2008 Apr;38(4):393-400.
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133. Petrache I, Stephens RS, Diab K, Twigg HL, Flores S, Tuder RM. HIV-Associated Pulmonary Emphysema. A Review of the literature and Inquiry into its Mechanism. Thorax. 2008 May; 63(5):463-9.
134. Medler TR, Petrusca DN, Lee PJ, Hubbard WC, Berdyshev EV, Skirball J, Kamocki K, Schuchman E, Tuder RM, Petrache I: Apoptotic Sphingolipid Signaling by Ceramides in Lung Endothelial Cells. Am.J.Respir.Cell Mol.Biol. 2008 Jun(6):639-46.
135. Neptune ER, Podowski M, Calvi C, Cho JH, Tuder R, Linnoila RI, Tsai MJ, Dietz HC. Targeted disruption of NeuroD, a proneural bHLH factor, impairs distal lung frormation and neuroendocrine morphology in the neonatal lung. J Biol Chem. 2008 Jul;283(30):21160-9.
136. Petrache I, Medler TR, Richter AT, Kamocki K, Chukwueke U, Zhen L, Gu Y, Adamowicz J, Schweitzer KS, Hubbard WC, Berdyshev EV, Lungarella G, Tuder RM. Superoxide Dismutase Protects Against Apoptosis and Alveolar Enlargement Induced by Ceramide. Am J Respir Cell Mol Physiol. 2008 Jul;295(1):L44-53.
137. Alder JK, Chen JJ, Lancaster L, Danoff S, Su SC, Cogan JD, Vulto I, Xie M, Qi X, Tuder RM, Phillips JA 3rd, Lansdorp PM, Loyd JE, Armanios MY: Short telomeres are a risk factor for idiopathic pulmonary fibrosis. Proc Natl Acad Sci USA. 2008 Sep;105(35): 13051-6.

138. Malhotra D, Thimmulappa R, Navas-Acien A, Sandford A, Elliott M, Singh A, Chen L, Zhuang X, Hogg J, Pare P, Tuder RM, Biswal S: Decline in NRF2 Regulated Antioxidants in Chronic Obstructive Pulmonary Disease Lungs due to Loss of its Positive Regulator DJ-1. Am J Respir Crit Care Med. 2008 Sep;178(6):592-604.
139. Le A, Damico R, Damarla M, Boueiz A, Pae HH, Skirball J, Hasan E, Peng X, Chesley A, Crow MT, Reddy SP, Tuder RM, Hassoun PM: Alveolar Cell Apoptosis is Dependent on p38-MAPK-Mediated Activiation of Xanthine Oxidoreductase in Ventilator-Induced Injury. J Appl Physiol. 2008 Oct; 105(4): 1282-90.
140. Giordano RJ, Lahdenranta J, Zhen L, Chukwueke U, Petrache I, Langley RR, Fidler IJ, Pasqualini R, Tuder RM, Arap W. Targeted induction of lung endothelial cell apoptosis causes emphysema-like changes in the mouse. J Biol Chem. 2008 Oct; 283(43): 29447-60.
141. Sussan TE, Rangasamy T, Blake DJ, Malhotra D, El-Haddad H, Bedja D, Yates MS, Kombairaju P, Yamamoto M, Liby KT, Sporn MB, Gabrielson KL, Champion HC, Tuder RM, Kensler TW, Biswal S. Targeting Nrf2 with the triterpenoid CDDO-imidazolide attenuates cigarette smoke-induced emphysema and cardiac dysfunction in mice. Proc Natl Acad Sci USA. 2009 Jan; 106(1):250-5.
142. Singh A, Ling G, Suhasini AN, Zhang P, Yamamoto M, Navas-Acien A, Cosgrove G, Tuder RM, Kensler TW, Watson WH, Biswal S. NRF2-dependent sulfiredoxin-1 expression protects against cigarette smoke-induced oxidative stress in lungs. Free Radic Biol Med. 2009 Feb; 46(3):376-86.
143. Rangasamy T, Misra V, Zhen L, Tankersley CG, Tuder RM, Biswal S. Cigarette Smoke-Induced Emphysema in A/J mice is Associated with Pulmonary Oxidative Stress, Apoptosis of Lung Cells, and Global Alterations in Gene Expression. Am J Physiol Lung Cell Mol Physiol. 2009 Jun; 296(6):L888-900.
144. Hassoun HT, Lie ML, Grigoryev DN, Liu M, Tuder RM, Rabb H. Kidney Ischemia-Reperfusion Injury Induces Caspase-Dependent Pulmonary Apoptosis. Am J Physiol Renal Physiol. 2009 Jul;297(1):F125-37.
145. Podowski M, Calvi CL, Cheadle C, Tuder RM, Biswal S, Neptune ER. Complex integration of matrix, oxidative stress, and apoptosis in genetic emphysema. Am J Pathol. 2009 Jul;175(1):84-96.
146. Giordano RJ, Edwards JK, Tuder RM, Arap W, Pasqualini R. Combinatorial ligand-directed lung targeting. Proc Am Thorac Soc. 2009 Aug;6(5):411-5.

147. Le A, Zielinski R, He C, Crow MT, Biswal S, Tuder RM, Becker PM. Pulmonary Epithelial Neuropilin-1 Deletion Enhances Development of Cigarette Smoke-Induced Emphysema. Am J Respir Crit Care Med. 2009 Sep;180(5):396-406
148. MacNee W, Tuder RM. New paradigms in the pathogenesis of chronic obstructive pulmonary disease 1. Proc Am Thorac Soc. 2009 Sep;6(6):527-31.
149. Sehgal PB, Mukhopadhyay S, Patel K, Xu F, Almodovar S, Tuder RM, Flores SC. Golgi dysfunction is a common feature in idiopathic human pulmonary hypertension and vascular lesions in SHIV-nef-infected macaques. Am J Physiol Lung Cell Mol Physiol. 2009 Oct;297(4).
150. D'Alessio FR, Tsushima K, Aggarwal NR, West EE, Willett MH, Britos MF, Pipeling MR, Brower RG, Tuder RM, McDyer JF, King LS. CD4+CD25+Foxp3+ Tregs resolve experimental lung injury in mice and are present in humans with acute lung injury. J Clin Invest. 2009 Oct;119(10):2898-913.
151. Angelini DJ, Su Q, Yamaji-Kegan K, Fan C, Teng X, Hassoun PM, Yang SC, Champion HC, Tuder RM, Johns RA. Resistin-like Molecule 0β (RELM β) in Scleroderma-associated Pulmonary Hypertension. Am J Respir Cell Mol Biol. 2009 Nov;41(5):553-61.
152. Malhotra D, Thimmulappa R, Vij N, Navas-Acien A, Sussan T, Merali S, Zhang L, Kelsen SG, Myers A, Wise R, Tuder R, Biswal S. Heightened Endoplasmic Reticulum Stress in COPD Lungs: The Role of Nrf2-Regulated Proteasomal Activity. Am J Respir Crit Care Med. 2009 Dec 15;180(12):1196-207
153. Geraci MW, Bull TM, Tuder RM. Genomics of pulmonary arterial hypertension: implications for therapy. Heart Fail Clin. 2010 Jan;6(1):101-14.
154. Chen ES, Song Z, Willett MH, Heine S, Yung RC, Liu MC, Groshong SD, Zhang Y, Tuder RM, Moller DR. Serum Amyloid A Regulates Granulomatous Inflammation in Sarcoidosis through Toll-like Receptor-2. Am J Respir Crit Care Med. Feb;181(4):360-73.
155. Peng XQ, Damarla M, Skirball J, Nonas S, Wang XY, Han EJ, Hasan EJ, Cao X, Boueiz A, Damico R, Tuder RM, Sciuto AM, Anderson DR, Garcia JG, Kass DA, Hassoun PM, Zhang JT. Protective role of PI3-kinase/Akt/eNOS signaling in mechanical stress through inhibition of p38 mitogen-activated protein kinase in mouse lung. Acta Pharmacol Sin. 2010 Feb;31(2):175-83.
156. Fijalkowska I, Xu W, Comhair SA, Janocha AJ, Mavrakis LA, Krishnamachary B,

Zhen L, Mao T, Richter A, Erzurum S, Tuder RM. Hypoxia Incudible-Factor1-alpha Regulates the Metabolic Shift of Pulmonary Hypertensive Endothelial Cells. Am J Path. 2010 Mar;176(3):1130-8.

157. Blake DJ, Singh A, Kombairaju P, Malhotra D, Mariani TJ, Tuder RM, Gabrielson E, Biswal S. Deletion of Keap1 in the Lung Attenuates Acute Cigarette Smoke-induced Oxidative Stress and Inflammation. Am J Respir Cell Mol Biol. 2009 Jun; (In Press).
158. Yoshida T, Mett I, Bhunia A, Bowman J, Perez MGA, Chukwueke U, Mao T, Richter A, Brown E, Ashush H, Notkin N, Gelfand A, Thimmulappa R, Rangasamy T, Sussan T, Cosgrove G, Mouded.M., Shapiro SD, Petrache I, Biswal S, Feinstein.E, Tuder RM. RTP801, a suppressor of mTOR signaling, is an essential mediator of cigarette smoke-induced pulmonary injury and emphysema. Nature Medicine 2010; (In Press).

EXTRAMURAL SPONSORSHIP:

Current:

1. "Role of Adiponectin in the Protection of Emphysema," (2009-2012), Clinical Innovator Award, yearly direct costs: $100,000. Role PI (15% effort).
2. "Zipcode based nano-imaging of hypertensive pulmonary arteries," (2009-2011), RC1 HL100849-01, yearly direct costs: $500,000. Role PI (15% effort). (Yearly sub contract with Renata Pasqualini, MD Anderson Cancer Center)
3. "Molecular Physiology Core Applied to Acute Lung Injury," (2009-2011), National Institutes of Health, P30 HL101295-01, yearly direct costs: $500,000. Role Co-Investigator. (PI: Mark Geraci).
4. "Microbiome in COPD," (2009-2011), R03-RFA-HL-08-008, yearly direct costs: $50,000. Role: PI (1% effort).
5. "CMREF Tissue Processing Center," (2006-2011), AHA-CMREF-0687022M, Yearly Direct Cost: $177,536 Role: PI (10% Effort).
6. "Endothelial cell death and inflammation in emphysema," (2004-2010), National Institutes of Health, 1RO1 HL66554-01, yearly direct costs: $154,395. Role: PI (20% effort).

7. "Ceramide induced lung destruction in emphysema," R01, (2006-2011), NHLBI, yearly costs ($0), Role: Co Investigator (1% effort) (PI: Petrache).
8. "Molecular Determinants of Pulmonary Arterial Hypertension," SCCOR, (2006-2012), NHLBI, yearly costs ($60,000). Role PI, Project 1.
9. "Genetic determinants of Pulmonary Hypertension," (2004-2009), NHLBI, K08, Role: Mentor. No salary. (PI. Ari Zaiman).
10. "Pathogenic Role of the Stress Response Gene RTP-801 in Cigarette Smoke Induced Alveolar Inflammation and Emphysema," 2007- 2010, Alpha-1 Foundation, yearly cost ($65,000). Role – PI (10% effort). Start Date 07/01/2007.
11. "Specialized Centers of Clinically-Oriented Research (SCCOR) Mechanisms and treatment of COPD Progression," (01/09/07-08/31/11) NIH, yearly cost ($261,660). Role - Project 1 PI, Administrative Core-Co-PI, Pathology Core Leader (20% effort). Start Date 10/01/2006. (Yearly sub-contract to Irina Petrache, Indiana University ($200,194).

Previous:

1. "Modifier role of Nrf2 in lung injury and emphysema," (2005-2009), NHLBI, yearly costs ($0), Role: Co Investigator (1% effort) (PI: Biswal).
2. Program Project Grant-(P.I. Roy Brower, M.D.) Pathology Core: "Ventilator-Associated Lung Injury: Molecular," (2003-2008), NIH/P050 HL 73994-01, yearly direct cost $2,578,827. Role: Core Leader (5%, Core Direct Cost $2,578,832.)
3. "Hyaluronan-induced signaling and gene regulation," (2003-2008) National Institutes of Health. R01 HL 073855, Role: Consultant. No salary.
4. "Statins in Experimental Pulmonary Hypertension," (2003-2008) National Institutes of Health. 5K08Hl070052, Role: Co-Mentor. No Salary. (PI. Reda Girgis).
5. "Role of RTP-801 in cigarette smoke induced emphysema," (2006-2007), unrestricted gift for support of a postdoctoral fellow, Quark Biotech, yearly cost: $100,000, Role: PI.
6. "Oxidant stress in neonatal pulmonary hypertension" in "SCOR on neonatal

pulmonary hypertension," (1991-1996). National Institutes of Health. PI: Carl W. White; Role: Co-investigator (5% effort).

7. "Protein C activation in CMV infected endothelial cells: a factor in graft atherosclerosis," American Heart Association of Colorado, (1992-1993), (CBG-012-93) Role: Co-PI (35% effort).
8. "Academic Career Award In Vascular Disease," (1994-1998), National Institutes of Health, 1 K07 HL02825-01A1, PI: William Hiatt and Norbert Voelkel. Role: Investigator (10% effort).
9. "Mechanisms of abnormal perinatal reactivity," (1995-1999), National Institutes of Health, PI: Steven Abman. Role: Co-investigator (10% effort).
10. "Role of Vascular Endothelial Growth Factor in the genesis of plexiform like lesions," (03/1996-03/1997), PPH Cure Foundation, Yearly direct cost: $97000, Role: PI (10% effort).
11. "Pulmonary hypertension associated with HIV infection: role of tat protein," (1996-1999), American Heart Association, Yearly direct costs: $40000, Role: PI (15% effort).
12. "Role of VEGF in Pulmonary Hypertension," (1997-2002), National Institutes of Health, 1R01 HL60195-01, Yearly direct costs: $177000, Role: Principal Investigator (25% effort).
13. "Deficient Prostacyclin Synthesis in Pulmonary Hypertension ", (1997-2000), National Institutes of Health, RO1 HL43180-01A1 $160,093 (direct cost), Role: Co-PI (10% effort); PI: Norbert Voelkel.
14. "Endothelial Cell Proliferation in PPH – Phenotypic and Genotypic Analysis," National Institutes of Health/NHLBI, 1998-2001, yearly direct costs: $227,077. Role: Co-PI (20% effort): PI: Norbert Voelkel.
15. "TGFβ receptor mutations in primary pulmonary hypertension," (2000-2007), American Heart Association, Desert and Mountain Affiliate, Yearly direct costs: $50,000 Role: PI (15% effort).
16. "TGF-beta receptor II mutations in pulmonary hypertension," 2001-2003) American Hearth Association, # 0150595N, yearly direct costs: $71,500, Role: PI (10% effort).
17. "Endothelial cell death and inflammation in emphysema", (2000-2004), National Institutes of Health, 1RO1 HL66554-01, yearly direct costs:

$225,000. Role: PI (25% effort).

18. "Lung Septal Cell Apoptosis and Emphysema", (2002-2004), Alpha-1 Foundation, $200,000. Role: Principal Investigator (5% effort).
19. "Program Project Grant - "Cytoskeletal Regulation of Lung Endothelial Cell Pathobiology," (P.I. Joe Garcia, M.D.) (2003-2008), National Institutes of Health/NHLBI, R1 HL 58064, yearly direct costs: $1,428,273. Pathology CORE Role: Core Leader (5% effort).
20. "Discovery of biomarkers of severe pulmonary hypertension," (2004-2006), National Institutes of Health, 1 R21 HL077805-01, Yearly direct cost: $157,993.Role: Principal Investigator (10% effort).
21. "Program Project Grant: Pathobiology of Severe Pulmonary Hypertension: Project 1- Misguided Angiogenesis Causes Plexiform Pulmonary Hypertension," (2001-2006), National Institutes of Health/NHLBI, 1 PO1 HL66254-0141, yearly direct costs: $196,380. Role: Co-PI (15% effort), PI: Norbert Voelkel, M.D.
22. "Program Project Grant: Pathobiology of Severe Pulmonary Hypertension: Project III – Rodent Model of Severe Pulmonary Hypertension," (2001-2006), National Institutes of Health/NHLBI, 1 PO1 HL 66254-014, yearly direct costs: $178,916. Role: Principal Investigator (25% effort). Norbert Voelkel, M.D. Role: Overall PI.
23. "Role of RTP-801 in cigarette smoke induced emphysema," Service Contract, Quark Biotech, (2005-2006), yearly cost: $100,000, Role: PI.

EDUCATIONAL ACTIVITIES

Book chapters.

1. Voelkel NF, Weir ER, Tuder RM. Pathobiology of Severe Pulmonary Hypertension, Weir EK and Reeves JT, editors, in Pulmonary Vascular Physiology and Pathophysiology. 1994.
2. Tuder RM. A pathologist's approach to interstitial lung disease. Sharma S, editor. In Curr Opin Pul Med. 1996; 2:357-363.
3. Voelkel NF, and Tuder, RM. Pulmonary Blood Vessels. In: Sipes IG, McQueen CA, Gandolfi AJ eds. Comprehensive Toxicology. New York: Elsevier Science Inc. 1997; 45-58.

4. Voelkel NF, Tuder RM, Weir EK. Pathophysiology of Primary Pulmonary Hypertension: From Physiology to Molecular Mechanisms. Rubin LJ and Rich S, editors. In Primary Pulmonary Hypertension, 1997.
5. Tuder RM, Cool C, Jennings C, Voelkel NF. Pulmonary Vascular Involvement in Interstitial Lung Disease (ILD). In: Schwartz MI and King TE eds. Interstitial Lung Disease 3rd edition, Mosby Year Book, Inc., New York. 1998; 251-263.
6. Haworth, S.G., Rabinovitch, M., Meyrick, B., Michel, R., Pietra, G.G., Polak, J.M., Reid, L.M., Tuder, R. "The Pathology of Pulmonary Hypertension". Rich S, editor. Primary Pulmonary Hypertension: Executive Summary from the World Symposium – Primary Pulmonary Hypertension 1998. Available from the World Health Organization via the Internet (http://www.who.int/ncd/cvd/pph.html).
7. Tuder RM and Cool C, Pathology of Interstitial Lung Diseases, Lynch D, editor, Radiology of Interstitial Lung Diseases, 2000.
8. Tuder RM, Cool CD. Pathologic evaluation of interstitial lung disease. In: Imaging of Diffuse Lung Disease. DA Lynch, JD Newell, Jr., JS Lee. (eds.) BC Decker, Inc. Hamilton, London. 2000; 21-33.
9. Tuder RM and Voelkel NF. Pathobiology of Chronic Bronchitis and Emphysema, Voelkel NF and McNee W, editors, Chronic Obstructive Lung Disease, 2001.
10. Tuder RM, Cool CD, Yeager MY, Taraseviciene-Stewart L, Bull TM, Voelkel NF. Pathobiology of Pulmonary Hypertension: The Endothelium, Rich S and McLaughlin V, editors, Clinics in Chest Medicine, 2001.
11. Voelkel NF, Tuder RM. Pulmonary Vessels in Asthma and COPD, Barnes PJ, Drazen JM, Rennard S, Thomson NC, editors, 2002.
12. Tuder RM, McGrath S, Voelkel NF, Geraci MW. Oxygen Dependent Regulation of Pulmonary Circulation., Methods in Enzymology, Sen CK, Semenza GL, editors, 2004.
13. Zaiman AL, Tuder RM. Hypoxia-sensitive Transcription Factors and Growth Factors in Hypoxic Pulmonary Vasoconstriction: Hypoxic Pulmonary Vasoconstriction: *Cellular and Molecular Mechanisms*, J. Yuan, M.D., Ph.D., editor, 2004.
14. Voelkel NF, Tuder RM, Cool C, Garaci M, Quaife R, Bristow M. Pulmonary hypertension and the right ventricle, Banner NR, Polak JM, Yacoub M, editors. Lung Transplantation, Cambridge University Press. 2003; 29-38.
15. Tuder RM, Zaiman AL. Pulmonary Vascular Disease, Peacock A and Rubin L,

editors, Pulmonary Circulation. 2004; 25-32.

16. Tuder RM, Flores S. Superoxide Dismutase and COPD, in Therapeutic uses of SOD, Landes Inc. Dec. 2004.
17. Tuder RM, Erzurum SC. Pulmonary Endothelium and Pulmonary Hypertension, Voelkel N, Rounds S, editors. The Pulmonary Endothelium: Function in health and disease, Wiley-Blackwell. 2009, 449-460.
18. Geraci M, Bull T, Tuder RM. Genomics of Pulmonary Arterial Hypertension: Implications for Therapy, Baliga RR, Young JB, editors. Pharmacogenetics in Heart Failure: How it Will Shape the Future, Elsevier Inc. 2010; 101-114.

Teaching:

Brazil:

1988-1989	Review courses in Pathology, University Hospital, São Paulo University School of Medicine, Lecturer.
1988-1990	Post-graduate courses in Dermatology and Pathology, São Paulo University School of Medicine, Lecturer.

University of Colorado Health Sciences Center:

1990-1993	Organ and slide teaching collection of the Department of Pathology, Director.
1991-1993	"Inflammation and repair", Pathology Course, School of Dentistry, Lecturer.
	"Endothelial cell biology and role in disease", Sophomore Pathology course, Lecturer.
1991-2001	General and Cardiovascular Pathology, Sophomore Pathology course, Laboratory instructor (11 sessions/year).
1994-2001	Pathological-Radiological-Clinical lung conferences (12 sessions/year).
1995-2001	Unit II (Cardiovascular, Lung and Kidney), Alternative Pathology course for Ph.D. and MD/PhD. Students, Unit Coordinator.
1995-2001	Lung Pathology, Unit II (Cardiovascular, Lung and Kidney), Alternative Pathology course for Ph.D., MSTP (MD/PhD) and Toxicology Students, (Cardiovascular, Lung

	and Kidney), Lab Instructor (4 sessions/year).
1996 and 1998	Lung Pathology, Pathology Residency, Lecturer. Pulmonary Medicine Grand Rounds (48 sessions/year): presentation of pathologic findings with radiological and clinical correlation.
2000-2001	Pediatric Pulmonology Pathological and Radiological Conferences (12/sessions/year).

Johns Hopkins University School of Medicine:

2001	Pulmonary Pathology Lecture Series, Pathology Residents.
2001	Pathology Pearls for the Bronchoscopist, 3rd Annual Update in Pulmonary and Critical Care Medicine, Bozeman, WY, Lecturer.
2001	Pulmonary Pathology Lecture Series, 5 lectures, Pathology Residency Program.
2001-present	Hopkins, Pathology, Sophomore Course, Lab Instructor.
2001-present	Pulmonary Medicine Grand Rounds (12 session/year).
2002	Pulmonary Pathology for the Bronchoscopist: Making the Most of Your Specimens, Lecturer. Pulmonary Pathology in Clinical Practice, 4th Annual Update in Pulmonary and Critical Care Medicine, Santa Fe, NM, Lecturer.
2003	Pulmonary Pathology Lecture Series, 3 lectures, Pathology Residency Program.
2003 - present	Sophmore Pathology Course: Pulmonary Hypertension Obstructive Pulmonary Disease (Emphysema).
2003 - present	Lung Pathobiology and Disease Mechanisms Course, Director, Graduate Program in Experimental Pathobiology, Introduction to Lung, Permeability and Acute Diseases.
2003	Pulmonary Pathology for the Bronchoscopist: Making the Most of Your Specimens, Lecturer. Pulmonary Pathology in Clinical Practice, 5th Annual Update in Pulmonary and Critical Care Medicine, Santa Fe, NM, Lecturer.

Mentoring:

Advisees:

University of Colorado Health Sciences Center:

1994-1995	Ann Halbower, M.D. (with Dr. Steven Abman), Assistant Professor of Pediatrics and Director, Rocky Mountain Sleep Center, Department of Pediatrics, University of Colorado School of Medicine.
1994-1995	Marius Hoeper, M.D (Germany, with Dr. Norbert Voelkel), Faculty Member, Hannover Medical School, Germany.
1995-1996	Laurel Wright, M.D. (with Dr. Norbert Voelkel), Assistant Professor, Department of Medicine, Division of Pulmonary Diseases, University of Minnesota.
1996-1998	Carlyne Cool, M.D., Assistant Professor of Pathology, University of Colorado School of Medicine, Clinician-Investigator Award, National Institutes of Health.
1996-1997	Song-Do Lee, M.D. (Korea, with Dr. Norbert Voelkel), Associate Professor, Asan Medical Center, Seoul, Korea.
1998-2000	Yasunori Kasahara, M.D. (Japan, with Dr. Norbert Voelkel), instructor, Shiba Medical School, Japan.
1998-2001	Todd Bull, M.D. (with Dr. Norbert Voelkel).
1998-2002	Michael Yeager, Ph.D. Thesis Advisor.
1999-2002	Heiko Golpan, M.D. (Germany, with Dr. Norbert Voelkel).
2000-2001	Katerina Markopoulou, M.D. Visiting Scholar, Assistant Professor of the University of Salonika, Greece.
2005-2007	Toshinori Yoshida. Postdoctoral Fellow, Tsukuba University, Japan.

Johns Hopkins University School of Medicine: postdoctoral fellows

2001-2002	Hongxiu Ji. Housestaff – Elective Rotation
2001-2002	George Kunz. Housestaff – Elective Rotation
2001-2002	Min Wang. Housestaff – Elective Rotation
2001-2002	Brian Carlile. Housestaff – Elective Rotation

2002-2003	Ellen Riemer, M.D.
2001-present	Ed Chen, M.D., Post-doctoral fellow, (with Dr. David Moller)
2001-2005	Ari Zaiman, M.D., Ph.D., Post-doctoral fellow and Instructor, (with Dr. Joe Garcia)
2002-2007	Stacey Peddy, M.D.
2004-2007	Michael Fields, M.D., Ph.D (recipient of an NRSA award 2006-2008)
2005-2006	Toshinori Yoshida. Postdoctoral Fellow, Tsukuba University, Japan.
2007-2008	Jeong Yun, M.D., Postdoctoral Fellow

University of Colorado Denver School of Medicine: postdoctoral fellows

2008-2009	Jeong Yun, M.D., Postdoctoral Fellow
2008-present	Brian Graham, M.D., Postdoctoral Fellow

Johns Hopkins University School of Medicine: Faculty

2001-2003	Brad Winters, Ph.D., M.D., Assistant Professor, Dept. of Anethesiology
2001-2005	Enid Neptune,M.D. Assistant Professor. Dept. of Medicine, (with Dr. Hal Dietz).
2002-2006	Irina Petrache, M.D., Assistant Professor of Medicine.
2005-present	Ari Zaiman, M.D., Ph.D., Assistant Professor of Medicine
2001-2007	Sharon McGrath, Ph.D., M.D., Associate Professor of Pediatrics
2005-2008	Iwona Fijalkowska, Ph.D. Instructor, Department of Pathology, Division of Cardiopulmonary Pathology,
2005-2007	Mary Armanios, M.D. Assistant Professor of Oncology.

2006-2008	Anil Buhnia, Ph.D. Research Associate, Department of Pathology, Division of Cardiopulmonary Pathology.

Training Grants:

1993-2001	Pulmonary fellowship training grant, University of Colorado Health Sciences Center, National Institutes of Health, participant.
2002-2007	Pulmonary fellowship training grant, Johns Hopkins University School of Medicine, National Institutes of Health, participant.
2008-present	Pulmonary fellowship training grant, University of Colorado Denver, National Institutes of Health, participant.

CLINICAL ACTIVITIES

Certification:

Medical license, São Paulo, Brazil (lapsed)

Medical license, Colorado, License 31109 (inactive)

Medical license, Maryland, License D0057043 (active)

ECFMG and FLEX (passed)

American Board of Pathology, 1993

Service Responsibilities:

Brazil:

1982-1990	Attending Pathologist, Hospital Heliopolis, Brazilian National Social Security Institute, São Paulo, Brazil
1983-1984	Attending Pathologist, Autopsy service for the City of Sao Paulo, Department of Pathology, São Paulo University School of Medicine, Brazil
1984-1990	Attending Pathologist and Supervisor, Department of Pathology, University Hospital, São Paulo University School of Medicine, Brazil

University of Colorado Health Sciences Center (Surgical Pathology and

Autopsy Services)**:**

1991-1997 Assistant Professor of Pathology, Associate Professor of Pathology,

1997-2001 Associate Professor of Pathology, Associate Professor of Pathology,

1. Surgical Pathology: attending for 16 weeks per year, signing-out approximately 200 cases/week and 12 frozen section cases/week.
2. Autopsy Pathology: attending for 12 weeks per year; signing-out approximately 6 cases/week.
3. Review of all cases of lung pathology (approximately 200 cases/year, surgical and autopsy) from the University Hospital, and consultation of lung pathology cases from the Denver Health Hospital and VA Hospital/Denver.

Johns Hopkins University School of Medicine:

2001-2003 Associate Professor of Pathology, Department of Pathology and Medicine.

2003-2008 Professor of Pathology, Departments of Pathology and Medicine

Pulmonary Pathology and Autopsy sign-out.

University of Colorado Denver:

2008 – present Pulmonary Pathology and Autopsy sign-out.

ORGANIZATION ACTIVITIES

Institutional Administrative Appointments:

Brazil:

1978 Faculty Senate, São Paulo University School of Medicine.

1980 Residency Senate, University Hospital, São Paulo University School of Medicine.

University of Colorado Health Sciences Center:

1993-1997	Education Committee.
1994-1996	Equipment Committee.
1999-2000	Faculty Senate.
2000	Site of Practice Committee.

Johns Hopkins University School of Medicine:

2001-present	Clinical Advisory / Laboratory Management Committee.
2001-present	Research Advisory Committee.
2005-present	Executive Committee of the Graduate Program in Pathobiology.

Professional Societies:

1990-present	American Society of Experimental Pathology.
1996-present	American Thoracic Society
2006-present:	Senior Fellow and Founding Member of the Pulmonary Vascular Research Institute.

Foundations:

2005-present	Director of Program Evaluation, Alpha 1 Foundation
2006-present	Director, Tissue Bank Advisory Committee, Alpha 1 Foundation

Conference Organizer:

2000	Chair, Endothelial cell and Disease States session, Endothelial Cell Phenotypes in Heart, Lung and Blood Diseases, National Institutes of Health, June 22-23.
2002	Co-Chair: Gordon L. Snider's Critical Issues Workshop Series No. 7, Models of Emphysema, Speeding the Pace of Progress; Chair: Steven D. Shapiro. Alpha-1 Foundation, Warrenton, VA, September 25 – 26.
2004	Chair, Aspen Lung Conference: "Cellular and Molecular Pathology of Pulmonary Hypertension", Aspen, June 8-12.
2005	Chair, XXXV International Congress of Physiological Sciences: "Cellular and Molecular Aspects of Lung

	Parenchymal and Airway Remodeling". San Diego, CA, March 31-April 5.
2006	Chair, Pulmonary Pathology Society Symposium in the Experimental Biology 2007 Conference, "New Frontiers in Pulmonary Hypertension Research", Washington DC, April 28-May 2.
2007	Organizer/Moderator: NHLBI Workshop "Current Knowledge and Goals for Research on Cell Phenotyping and Function". Bethesda, MD July 9-10, 2007.
2007	Co-Chair, Symposium on "Sphingomyelin and ceramide, as they relate to the pathogenesis of different lung diseases." European Respiratory Annual Conference, Stockholm, Sweden, September 15-19, 2007
2007	"Meet the Professor: Pulmonary Vessels and COPD." European Respiratory Annual Conference, Stockholm, Sweden, September 15-19, 2007
2008	Co-Chair, "Working Group: Basic Science—Development & Pathology"; 4th World Symposium on Pulmonary Arterial Hypertension, Dana Point, CA, February 11-14, 2008

Grant Review Groups:

1997-2000	Swiss National Foundation.
2000	Small business grant review (SSR-3 10), National Institutes of Health, November.
2000-2001	Ad-hoc member, Lung Biology, Pathology, Anatomy study section, National Institutes of Health: February 2000; October 2001.
2002	National Institutes of Health, Special Emphasis Panel: Molecular Mechanisms of Mucus Cell Metaplasia and Excess Mucous Section in Human Airway Diseases, December.
2003	Ad-hoc member, Respiratory Physiology, study section,

	National Institutes of Health: February 2003.
2005	National Institutes of Health, Special Emphasis Panel, Specialized Center for Cell-Based Therapy and Data Coordinating Center, March.
2005	National Institutes of Health, Proteomics Programs Review Panel: Clinical Proteomics Program, April.
2005	The Wellcome Trust, The Trust Expert Advisory, July.
2006	National Heart, Lung & Blood Institute Strategic Planning Process- Lung Program. Theme #3 Working Group: Injury/Inflammation; Repair/Remodeling; and Replacement/Regeneration, April.
2006	American Cancer Society, Ad-Hoc.
2006	Health Research Board, Ireland
2006	National Heart, Lung & Blood Institute, SCCOR in Lung, February.
2006	NIH/NHLBI - T32 Training Program, May.
2006	National Heart, Lung & Blood Institute Review of Program Project Grant, December.
2007	NCMHD, NIH, Center Grant Application, May.
2007	National Heart, Lung & Blood Institute – T32 Special Emphasis Review, July.
2007	Lucht Voor Het Leven, Netherlands, January.
2007	Health Research Board, Ireland, March.
2007	Ruth L. Kirschstein National Research Service Award (NRSA) – T32 Chair, July.
2009	NIH-CSR-LIRR Study Section, member 2009-2012
2009	NHLBO Programs of Excellence in Nanotechnology Contract Meeting

COMMITTEE MEMBERSHIP:

Ph.D. Thesis Committees:

1993-1996	Tammy Hadland, Role of Vitamin D in the Regulation of Prostate Cancer Cell Growth.

1994-1996	Jon Lieber, Role of Vimentin in Lipid Accumulation.
1994-1996	Kathryn Houmiel, Identification and Characterization of a Novel Mitochondrial DNA polymerase.
1998-2000	Kirsten Moffat, Role of p21 in the Vitamin D-induced Cell Arrest of Prostate Cancer Cells.
1998-2000	Jon Geske, DNA repair in apoptosis.
1999-2000	Carol Ogden, Role of Collectins in Phagocytosis of Apoptotic Cells.
2002-2003	Sorochai Srisyma, genomic Regulation of Angiogenesis in Mouse Lung.

Thesis and Research Committees:

2008-present	Allison Bamberg, Role of PTPN13/Fap-1 in Myofibroblast Apoptosis and Pulmonary Fibrosis
2008-present	Amen Sergew, Evaluating the Role of MAPK-1 in Interstitial Lung Disease
2009-present	Alex Benson, Transfusion Associated Acute Lung Injury (TRALI) in Patients with Chronic Liver Disease
2009-present	Zulma Yunt, The Vascular Response to Acute Inflammatory Injury in the Lung

B. Non peer-reviewed scientific articles.

1. Pfister SJ, Tuder RM. Plexogenic pulmonary arteriopathy in a case of adenocarcinoma of the prostate with tumor emboli to the lungs. Semin Resp Med. 1994;15:516-521.
2. Tuder RM. Plexiform lesions in primary pulmonary hypertension represent an abnormal form of angiogenesis. Semin Respir Med.1994;15:207-214.
3. Voelkel NF, Tuder R. Interleukin-1 receptor antagonist (IL-1ra) inhibits pulmonary hypertension induced by inflammation. Ann NY Acad Sci. 1994; 725:104-109.
4. Voelkel NF, Hoeper M, Maloney, Tuder RM. Vascular endothelial growth factor (VEGF) in pulmonary hypertension. Ann NY Acad Sci. 1996; 796:186-93.

5. Girgis RE, Ma SF, Ye S, Grigoryev DN, Li D, Hassoun PM, Tuder RM, Johns RA, Garcia, JG. Differential Gene Expression in Chronic Hypoxic Pulmonary Hypertension: Effect of Simvastatin Treatment. Chest Dec 2005; 128(6 Suppl) 579S
6. West J, Tada Y, Fagan KA, Steudeel W, Fouty BW, Harral JW, Miller M, Ozimek J, Tuder RM, Rodman DM. Suppression of Type II Bone Morphogenic Protein Receptor in Vascular Smooth Muscle Induces Pulmonary Arterial Hypertension in Transgenic Mice. Chest. Dec 2005; 128(6Suppl) 553S.

Editorial Activities:

A: Editorial Board

2004-present	American Journal of Respiratory Cell Molecular Biology
2005 -present	Respiratory Disorders Faculty; Faculty of 1000 Medicine
2007-present	Translational Medicine

B: Editorial and Manuscript Reviews

American Journal of Respiratory and Critical Care Medicine; American Journal of Respiratory Cell Molecular Biology; American Journal of Pathology; American Journal of Physiology, Faseb Journal, American Journal of Medicine, Circulation; Journal of Clinical Investigation, Molecular Medicine; Laboratory Investigation, Translational Medicine, PloS Medicine.

C. Invited Reviews, Editorials:

1. Voelkel NF, Tuder RM. Cellular and molecular mechanisms in the pathogenesis of severe pulmonary hypertension. Eur Resp J 8:2129-2138, 1995.

2. Tuder RM, Voelkel NF. Angiogênese e hipertensão pulmonar. Rev Soc Cardiol Estado de São Paulo 5:190-199, 1995. (In Portuguese)

3. Voelkel NF and Tuder RM. Cellular and molecular biology of vascular smooth muscle cells in pulmonary hypertension. Pulmonary Pharmacology Therapeutics 10:231-241, 1997.

4. Tuder RM, and Voelkel NF. Pulmonary hypertension and inflammation. J Clin Lab Med. 132:16-24, 1998.

5. Voelkel, NF, Cool C, Lee SD, Wright L, Geraci MW, Tuder RM. Primary pulmonary hypertension between inflammation and cancer. Chest 114:225S-230S, 1998.

6. Tuder RM, Lee SD, Cool CC. Histopathology of pulmonary hypertension. Chest 114 (1 Supplement): 1S-6S, 1998.

7. Voelkel, NF, Cool C, Lee SD, Wright L, Geraci MW, Tuder RM. Primary pulmonary hypertension between inflammation and cancer. Chest 114:225S-230S, 1998.

8. Tuder RM, Lee SD, Cool CC. Histopathology of pulmonary hypertension. Chest 114 (1 Supplement): 1S-6S, 1998.

9. Voelkel NF, Tuder RM. Hypoxia-induced pulmonary vascular remodeling—a model for what human disease? J Clin Invest 106: 733-738, 2000.

10. Voelkel NF, Tuder RM. COPD – Exacerbation. Chest 117: 376S-379, 2000.

11. Stevens T, Rosenberg R, Aird W, Quertermous T, Johnson F, Garcia J, Hebbel R, Tuder R, Garfinkel S. NHLBI workshop report: endothelial cell phenotypes in heart, lung, and blood diseases. Am J Physiol Cell Physiol 281: C1422-C1433, 2001.

12. Tuder RM, Zaiman AL. Prostacyclin analogs as the brakes for pulmonary artery smooth muscle cell proliferation. Am J Respir Cell Mol Biol 26: 171-174, 2002.

13. Voelkel NF, Cool C, Tarasevicene-Stewart L, Garcia MW, Yeager M, Bull T, Kasper M, Tuder RM. Janus face of vascular endothelial growth factor: The obligatory survival factor for lung vascular endothelium controls precapillary artery remodeling in severe pulmonary hypertension. Crit Care Med 30: S1-S6, 2002.

14. Tuder RM, Voelkel NF. Angiogenesis and Pulmonary Hypertension: A Unique Process in a Unique Disease. Antioxidants & Redox Signaling, Antioxid Redox Signal 4: 833-43, 2002.

15. Tuder RM, McGrath S, Neptune E. The Pathobiological Mechanisms of Emphysema Models: What do they have in common? Pulm Pharm 16: 67-78, 2003.

16. Jones J, Walker J, Song Y, Cardoso W, Tuder RM, Hayes A, Weiss N, Lascalzo J, Zhang Y. Effects of Overexpression and Inhibition of 5-

Lipoxygenase on the Development of Pulmonary Hypertension in a Rat Model. J Am Coll Cardiol. 41:223A, 2003.

17. Tuder RM, Petrache I, Elias JA, Voelkel NF, Henson PM. Apoptosis and emphysema: the missing link. Am J Respir Cell Mol Biol 28: 551-4, 2003.

18. Tuder RM, McGrath S, Voelkel NF, Geraci MW, Oxygen-Dependent Regulation of Pulmonary Circulation. Methods Enzymol. 2004; 381: 87-106.

19. Pietra GG, Capron F, Stewart S, Leone O, Humbert M, Robbins IM, Reid LM, Tuder RM. Pathologic assessment of vasculopathies in pulmonary hypertension. J Am Coll Cardiol. 43:(12) 25S-32S, 2004.

20. Zaiman A, Fijalkowska I, Hassoun PM, Tuder RM. One Hundred Years of Research in the Pathogenesis of Pulmonary Hypertension. Am J Resp Cell Mol Biol. 2005; 33: 425-431.

21. Voelkel N, Vandivier RW, Tuder RM. Vascular Endothelial Growth Factor in the Lung. Am J Physiol Lung Cell Mol Physiol. 2005 Feb; 290(2): L209-L21.

22. Tuder RM. Hipertensão Pulmonar: Caracterização Baseada Na Experiência De Centros De Referência. Rev Assoc Med Bras 2006; 52(3): 125-137.

23. Tuder RM Aging and Cigarette Smoke: Fueling the Fire. Am J Respir Crit Care Med. 2006 Sep; 174(5): 490-491.

24. Biswal S, Rangasamy T, Tuder RM. Modifier Role of Nrf2 in Cigarette Smoke-Induced Emphysema. Proc Am Thorac Soc 2006 Aug;3(6): 543a.

25. Yoshida T, Rangasamy T, Biswal S, Petrache I, Mett I, Feinstein E, Tuder RM. Role of RTP801, a Suppressor of the mTOR Pathway, in Cigarette Smoke-Induced Pulmonary Injury in Mice. Proc Am Thorac Soc 2006 Aug;3 (6): 551a-552.

26. Petrache I, Fijalkowska I, Zhen L, Medlet TR, Skirball J, Flotte T, Tuder RM. An Apoptotic Role for Alpha1-Antitrypsin in the Prevention of Emphysema. Proc Am Thorac Soc 2006 Aug;3(6): 549.

27. Petrache I, Natarajan V, Zhen L, Medler TR, Richter A, Berdyshev EV, Tuder RM. Ceramide Causes Pulmonary Cell Apoptosis and Emphysema: A Role for Sphingolipid Homeostasis in the Maintenance of Alveolar Cells. Proc Am Thorac Soc 2006 Aug:3(6) 510.

28. Vandivier RW, Tuder RM, Morimoto K, Voelkel NF, Henson PM. Vascular Endothelial Growth Factor Regulates Clearance of Apoptotic Cells:

Implications for Emphysema. Proc Am Thorac Soc 2006 Aug;3(6): 552.

29. Petrache I, Arap W, Pasqualini R, Flotte T, Tuder RM Diangnositc and Therapeutic Applications of Bacteriophage and Adeno-Associated Virus Technologies in Pulmonary Emphysema. Nanomedicine 2006 Dec; 2(4): 294.

30. Tuder RM. Aging, the Aging Lung, and Senile Emphysema are Different. Am J Respir Care Crit Care Med. 2007 Jan;175(2):198.

31. Tuder RM, Marecki JC, Richter A, Fijalkowska I, Flores S. Pathology of Pulmonary Hypertension. Clin Chest Med 2007 Feb; 28: 23-42.

32. Tuder R, Petrache I. Molecular Multi-tasking in the Airspace: Alpha-1 Antitrypsin Takes on Thrombin and Plasmin. Am J Resp Cell Mol Bio 2007 Aug; 37(2): 130-134.

33. Tuder RM, Yun JH, Bhunia A, Fijalkowska I: Hypoxia and chronic lung disease. *J.Mol.Med.* 2007, **85:**1317-1324 (Peer Reviewed).

34. Tuder R, Yun JH, Graham BB: Cigarette Smoke Triggers Code Red:p21CIPI/WAF1/SDI1 Switches on Danger Responses in the Lung. Am J Respir Cell Mol Biol. 2008 Jul;39(1):1-6.

35. Tuder RM, Jun JH: Vascular endothelial growth factor of the lung: friend or foe. Curr Opin Pharmacol. 2008 Jun; 8(3):255-60.

36. Franks TJ, Colby TV, Travis WD, Tuder RM, Reynolds HY, Brody AR, Cardoso WV, Crystal RG, Drake CJ, Engelhardt J, Frid M, Herzog E, Mason R, Phan SH, Randell SH, Rose MC, Steven T, Serge J, Sunday ME, Voynow JA, Weinstein BM, Whitsett J, Williams MC: Resident cellular components of the human lung: current knowledge and goals for research on cell phenotyping and function. Proc Am Thorac Soc. 2008 Sep; 5(7):763-6.

37. Tuder RM, Abman SH, Braun T, Capron F, Stevens T, Thistlethwaite PA, Haworth SG. Development and pathology of pulmonary hypertension. J Am Coll Cariol. 2009 Jun;54(1 Suppl):S3-9.

38. Tuder RM. Pathology of pulmonary arterial hypertension. 2009 Aug;30(4):376-85.

39. Graham BB, Tuder RM. Pathogenesis of pulmonary hypertension. Zhonghua Yi Xue Za Zhi. 2009 Aug;89(30):2091-3.

Correspondence to the Editor:

Tuder RM, Voelkel NF. Plexiform lesion in severe pulmonary hypertension: Association with glomeruloid lesion. Am J Path 159:382-383, 2001.

RECOGNITION

Awards, honors:

Teaching Awards.

1996-1997	Excellence as Unit Director (Alternative Pathology Track Course) during academic year
1997-1998	Excellence as Unit Director (Alternative Pathology Track Course) during academic year
1997-1998	Excellence as a Mentor and Instructor in Seminar Teaching, Medical School Sophomore Pathology Course
1998	Excellence in Teaching Award, Medical Student Council
1999-2000	"The William S. Hammond Award" for exceptional commitment for education of pathologists, Department of Pathology, University of Colorado Health Sciences Center

Invited Talks:

National and International Forums

1992	"Cytomegalovirus infection and endothelial cells". Department of Pathology, UCHSC, grand rounds.
1995	t-protein and pulmonary hypertension". 1st Colloquium on Pulmonary Hypertension, European Respiratory Society Annual Meeting, Barcelona.
1996	"Histopathology of Pulmonary Hypertension", Post-graduate course, American Thoracic Society Annual Meeting, New Orleans.
1996	"Pathology of Interstitial Lung Disease", Thoracic Pathology Course, Armed Forces Institute of Pathology, Aspen, Colorado.
1996	"Severe Pulmonary Hypertension: a disease of dysfunctional endothelial cells." Department of Pathology, UCHSC, grand rounds.

1996	American Society of Clinical Pathology Teleconference: "Pleural biopsy: a practical approach,".
1997	"Histopathology of Pulmonary Hypertension", 40th Thomas L. Petty Aspen Lung Conference, Aspen, Colorado.
1997	Clinical Rounds: Primary Pulmonary Hypertension", Hannover Medical School, Hannover, Germany.
1997	Visiting Professor: Department of Histochemistry, Hammersmith Hospital, London, UK, 17-24, November.
1997-1998	36th and 37th Annual Durrance-Waring Mid-Winter Chest Conference, Aspen, Colorado.
1998	Kyoto University School of Medicine: Symposium on Acute Interstitial Pneumonitis, Lecture: "Pathology of Acute Interstitial Pneumonitis," Kyoto, Japan.
1998	Clinico-Pathologic Conference – Osaka, Japan.
1998	Asan Medical School, Ulsan University, Seoul, South Korea. Lectures; "Lung Capillaritis", "Microdissection in Molecular Pathology" and "Clinico-Radiologic-Pathologic Conference".
1998	"Histopathology of Pulmonary Hypertension", in the Primary Pulmonary Hypertension 1998 World Symposium, Evian, France.
2000	Endothelial Cell Phenotypes in Heart, Lung and Blood Diseases, National Institutes of Health, Maryland, "Endothelial cell dysfunction and pulmonary hypertension", June 22-23.
2001	"Are Plexigenic Lesions a Form of Neoproliferative Disorder?", World Symposium on Pulmonary Hypertension, American Heart Association, Scientific Sessions, Anaheim, CA.
2001	"Apoptosis in COPD", National Heart, Lung, and Blood Institute sponsored meeting on "Research Directions in COPD", Rockville, March 5-6.
2001	"Severe Pulmonary Hypertension: lessons from cancer",

Keystone Symposium on Angiogenesis and Chronic Diseases, Keystone, April 24-29.

2001 "Apoptosis and Angiogenesis: A Vascular Conundrum:, 2001 Combined Annual Meeting of the Central Society for Clinical Research, Midwest Section of the American Federation for Medical Research, Midwest Society of General Internal Medicine, Chicago, IL, September.

2002 "Severe Pulmonary Hypertension and Cancer: a novel paradigm for an old disease", Eisai Co., Ltd., The 2nd Integrated Pulmonary Circulation Research Conference, Tokyo, Japan, June 25 – July 2.

2002 "Failure of lung maintenance program: A novel hypothesis for cigarette-smoke induced emphysema", Tohoku University, Tohoku Medical Society, Sendai, Japan, June 25 – July 2.

2002 "Failure of Lung Maintenance Program: A novel hypothesis for cigarette-smoke induced emphysema", Department of Physiology and Pulmonary Medicine, St. Lukes Medical Center, Columbia University, New York, July.

2002 "COPD: Aspects of Human Pathology Relevant for Animal Modeling", in *Gordon L. Snider's Critical Issues Workshop Series No. 7, Models of Emphysema, Speeding the Pace of Progress,* , Warrenton, VA, September 25 – 26.

2002 "New Insights in Pulmonary Vascular Remodeling", Pulmonary Circulation Working Group, Spanish Society of Cardiology Annual Meeting, Madrid, Spain, October 1–13.

2002 "Role of Vascular Endothelial Growth Factor, a critical lung cellular and maintenance factor, in pulmonary emphysema", Department of Physiology, University of South Alabama, Mobile AL, November 6th.

2003 "Disruption of Endothelial Cell Survival Causes Emphysema: Role of Apoptosis and Oxidative Stress", Boston University, Boston Mass, January 31.

2003 Key Note Speaker: "Think Tank-Pulmonary Hypertension: Pathology, Pathobiology and Animal Models". The Pulmonary Hypertension Society of Canada, Ontario, Canada, February 7-9.

2003 "4th Vail Conference: Cardiothoracic Transplantation 2003: An International Update", University of Colorado Health Sciences Center, February 22-24.

2003 "Apoptosis-Oxidative Stress-Proteolysis: the missing link in the alveolar destruction in emphysema". Vancouver, Canada, May 7-11.

2003 "Sunrise Seminar: The Pathology of Pulmonary Hypertension: A New Classification and its Relationship to Pathophysiology". American Thoracic Society 2003 99th International Conference, Seattle, WA, May 16-21.

2003 Symposium: "PRO-CON Debate on Controversial Topics in Pulmonary Arterial Hypertension: Vascular Growth Factors Are Protective in PAH". American Thoracic Society 2003 99th International Conference, Seattle, WA, May 16-21.

2003 Member of the: "Task Force on Pathology and Pathobiology". 3rd World Symposium on Pulmonary Arterial Hypertension, Venice, Italy, June 23-25.

2003 "Molecular and Cellular Pathology of Pulmonary Hypertension". Third Biennial Summer Symposium, Pulmonary Pathology Society 2003, Snowmass Village, CO, July 30-August 1.

2003 National Institutes of Health, Special Emphasis Panel: Functional Heterogeneity of the Peripheral, Pulmonary and Lymphatic Vessels, June.

2004 "Pathology and Pathogenesis of Pulmonary Hypertension", Pulmonary Hypertension Symposium, Johns Hopkins University, March 3.

2004 "Pulmonary Emphysema: A VEGF tale of life and

apoptotic death of the endothelial cell". Lung Pathology Conference with Pathology Residents, Yale University-Grand Rounds, Yale University, New Haven, Connecticut, April 22.

2004 "The Science of Pulmonary Hypertension", United Therapeutics Pulmonary Hypertension Conference, San Antonio, TX, May 7-9.

2004 "Role of pulmonary circulation in lung development, postnatal lung growth, and in the adult lung", Symposium on postnatal alveolar morphogenesis and architectural stability: Genetic environmental interactions. American Thoracic Society 100th Annual Meeting, Orlando, FL, May 21-26.

2004 National Institutes of Health, Physiological Consequences of Hypoxia and Lung Disease, May 2004.

2005 "Interaction Among Apoptosis, Oxidative Stress and Matrix Proteolysis in Emphysema", Institute of Cell Engineering: Johns Hopkins University, Feb. 2005.

2005 "Apoptotic and Oxidative Mechanisms in COPD", Yale Asthma and COPD Working Group, New Haven, CT, Feb 16, 2005.

2005 XXXV International Congress of Physiological Sciences: "Cellular and Molecular Aspects of Lung Parenchymal and Airway Remodeling". San Diego, CA, March 31-April 5.

2005 49th Annual Meeting, Aspen Lung Conference", state of the art talk: "Cellular and molecular mechanisms of alveolar destruction in emphysema, Aspen, June 13-17.

2005 Third Siena International Conference on Animal Models of Chronic Obstructive Pulmonary Disease: "Involvement of Ceramide in the Pathogenesis of Emphysema." Siena, Italy September 24-26, 2005.

2005 Cleveland Clinic, Pathophysiology Grand Rounds: "Pulmonary Hypertension and Cancer: Missing Links."

	Clevland, OH November 22, 2005.
2005	Cleveland Clinic, Pathobiology Conference: “Pulmonary Hypertension: Clinical Pathological Correlations.” Cleveland, OH November 23, 2005.
2005	ERS/ATS Joint Research Seminar: “Pulmonary Circulation: Molecular Determinantsof Pulmonary Vascular Remodeling.” Paris, France December 8 & 9, 2005.
2006	Astra/Zeneca Tissue Remodeling and Repair Mecahnism in COPD Symposium:”Heterogeneity of Lung destruction in Emphysema” Lund Sweden, April 25, 2006.
2006	Graduate Course-Spring 2006: Apoptosis in Disease: “Apoptosis in Emphysema”, UC Davis, CA.
2006	“Pulmonary Emphysema as an Apoptotic Destructive Process Aimed at the Endothelium”, Pulmonary Research Grand Rounds, UC Davis, CA May 4-5.
2006	“Alveolar Cell Apoptosis: A Pathological “hub” in the Pathogenesis of Emphysema”, Alfred Fishman Lecture, Respiration Research Retreat, Institute of Environmental Medicine, University of Pennsylvania, Philadelphia, PA June 23, 2006.
2006	International Functional Lung Imaging Workshop: “The Need for Imaging Pathobiological Processes Involved in Lung Disease”, Philadelphia, PA September 2006.
2006	National Institutes of Health - Cardiovascular Disease (CVD) in COPD: “Potential common mechanisms of alveolar destruction and vascular dysfunction in COPD”, Bethesda, MD September 2006.
2006	Indiana University School of Medicine, Division of Allergy, Critical Care, and Occupational Medicine: Noon Conference: "Cellular stress responses in emphysema: role of VEGF and the mTOR pathway", Indianapolis, IA October 2006

2006	American Physiological Society Conference: "Acute Lung Injury and Rejection-Poster Session", Fort Lauderdale, Fl. November 2006.
2006	National Institutes of Health: Evolution of Pulmonary Hypertension: Emerging Diseases and Novel Therapeutics: "Pathobiology of Pulmonary Hypertension", National Institutes of Health Conference Center, Bethesda, Md. December 2006.
2007	Emerging Concepts of Pulmonary Hypertension Pathogenesis:"Pathology and Pathogenesis", Johns Hopkins University, Baltimore, Md. March 2007.
2007	Experimental Biology 2007; Conference Organizer: Today's Research Tomorrow's Health: "The New Frontiers in Pulmonary Hypertension Research", Washington, DC April 2007.
2007	The Canadian Pulmonary Hypertension Forum; "Novel Concepts of the Pathobiology of PH: Will They Translate into Novel Therapies. Toronto, Canada June 2007.
2007	Co-Chair, Symposium on "Sphingomyelin and ceramide, as they relate to the pathogenesis of different lung diseases." European Respiratory Annual Conference, Stockholm, Sweden, September 15-19, 2007
2007	"Meet the Professor" Unraveling molecular mysteries of COPD. European Respiratory Annual Conference, Stockholm, Sweden, September 15-19, 2007.
2008	International Society for Heart and Lung Transplantation International Meeting: "Novel Mechanisms/ Pathogenesis", Boston, MA, April 9, 2008
2008	Astra Zeneca Meeting: "Novel Mechanisms/ Pathogenesis" Lund, Sweden, April 9, 2008.
2008	American Thoracic Society International Conference: Post Graduate Course, Toronto, Ontario, May 17, 2008.

2008	First Meeting of the Excellence Cluster; Cardio-Pulmonary System: "Bridging Stress Responses and Aging in the Pathogenesis of Emphysema", Bad Nauheim, Germany, June 30, 2008
2008	10th Annual International Workshop on Scleroderma Research: "Other Strategies – Horizon Scanning", Cambridge, United Kingdom, August 5, 2008
2008	Department of Pathology Seminar, Clinical Hospital, University of Sao Paulo, School of Medicine: "Changes of the Endothelium and Angiogenesis in the Pathogenesis of Pulmonary Hypertension", Sao Paulo, Brazil, August 18, 2008
2008	11th International Symposium on Schistosomiasis: "Pathophysiology of Pulmonary Hypertension Associated Schistosomiasis", Salvador, Brazil, August 22, 2008
2008	Northwestern University, "RTP801 Regulation of mTOR Pathway and Cell Stress Responses in Lung Injury by Cigarette Smoke", Chicago, IL, September 15, 2008
2008	Boston University, "RTP801 Regulation of mTOR Pathway and Cell Stress Responses in Lung Injury by Cigarette Smoke", Boston, MA, September 24, 2008
2008	University of Vermont, "RTP801 Regulation of mTOR Pathway and Cell Stress Responses in Lung Injury by Cigarette Smoke", Burlington, VT, October 6, 2008
2009	COPD: Reactive Past, Preventative Future, "COPD & Senescense", Vancouver, BC, February 6, 2009
2009	Pulmonary Vascular Research Institute, "Novel Insights into the Pathogenesis of Pulmonary Hypertension", Casablanca, Morocco, February 10, 2009
2009	2nd International Conference: Neonatal and Childhood Pulmonary Vascular Disease Course, "Schistosomiasis-associated Pulmonary Arterial Hypertension" San Francisco, CA, March 14, 2009

2009	UCSF CME Childhood Pulmonary Vascular Disease Course, "Pulmonary Hypertension, Pathogenesis and Novel Therapies" San Francisco, CA, March 14, 2009
2009	Advances in Respiratory Medicine, "Pathogenesis" Pavia, Italy, March 27, 2009
2009	University of Colorado Cancer Center Symposium Series, "Cigarette Smoke-Induced Emphysema: Aging, Senescence, Stress Responses, and Beyond", Aurora, CO, March 31, 2009
2009	American Thoracic Society, "Angiogenesis in the Lung", San Diego, CA, May 16, 2009
2009	American Thoracic Society, "Insights in Chronic Obstructive Pulmonary Disease Pathogenesis", San Diego, CA, May 17, 2009
2009	University of Hokkaido, "Danger responses induced by cigarette smoke: how the lung senses environmental stresses", Sapporo, Japan, June 26, 2009
2009	Hakone Symposium, "Emerging Concepts in the Pathogenesis of COPD: Aging, Senescence, Stress Responses and Beyond" Sapporo, Japan, June 27, 2009
2009	Brazilian Society for Cardiology Symposium, "New Developments in the Pathogenesis of Pulmonary Hypertension" Salvador, Brazil, Sep 14, 2009
2009	Brazilian Society for Cardiology Symposium, "Pathological and pathophysiological similarities and differences between the pulmonary hypertension associated with congenital heart malformation and other forms of pulmonary hypertension" Salvador, Brazil, Sep 15, 2009
2009	Symposium on Pulmonary Hypertension, "Structure and Function in the Lung Vasculature" Pittsburgh, PA, Oct 10, 2009
2010	Transatlantic Airway Conference, "Antitrypsin deficiency-associated lung disease" Lucerne, Switzerland, Jan 22, 2010

2010 Talk at University of Southern California, “Interplay between alveolar cell apoptosis, oxidative stress, and senescence in cigarette smoke-induced pulmonary diseases” Los Angeles, CA, Mar 5, 2010

At Johns Hopkins Medical Institutions:

2001 Pathology Grand Rounds, June.

2002 Emphysema: The Result of failure of vascular maintenance program of the lung, Vascular Biology Seminar.

2002 Seminars in the Division of Physiology, Johns Hopkins University School of Public Health, October.