2013-present	Max Planck Scientific Advisory Board

Honors

1971	Cushing Memorial Award in Pediatrics, McGill University
1994	Research Achievement Award, Canadian Cardiovascular Society
1996	Julius Comroe Lecturer, American Physiological Society
1997	Endowed Research Chair, Heart & Stroke Foundation of Ontario
2000	Canadian Institutes of Health Research Distinguished Scientist Award
2002	Dunlevie Chair of Pediatric Cardiology, Stanford University School of Medicine
2002	Paul Dudley White Lecturer, American Heart Association
2003	Gill Heart Institute Award for Outstanding Contributions to Cardiovascular Research
2004	Canadian Institute of Health Research, Distinguished Lecturer and Prize
2004	The American Heart Association Basic Research Prize
2005	Dickinson-Richards Lecturer, AHA 2005
2006	The American Heart Association Distinguished Scientist Award
2008	American Thoracic Society, Recognition Award for Scientific Accomplishment
2010	Louis and Artur Lucian Award for Research in Circulatory Diseases, McGill University
2011	Innaugural Lois T Ellison Lectureship, Georgia Health Sciences University, Augusta, GA
2012	Judith Pool Mentoring Award, Northern California Chapter of American Women in Science

C. Selected peer-reviewed publications (in chronological order, out of >165).

Most relevant to the current application (list 5)

de Jesus Perez VA, Alastalo T-P, Wu JC, Axelrod JD, Cooke JP, Amieva M, **Rabinovitch M**. Bone morphogenetic protein 2 induces pulmonary angiogenesis via Wnt-b-catenin and Wnt-RhoA-Rac1 pathways. *J Cell Biol* 2009; 184 (1): 83-99. (*PMCID: PMC2615088)*

Alastalo T-P, Li M, de Jesus Perez VA, Pham D, Sawada H, Wang JK, Koskenvuo M, Wang L, Freeman BA, Chang HY, and **Rabinovitch M**. Disruption of PPARγ/β-catenin-mediated regulation of apelin impairs BMP-induced mouse and human pulmonary arterial EC survival. *J Clin Invest* 2011; 121(9):3735-46. *(PMCID: PMC3163943)*

de Jesus Perez VA, Yuan K, Orcholski ME, Sawada H, Zhao M, Li CG, Tojais NF, Nickel NP, Rajagopalan V, Spiekerkoetter E, Wang L, Dutta R, Bernstein D, **Rabinovitch M**. Loss of Adenomatous Poliposis Coli-α3 Integrin Interaction Promotes Endothelial Apoptosis in Mice and Humans. *Circ Res.* 2012 111(12):1551-64 *(PMCID: PMC3821702)*

Spiekerkoetter E, Xuefei T, Cai J, Hopper RK, Sudheendra, Li CG, El-Bizri N, Sawada H, Haghighat R, Chan R, Haghighat L, de Jesus Perez V, Wang L, Reddy S, Zhao M, Bernstein D, Solow-Cordero DE, Beachy PA, Wandless TJ, ten Dijke P, **Rabinovitch M.** FK506 Activates BMPR2 Signaling, Rescues Endothelial Dysfunction, Reverses Pulmonary Hypertension. *J Clin Invest* 2013 Aug 1;123(8):3600-13. (*PMCID: PMC3726153)*

Sawada H, Saito T, Nickel NP, Alastalo T-P, Glotzbach JP, Chan R, Haghighat L, Fuchs, G, Januszyk M, Cao A, Lai YJ, de Jesus Perez VA, Kim YM, Wang L, Chen PI, Spiekerkoetter E, Mitani Y, Gurtner GC, Sarnow P, **Rabinovitch M.** Reduced BMPR2 Expression Induces GM-CSF Translation and Macrophage Recruitment in Humans and Mice to Exacerbate Pulmonary Hypertension. *J Exp Med* 2014 Feb 10;211(2):763-6. (*PMCID: PMC3920564)*

Additional recent publications of importance to the field (in chronological order) – list 10

Lawrie A, Spiekerkoetter E, Martinez EC, Ambartsumian N, Sheward WJ, MacLean MR, Harmar AJ, Schmidt A, Lukanidin E, **Rabinovitch M**. Interdependent serotonin transporter and receptor pathways regulate s100a4/mts1, a gene associated with cancer and vascular disease. *Circ Res* 2005; 97(3):227-35.

Hansmann G, Wagner RA, Schellong S, de Jesus Perez VA, Urashima T, Wang L, Sheikh AY, Suen RS, Stewart DJ, **Rabinovitch M**. Pulmonary arterial hypertension is linked to insulin resistance and reversed by PPAR-gamma activation. *Circulation* 2007; 115(10):1275-84.

El-Bizri N, Wang L, Merklinger SL, Guignabert C, Desai T, Urashima T, Sheikh AY, Knutsen RH, Mecham RP, Mishina Y, **Rabinovitch M**. Smooth Muscle Protein 22a Mediated Patchy Deletion of Bmpr1a Impairs Cardiac Contractility but Protects Against Pulmonary Vascular Remodeling. *Circ Res* 2008; 102(3):380-8. (*PMCID: PMC2652676)*

El-Bizri N, Guignabert C, Wang L, Cheng A, Stankunas K, Chang CP, Mishina Y, **Rabinovitch M**. SM22{alpha}-targeted deletion of bone morphogenetic protein receptor 1A in mice impairs cardiac and vascular development, and influences organogenesis. *Development* 2008; 35(17):2981-91. (*PMCID: PMC2653628)*

Spiekerkoetter E, Alvira CM, Kim YM, Bruneau A, Pricola KL, Wang L, Ambartsumian N, **Rabinovitch M**. Reactivation of γHV68 Induces Neointimal Lesions in Pulmonary Arteries of S100A4/Mts1 Over-expressing Mice in Association with Degradation of Elastin. *Am J Physiol Lung Cell Mol Physiol* 2008; 294(2):L276-89. (*PMID: 18083765)*

Hansmann G, De Jesus Perez GA, Alastalo, T, Alvira CM, Guignabert C, Bekker JM, Schellong S, Urashima T, Wang L, Morrell NW, **Rabinovitch M**. An antiproliferative BMP-2/PPARγ/apoE axis in human and murine SMCs and its role in pulmonary hypertension. *J Clin Invest* 2008; 118(5):1846-1858. (*PMCID: PMC2276393)*

Guignabert C, Alvira CM, Alastalo T-P, Sawada H, Hansmann G, Zhao M, Wang L, El-Bizri N, **Rabinovitch M**. Tie2-Mediated Loss of Peroxisome Proliferator-Activated Receptor-{gamma} in Mice Causes PDGF-Receptor {beta}-Dependant Pulmonary Arterial Muscularization. *Am J Physiol Lung Cell Mol Physiol* 2009; 297(6):L1082-90. *(PMCID: PMC2793182)*

Spiekerkoetter E, Guignabert C, de Jesus Perez V, Alastalo TP, Powers JM, Wang L, Lawrie A, Ambartsumian N, Schmidt AM, Berryman M, Ashley RH, **Rabinovitch M**. S100A4 and Bone Morphogenetic Protein-2 Codependently Induce Vascular Smooth Muscle Cell Migration via Phospho-Extracellular Signal-Regulated Kinase and Chloride Intracellular Channel 4. *Circ Res* 2009; 105(7):639-47. (*PMCID: PMC2818124)*

Kim YM, Haghighat L, Spiekerkoetter E, Sawada H, Alvira CM, Wang L, Acharya S, Rodriguez-Colon G, Orton A, Zhao M, **Rabinovitch M**. Neutrophil elastase is produced by pulmonary artery smooth muscle cells and is linked to neointimal lesions. *Am J Pathol*. 2011; 179(3):1560-72*. (PMCID: PMC3157285)*

de Jesus Perez VA, Ali Z, Alastalo TP, Ikeno F, Sawada H, Lai YJ, Kleisli T, Spiekerkoetter E, Qu X, Rubinos LH, Ashley E, Amieva M, Dedhar S, **Rabinovitch M**. BMP promotes motility and represses growth of smooth muscle cells by activation of tandem Wnt pathways. *J Cell Biol* 2011; 192(1):171-88. (*PMCID: PMC3019546)*

D. Research Support.

Ongoing Research Support:

1 P01 HL108797-01 (PI: M. Rabinovitch) **07/2011 - 05/2016**
NIH/NHLBI

Elafin Therapy of Lung Disease. This proposal pursues pre-clinical data indicating that the endogenous neutrophil elastase inhibitor, elafin, is a highly effective therapy for three challenging lung conditions, *Project I* (Rabinovitch) investigates reversal by elafin of the endothelial and smooth muscle cell dysfunction in patients with PAH. *Project II* pursues the successful use of elafin in protecting the mechanically ventilated newborn mouse lung. *Project III* shows that elafin can preserve the microcirculation in the murine tracheal transplant model, and prevent airway ischemia associated with bronchiolitis obliterans. A Biomarker Core coordinates the bioassays, the patient database and the physiological studies. Role: Director; PI, Project I; Core Leader, Administrative Core

1 U01 HL107393 (PI: M Rabinovitch, MP Snyder, JC Wu) **07/2011 - 06/2016**
NIH/NHLBI

iPSC Derived EC as Surrogates Using Pulmonary Hypertension as a Prototype Disease. Native pulmonary arterial endothelial cells (PAEC) from idiopathic pulmonary hypertensive (PAH) vs. control lungs are compared to ECs transformed from induced pluripotent stem cells (iPSCs) derived from skin fibroblasts or from PAECs. Gene variants (Exome/whole genome sequencing), DNA methylation (Methyl-Seq) and RNA expression (RNA-Seq) are related to cell phenotype. This study also investigates using fibroblast and PAEC-iPSC-ECs to correct gene variants and to screen FDA approved drugs.

2 R01 HL074186 (PI: M. Rabinovitch) **01/2011 - 12/2014**
NIH/NHLBI
Pulmonary Hypertension in Genetically Modified Mice. Genetically modified mice are used to dissect the contributions of BMP and TGFß in elastin fiber assembly as it relates to pulmonary hypertension.

UL1RR024986 **04/2006 - 03/2014**
CMREF (PI: M. Rabinovitch)
PHBI Stanford IPAH Transplant and Preparation Center. This Center harvests lungs from patients with idiopathic and secondary forms of pulmonary arterial hypertension and control patients without PAH. Blood and tissue and cell samples are archived for proteomic and genomic analyses, light and electron microscopy.

N01-HV-00242 (PI: GP Nolan) **08/2010 - 08/2015**
NIH/NHLBI (Contract No. HHSN268201000034C)
Proteomics of Inflammation, Immunity and Pulmonary Arterial Hypertension
Project 1 (**Rabinovitch/**Nicolls) relates the development of PAH in transgenic mice to altered B cell activation and immunity, and identifies B cell activation abnormalities in patients with PAH. Projects define autoimmune targets, develop mass spectrometry for the isotope-based analysis of signaling pathways at the single-cell level, evaluate cytokines, chemokines, growth factors, using high-throughput Immunophenotyping and peptoids to profile lineage-specific cell surface molecules and autoantibodies. Role on Project: Project 1 Leader

K12 HL120001 (PI: M. Rabinovitch, MP Snyder, MR Nicolls) **09/2013 - 05/2018**
NIH/NHLBI
Stanford Career Development Program in Omics of Lung Diseases. This multidisciplinary career development program equips new MD and PhD investigators with the knowledge and skills to identify mutations that cause or predispose lung diseases, focusing on pulmonary hypertension.

Completed Research Support (last three years):

NIH R03 RFA-HL-11-032 (PI: M. Rabinovitch) **09/2011 - 07/2013**
Cell Specific Localization of Altered Gene Expression in Pulmonary Hypertension. This proposal utilizes tissues from the human lung tissue resource of the Pulmonary Hypertension Breakthrough Initiative (PHBI). Our goal is to identify abnormally expanded sub-populations of cells in IPAH lesions, vs. controls lungs, and to further interrogate these cells ex-vivo to determine if these could be good targets for emerging therapies.

NIH K12 RFA-HL-07-004:CDP (PI: M.K. Krasnow) **09/2007 - 07/2013**
Stanford Career Development Program in the Genetics and Genomics of Lung Diseases. This multidisciplinary career development program equips new MD and PhD investigators with the knowledge and skills to identify mutations that cause or predispose lung diseases, focusing on pulmonary hypertension.
Role: Co-Director

NIH R01 HL087118 (PI: M. Rabinovitch) **04/2008 - 03/2013**
The BMP-PPARγ Axis and Pulmonary Hypertension. The proposal investigates the functional significance of a transcription factor complex between *PPARγ* and ß-catenin mediated by BMPR2 in human pulmonary artery (PA) endothelial (EC) and smooth muscle cells (SMC), and the propensity to pulmonary hypertension in mice with deletion of *PPARγ* in either EC or SMC.

NIH R01 HL086631 (PI: R.D. Bland) **07/2008 - 10/2012**
Mechanical Ventilation of Newborn Mice: Impact on Alveolarization and Lung Elastin
This grant studies the impact of mechanical ventilation on lung growth in newborn mice. Role: Co-Investigator

NIH R21 HL098782 (PI: M. Rabinovitch) **01/2010 - 12/2011**
Identifying the Serine Elastase Elevated in Pulmonary Vascular Disease. This R21 uses a novel strategy to purify murine endogenous vascular elastase (EVE) from lung tissue and to identify its human homolog.

Subaward 104957 on R01 HL060234 (PI: A.M.K. Choi) **09/2009 - 08/2011**
Heme Oxygenase 1/Carbon Monoxide in Lung Vascular Injury. This proposal determines whether autophagy represents an adaptive stress response to protect against PAH. Role: Co-Investigator