



## Research Grants 1996 to 2015

2015

Kuniaki Seyama, MD, PhD	Juntendo University	<i>The Reconstitution of LAM Lesions by Patient-Derived LAM Cells and Lymphatic Endothelial Cells</i>
Caroline Le Poole, PhD	Loyola University Chicago	<i>T Cell Receptor Transduced T Cells Supported by Anti-PD-1 to Treat LAM</i>
Michael Borchers, PhD	University of Cincinnati College of Medicine	<i>NKG2D Receptor-Ligand Interactions in LAM Pathogenesis</i>
Joshua Fessel, MD, PhD	Vanderbilt University	<i>Use of 18F-Glutamine PET in the Diagnosis of LAM and other Pulmonary Diseases</i>
Carmen Priolo, MD, PhD	Brigham and Women's	<i>Imaging biomarkers to trace metabolic activity of LAM</i>
Elizabeth Henske, MD	Brigham and Women's	<i>Circulating microRNA as Biomarkers of LAM</i>
Simon Johnson, MD	The University of Nottingham, United Kingdom	<i>Discovery of serum markers of disease activity for LAM</i>
David Kwiatkowski, MD, PhD	Brigham and Women's	<i>TSC2 mutation analysis as a biomarker for lymphangioleiomyomatosis (LAM)</i>
Raymond Yeung, MD	Washington University	<i>Cell-free DNA quantitation and mutation analyses in LAM</i>
Brian Bartholmai, MD	Mayo Clinic Rochester	<i>CALIPER HRCT analysis in LAM</i>

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2014	Khalid Almoosa, MD	University of Houston	<i>Does Variability of Care Exist Among LAM Specialty Clinics?</i>
	Debbie Clements, PhD	The University of Nottingham, United Kingdom	<i>Investigating the Cross Talk Between LAM Cells and Recruited Stromal Fibroblasts</i>
	Raymond Yeung, MD	University of Washington	<i>Serum Metabolites in LAM</i>
	Lisa R. Young, MD	Vanderbilt University	<i>Lymphangiogenesis and Estrogenic Milieu as LAM Biomarkers</i>
	Andrey Parkhitko, PhD	Harvard	<i>A Corss-Species Approach to the Discovery of Genes Accelerating TSC/LAM Tumor Growth</i>
	Vera Krymskaya, PhD, MBA	University of Pennsylvania	<i>The Safety of Simvastatin in Patients with Sporadic Pulmonary Lymphangiomyomatosis (LAM) and LAM Associated with Tuberous Sclerosis Complex</i>
	David Kwiatkowski, MD, PhD	Brigham and Women's Hospital	<i>LAM Genome Wide Association Study (GWAS)</i>
2013	Hilaire Lam, PhD	Brigham and Women's Hospital	<i>MicroRNA in LAM: Therapeutic Targets and Biomarkers</i>
	Chenggang Li, PhD	Brigham and Women's Hospital	<i>Estradiol and mTORC2 Orchestrate to Enhance Prostaglandin Biosynthesis and Tumorigenesis in LAM</i>
	Gina Lee, PhD	Harvard/Weill Cornell	<i>Mechanism of tumorigenesis by mTORC1-mediated mRNA alternative splicing</i>

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2012	Jeff Swigris, DO	National Jewish Health	<i>Development of a LAM-specific instrument to assess health-related quality of life</i>
	Marina Holz, PhD	Albert Einstein College of Medicine	<i>Targeting mTORC1/S6K1 signaling in LAM</i>
	Pechin Lo	UCLA School of Medicine	<i>CT Biomarker for Quantitative Assessment of Treatment Efficacy in LAM</i>
	Robert Handin, MD	Brigham & Women's Hospital	<i>Angio and Lymphangiogenesis after Xenografting LAM Cells into Zebrafish Embryos</i>
	Arnold S. Kristof, MD	McGill University	<i>The Urotensin Signaling Axis in LAM</i>
	Stephen Hammes, MD, PhD	University of Rochester Medical Center	<i>Tsc-2 Knockout in the Uterus: A Mouse Model for Lymphangiomyomatosis</i>
	Elizabeth Henske, MD	Brigham & Women's Hospital	<i>The Role of Autophagy in the Pathogenesis and Treatment of LAM</i>
2011	Boyi Gan, PhD	University of Texas/MD Anderson Cancer Center	<i>The role of FoxO transcription factors in the molecular pathogenesis of LAM</i>
	Carla Kim, PhD	Children's Hospital Boston	<i>Myometrial origin of LAM</i>
	Issam Ben-Sahra, PhD	Harvard School of Public Health	<i>Understanding and targeting tumor cell metabolism in LAM</i>
	Vera Krymskaya, PhD, MBA	University of Pennsylvania	<i>Role of TSC2 in airspace enlargement in LAM</i>

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2010	Caroline Le Poole, PhD	Loyola University Chicago	<i>Existing nad exciting immune responses to Ganglioside D3 in LAM</i>
	Alredo Csibi, PhD	Harvard Medical School	<i>Targeting the glutamine addiction of LAM cells: molecular mechanisms and therapeutic strategy</i>
	Xiaoxiao Gu, PhD	Harvard Medical School	<i>Role of the Estrogen/Ras/Raf/MEK/ERK Pathway in Migration, Invasion and Survival of LAM Cells</i>
	Arnold Kristof, MD	McGill University	<i>The urotinsen signaling axis in LAM</i>
2009	Stephen Hammes, MD, PhD	University of Rochester	<i>Uterine-Specific Knockout of TSC-2: A Mouse Model for LAM</i>
	Lawrence Quilliam, PhD	Indiana University	<i>Targeting the Unfolded Protein Response to Treat LAM</i>
	John Blenis, MD	Harvard Medical School	<i>Inhibition of glutamine metabolism as a therapeutic strategy for treatment of LAM</i>
	Roberto Zoncu, PhD	Whitehead Institute for Biomedical Research	<i>Targeting the spatial and temporal properties of the mTor checkpoint in growth control</i>
	Elena Lesma, PhD	University of Milano	<i>Development of a LAM model by using human TSC2<sup>-/-</sup> cells derived from a renal angiomyolipoma. A pharmacological evaluation.</i>
2008	Elizabeth Henske, MD	Brigham & Women's Hospital	<i>The Role of Autophagy in the Pathogenesis and Treatment of LAM</i>
	Raymond Yeung, MD	University of Washington	<i>Mechanisms of Microtubule Regulation by the TSC1/2 Complex and its Implications in LAM</i>

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2007	Caroline Le Poole, PhD	Loyola University Chicago	<i>Feasibility of targeting LAM cells by existing melanoma immunotherapeutic strategies</i>
	Primal de Lanerolle, PhD	University of Illinois at Chicago	<i>Involvement of Myosin Light Chain Phosphorylation in Lymphangiomiomatosis</i>
	Lisa Young, MD	Cincinnati Children's Hospital Medical Center	<i>Utility of VEGF-D levels as a biomarker in lymphangiomiomatosis</i>
	Elena Goncharova, PhD	University of Pennsylvania	<i>Defining the role of RhoA GTPase in modulating LAM cell growth</i>
	Seong Woo Kang, PhD	Whitehead Institute for Biomedical Research	<i>Structural analysis of TSC1/2- and Rheb-mediated regulation of the mTORC1 pathway</i>
2006	James Michael Shipley, PhD	Washington University School of Medicine	<i>Evaluation of the smooth muscle-specific TSC1 knockout mouse</i>
	Elizabeth A. Barnes, PhD	University of Washington	<i>Regulation of Wnt/beta-catenin signaling by TSC1 and TSC2 in LAM</i>
	Vera Krymskaya, PhD, MBA	University of Pennsylvania	<i>TSC1/TSC2 signaling in LAM cell adhesion and motility</i>
	Geraldine Finlay, MD	New England Medical Center Hospitals, Inc.	<i>The role of Atorvastatin as an inhibitor of growth in tuberin null states</i>
	Katsuhiko Kita, PhD	The Scripps Research Institute	<i>Local regulation of Rac signaling by microtubules, APC, and TSC</i>
	Primal de Lanerolle, PhD	University of Illinois at Chicago	<i>Involvement of Myosin Light Chain Phosphorylation in Lymphangiomiomatosis</i>
	Gregory Hoffman, PhD	Harvard Medical School	<i>A biochemical and RNAi based approach to understanding the regulation of mTOR by growth factors and amino acids.</i>

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	Marie-Emmanuelle Legrier, PhD	Albert Einstein College of Medicine	<i>Integrated Signaling Networks in Lymphangiomiomatosis and their Utility as Therapeutic Targets</i>
	Cheryl Walker, PhD	University of Texas/MD Anderson Cancer Center	<i>Cytoplasmic sequestration of p27: Implications for ER signaling in LAM</i>
	Po-Shun Lee	Brigham & Women's Hospital	<i>Exploration of MMP expression and potential therapies in LAM and TSC mouse models</i>
	Aristotelis Astrinidis, PhD	Drexel University College of Medicine	<i>Role of the harmartin-Plk1 interaction in the pathogenesis of lymphangiomiomatosis</i>
2005	Arnold Kristof, MD	McGill University	<i>The role of protein kinase C<math>\delta</math> in the pathogenesis of lymphangiomiomatosis</i>
	Vera Krymskaya, PhD, MBA	University of Pennsylvania	<i>Mechanisms Regulating Cell Migration in Lymphangiomiomatosis</i>
	Chris B. Lyons	University of Cincinnati	<i>Biases Exclusion Criteria for Lung Transplantation in LAM</i>
	Daniel Noonan, PhD	University of Kentucky	<i>Defining mechanisms for anomalous expression of estrogen receptor in LAM</i>
	Nicholas Vlahakis, MD	Mayo Clinic Rochester	<i>LAM: Proliferating pericytes modulated by the lymphangiogenic proteins VEGF-C and D</i>
	Mark Nellist, BSc, PhD	Erasmus Medical Center	<i>Characterization of DOCK7, a putative guanine nucleotide exchange factor for rheb</i>
	David Kwiatkowski, MD, PhD	Brigham & Women's Hospital	<i>LAM/TS Meetings/Workshops/Seminars</i>
	Hui Zhang, PhD	Harvard School of Public Health	<i>Molecular basis of aberrant adipogenesis in LAM -and TSC - associated AMLs</i>

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2004	Magdalena Karbowniczek, MD, PhD	Fox Chase Cancer Center	<i>The role of Rheb in LAM pathogenesis</i>
	Elena Goncharova, PhD	University of Pennsylvania	<i>Interferon beta but not interferon gamma modulates LAM cell growth</i>
	David Guertin, PhD	Whitehead Institute for Biomedical Research	<i>Using RNAi living cell microarrays to systematically probe the Drosophila genome for downstream effectors of the negative growth regulators, TSC2 and PTEN</i>
	Simon Johnson, MD	University of Nottingham	<i>Development of an in vivo model of lymphangiomyomatosis</i>
2003	Hongwei Wang, MD	Brigham & Women's Hospital	<i>Mesenchymal stem cells as a model for AML/LAM</i>
	David Kwiatkowski, MD, PhD	Brigham & Women's Hospital	<i>IFN<math>\gamma</math>, MMPs, and smooth muscle cells proliferation in TSC mouse liver hemangioma and human LAM and AML</i>
	Elizabeth A. Barnes, PhD	University of Washington	<i>Regulation of Wnt/beta-catenin signaling by TSC1 and TSC2 in LAM</i>
	Blanca Camoretti-Mercado, PhD	University of Chicago	<i>Modulation of Smooth Muscle Gene Expression by the TSC Gene Products</i>
2002	David Kwiatkowski, MD, PhD	Harvard Medical School, Brigham & Women's Hospital	<i>A Rapamycin Therapeutic Trial in a TSC1 Mouse Model</i>
	Xiaoning Zhe, MD, PhD	Wayne State University, School of Medicine	<i>Abnormal Serum Response Factor Expression in Lymphangiomyomatosis (LAM)</i>
	Donna Davies, Bsc, PhD	University of Southampton	<i>The Role of the Epidermal Growth Factor Receptor and its Ligands in the Hyperproliferation of LAM Cells</i>
	John J. Bissler, MD	Cincinnati Children's Hospital Medical Center	<i>Utility of Rapamycin for the Treatment of Renal Angiomyolipomas</i>
	John J. Bissler, MD	Cincinnati Children's Hospital Medical Center	<i>Utility of Rapamycin for the Treatment of Renal Angiomyolipomas</i>

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2001	Nisreen El-Hashemite, MSc, PhD	Harvard Medical School, Brigham & Women's Hospital	<i>An Animal Model for Hemangiomas and LAM</i>
	Vera Krymskaya, PhD, MBA	University of Pennsylvania	<i>Constitutively Active p70 S6 Kinase Modulates Proliferation of Tuberin-Deficient Cells</i>
	Blanca Camoretti-Mercado, PhD	University of Chicago	<i>The Role of Mevalonate Pathway in Normal and Diseased Smooth Muscle</i>
	Richard F. Lamb, PhD	Institute of Cancer Research	<i>Expression and function of ezrin in LAM and TSC</i>
	Xiaoning Zhe, MD, PhD	Wayne State University, School of Medicine	<i>Abnormal gene expression in lymphangioleiomyomatosis (LAM)</i>
	Aristotelis Astrinidis, PhD	Fox Chase Cancer Center	<i>Cell Motility and Invasion in Tuberous Sclerosis and Lymphangioleiomyomatosis</i>
	Brian W. Fouty, MD	University of Colorado Health Sciences Center	<i>Control of cell cycle and proliferation in TSC2+/-SMC</i>
	James Michael Shipley, PhD	Washington University, School of Medicine	<i>Inducible Targeting of the TSC genes in Adult Smooth Muscle</i>
2000	Vera Krymskaya, PhD, MBA	University of Pennsylvania	<i>Role of Phosphoinositide 3-Kinase Signaling Pathway in Lymphangioleiomyomatosis</i>
	Daniel Noonan, PhD	University of Kentucky	<i>Defining Calmodulin's Role in TSC2/Estrogen Receptor Signaling and LAM Disease</i>
	David Rodman, MD	University of Colorado Health Sciences Center	<i>Control of SMC proliferation in TSC2+/- mice and rats</i>
	Joel Moss, MD, PhD	National Heart, Lung, and Blood Institute (NHLBI)	<i>LAM Protocol Database Analyst</i>
	Nicola Ferri, PhD	University of Washington School of Medicine	<i>Potential role of new collagen receptors (DDR1 and DDR2) in smooth muscle growth in LAM</i>



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	Marsha Cohen, MD, MHSc	University of Toronto	<i>A study of of the issues and psychosocial needs of women with lymphangioliomyomatosis</i>
	Nancy Ayres Rice, PhD	University of Colorado at Boulder	<i>Regulation of pulmonary myofibroblast growth and proliferation</i>
	Joel Moss, MD, PhD	National Heart, Lung, and Blood Institute (NHLBI)	<i>LAM Protocol Database Analyst</i>
	Teresa Smolarek, PhD	University of Colorado	<i>Affimetrix Array Analysis of LAM Lung</i>
1999	Geraldine Finlay, MD	New England Medical Center Hospitals, Inc.	<i>Role of Growth Factors and Matrix Metalloproteinases in LAM</i>
	Deborah Hunter, PhD	University of Texas M.D. Anderson Cancer Center	<i>Role of TSC2 and HMGI-C Genes in SM Response to Hormones (Technician)</i>
	Elizabeth Henske, MD	Fox Chase Cancer Center	<i>Hormonal Regulation of Smooth Muscle Proliferation in Lymphangioliomyomatosis</i>
	Romana Nowak, PhD	Brigham and Women's Hospital	<i>Molecular Mechanisms Involved in the Regulation of Smooth Muscle Cell Proliferation</i>
	Xue-Qing Wang, PhD	Washington University, School of Medicine	<i>The Thrombospondin Signaling Pathway in LAM</i>
	Daniel Noonan, PhD	University of Kentucky	<i>Defining a Molecular Mechanism for TSC Gene Function in LAM Disease</i>
	Deborah Hunter, PhD	University of Texas, Southwestern	<i>IFN - Alpha Treatment of Smooth Muscle Tumors in the Eker Rat</i>
	Raymond E. Boissy, PhD	University of Cincinnati	<i>Characterization of LAM Cells for Melanocyte Specific Properties</i>

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1998	Geraldine Finlay, MD	New England Medical Center Hospitals, Inc.	<i>Role of Growth Factors and Matrix Metalloproteinases in LAM</i>
	Elizabeth Henske, MD	Fox Chase Cancer Center	<i>TSC1 and TSC2 Mutational Analysis in LAM Patients</i>
	Ferruccio Galbiati, PhD	Albert Einstein College of Medicine	<i>Caveolins, Signaling and Cell Proliferation in Smooth Muscle Cells</i>
	Teresa Smolarek, PhD	University of Cincinnati	<i>Finding the Basis for Lymphangiomyomatosis</i>
	Brenda Lilly, PhD	University of Utah	<i>Analysis of the Cysteine-Rich Protein, CRP1 in Smooth Muscle Myogenesis</i>
	Jeanine D'Armiento, MD, PhD	Columbia University	<i>Alteration of Gene Expression in Lymphangiomyomatosis</i>
	Jeffrey Spencer, PhD	University of Texas, Southwestern	<i>Molecular Mechanisms of Smooth Muscle-Specific Transcription</i>
Deborah Hunter, PhD	University of Texas M.D. Anderson Cancer Center	<i>Role of TSC2 and HMGI-C Genes in SM Response to Hormones</i>	
1997	Elizabeth Henske, MD	Fox Chase Cancer Center	<i>The Genetic Basis of Lymphangiomyomatosis</i>
	Jeanine D'Armiento, MD, PhD	Columbia University	<i>Role of the HMGI Family in Lymphangiomyomatosis</i>
	Andre Cantin, MD	Centre de Recherche Clinique	<i>Role of Catechol Estrogens and Oxidant Stress in LAM</i>
	Guillermo Flores-Delgado, PhD	University of Southern California	<i>The Extracellular Matrix Glycoproteins and Receptors in LAM</i>
1996	Simon Johnson, MD	University of Nottingham, England	<i>The Role of Tuberin in Airway Smooth Muscle Growth</i>
	Marilyn Glassberg, MD	University of Miami	<i>The Role of Peptide Growth Factors in LAM</i>
	Teresa Smolarek, PhD	University of Cincinnati	<i>Finding the Basis for Lymphangiomyomatosis</i>