Steven K. Huang, M.D.
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Education and Training

Education

08/1994-06/1997	BS, Biomedical Engineering, Summa cum laude, Northwestern University, Evanston, IL
08/1997-06/2001	MD, Northwestern University, Feinberg School of Medicine, Chicago, IL

PostDoctoral Training

07/2001-06/2002	Internship, Internal Medicine, McGaw Medical Center of Northwestern University, Chicago, IL
07/2002-06/2004	Residency, Internal Medicine, McGaw Medical Center of Northwestern University, Chicago, IL
07/2004-06/2007	Fellowship, Pulmonary and Critical Care Medicine, University of Michigan, Ann Arbor, MI

Certification And Licensure

Certification

08/2004-12/2014	American Board of Internal Medicine - Internal Medicine
11/2006-12/2016	American Board of Internal Medicine - Subspecialty Certification in Pulmonary Disease
10/2007-12/2017	American Board of Internal Medicine - Subspecialty Certification in Critical Care

Licensure

07/2002-06/2004	State of Illinois, Medical License
04/2004-present	State of Michigan, Controlled Substance
04/2004-present	State of Michigan, DEA Registration
04/2004-present	State of Michigan, Medical License

Academic, Administrative, Clinical and Military Appointments

Academic Appointments

07/2007-12/2010	Clinical Lecturer in Internal Medicine, Division of Pulmonary & Critical Care Medicine, University of Michigan Health System, Ann Arbor, MI
01/2011-present	Assistant Professor in Internal Medicine, Division of Pulmonary & Critical Care Medicine, University of Michigan Health System, Ann Arbor, MI

Clinical Interests

- Pulmonary fibrosis

Research Interests

- Our laboratory studies how epigenetic modifications, such as DNA methylation and histone modifications, contribute to the pathogenesis of lung diseases including idiopathic pulmonary fibrosis. We study how these epigenetic marks are modulated by mediators such as prostaglandin E2 and transforming growth factor beta and by pollution. We study various aspects of fibroblast biology in the context of fibrotic lung disease.

Grants

Current Grants

5 R01 HL127203-05: CDKN2B as a Novel Epigenetically Regulated Gene in Idiopathic Pulmonary Fibrosis
NIH-DHHS-US- 14-PAF06594
Huang, Steven, PI
04/2015-03/2020. $1,884,314 ($384,821)

DNA Methylation Induced by Air Pollution Contributes to Chronic Airway Inflammation and Airway Remodeling in Moderate-to-Severe Uncontrolled Asthma University of Michigan-Peking University Joint Institute
Huang, Steven K, PI
09/2014-08/2017. $100,000 ($50,000)

Submitted Grants

Impact of ambient particulate matter 2.5 on the DNA methylation of asthma-related genes in bronchial epithelial cells
Society of Toxicology- 17-PAF01755
Tripathi, Priya, PI
01/2017-12/2017. $44,000

Past Grants

1 R56 HL119289-01A1: The Altered DNA Methylome as a Determinant of Variable Disease Progression in IPF
NIH-DHHS-US- 13-PAF05899
Huang, Steven, PI
09/2014-03/2016. $2,318,344 ($436,201)

DNA Methylomic Changes in IPF Fibroblasts as a Predictor of Disease Progression Chest Foundation-
14-PAF06766
Huang, Steven, PI
07/2014-06/2015. $30,000 ($30,000)

Epigenetic Dysregulation of Fibroproliferative Genes in IPF Martin E Galvin Fund for Pulmonary Fibrosis Research
Huang, Steven K, PI
04/2014-03/2015. $16,667 ($16,667)

The Influence of Prostaglandin E2 and Transforming Growth Factor-beta1 on DNA Methylation Patterns in Idiopathic Pulmonary Fibrosis Environmental Health Sciences Core Center, University of Michigan
Huang, Steven K, PI
02/2014-01/2015. $20,000 ($20,000)

2 R56 AI065543-06: HSCT-induced changes that impair lung innate immunity NIH-DHHS-US- 11-PAF07112
Co-I with Effort (Principal Investigator: Moore, Bethany B)
09/2013-08/2014. $363,157 ($363,157)

The Effect of Aging and Prostaglandin E2 on the DNA Methylome in Lung Fibroblasts Nathan Shock Center
Huang, Steven K, PI
06/2011. $4,000 ($4,000)

5 P50 HL107177-02: Prostanoids, Plasminogen Activation, and Personalized Therapeutics in IPF NIH-DHHS-US-
10-PAF06147
Co-I with Effort (Principal Investigator: Peters-Golden, Marc;Martinez, Fernando Jose)
05/2011-04/2013. $876,142 ($446,234)

PF-10-015: The Regulation and Pattern of the DNA Methylome in Pulmonary Fibrosis American Thoracic Society/Pulmonary Fibrosis Foundation Research Grant- 10-PAF07119
Huang, Steven, PI
09/2010-08/2012. $100,000 ($50,000)

5 K08 HL094657-05: Epigenetic Regulation of the E Prostanoid 2 Receptor Gene in Lung Fibroblasts
NIH-DHHS-US- 08-3511
Huang, Steven, PI
04/2009-03/2014. $668,560 ($133,712)

Award Letter dated 6/19/08: Epigenetic Regulation of the E Prostanoid 2 Receptor Gene in Fibrotic Lung Fibroblasts
Francis Families Foundation- 08-1639
Huang, Steven, PI
07/2008-06/2011. $150,000 ($48,000)

F-08-015: Epigenetic Regulation of the E Prostanoid 2 Gene in Lung Fibroblasts American Thoracic Society (ATS)-08-2886
Huang, Steven, Non-Faculty PI
07/2008-06/2009. $50,000 ($50,000)

Honors and Awards

National

1997	Tau Beta Pi, Undergraduate Engineering Honors Society
1999	Hartford/American Federation for Aging Research Travel Award, American Geriatrics Society Annual Meeting
2008	American Thoracic Society Fellows Career Development Award
2011	Carl Booberg Award, American Thoracic Society
2013	ASCI Young Physician-Scientist Award
2013	CSCTR/MWAFMR 2013 Oral Abstract Presenter Award
2016	American Thoracic Society Assembly on Respiratory Cell and Molecular Biology Carol Basbaum Award

Regional

2007	Research Award Michigan Thoracic Society

Institutional

1994-1998	Aileen S. Andrew Scholarship, Undergraduate and Graduate Acedemic Excellence
1997	James A. Patten Scholarship, Academic Excellence During Medical School
2002	Excellence in Teaching Award for Instruction of Junior Medical Students
2014	University of Michigan Department of Internal Medicine Annual Research Symposium Plenary Abstract Presenter
2015	University of Michigan Department of Internal Medicine Annual Research Symposium Plenary Poster Session Award
2016	University of Michigan Department of Internal Medicine Annual Research Symposium Plenary Poster Session Award

Memberships in Professional Societies

2001-present	Member, American Board of Internal Medicine
2004-present	Member, American College of Chest Physicians
2005-present	Member, American Thoracic Society

Editorial Positions, Boards, and Peer-Review Service

Study Sections

International

2013	Czech Science Foundation (Ad Hoc)
2016	British Lung Foundation (Ad Hoc)

2016	French National Research Agency (Ad Hoc)

National

2015-2016	VA MERIT Cellular and Molecular Medicine (CAMM) Study Section (x 3 cycles) (Ad Hoc)
2015	Center for Urban Responses to Environmental Stressors (CURES) at Wayne State University Pilot Projects (Ad Hoc)
2017	Center for Environmental Genetics at University of Cincinnati P30 Pilot Grant Review (Ad Hoc)
2017	NIH Program Project Grant (PPG) Special Review Committee (Ad Hoc)

Institutional

2015-2017	University of Michigan MICHR (Ad Hoc)
2016	University of Michigan Bridge Funding Grants (Ad Hoc)

Editorial Boards

2016-present	Member, American Journal of Physiology-Lung Cell Mol Physiol

Journal Reviewer

2011-present	American Journal of Respiratory and Critical Care Medicine (Ad Hoc)
2011-present	Annals of Respiratory Medicine (Ad Hoc)
2011-present	Hospital Physician (Ad Hoc)
2011-present	Journal of Cellular Biochemistry (Ad Hoc)
2011-present	Journal of Molecular Medicine (Ad Hoc)
2011-present	Journal of Pathology (Ad Hoc)
2011-present	Mediators in Inflammation (Ad Hoc)
2011-present	Molecular Medicine (Ad Hoc)
2011-present	Respiratory Research (Ad Hoc)
2013-present	BMC Pulmonary Medicine (Ad Hoc)
2013-present	Genome Medicine (Ad Hoc)
2013-present	Physiology (Ad Hoc)
2014-present	American Journal of Physiology-Lung Cell and Molecular Physiology (Ad Hoc)
2014-present	PLoS ONE (Ad Hoc)
2014-present	Respiratory Medicine (Ad Hoc)
2015-present	American Journal of Pathology (Ad Hoc)
2015-present	American Journal of Physiology - Cell Physiology (Ad Hoc)
2015-present	Scientific Reports (Ad Hoc)
2016-present	Cell Death & Disease (Ad Hoc)

Teaching

Postdoctoral Fellow

01/2016-present	Priya Tripathi, Ph.D., University of Michigan

Undergraduate Student

06/2009-08/2010	Aaron S. Fisher, B.S., University of Michigan
05/2011-12/2011	Jacob Donaghy, B.S., University of Michigan
09/2012-05/2013	Alan Ruan, University of Michigan
09/2013-05/2015	Hyein Koh, B.S., University of Michigan
09/2014-05/2015	Maya Desai, University of Michigan

Teaching Activity

International

05/2010	Co-chair for a Mini-Symposium, "Epigenetic Mechanisms in Lung Fibrosis," American Thoracic Society International Meeting, New Orleans, LA
05/2011	Co-chair for a Mini-Symposium, "Mi-RNA and Epigenetic Regulation of Lung Disorders," American Thoracic Society International Meeting, Denver, CO
05/2011	Thematic Poster Discussion Facilitator, "Pathways Regulating Fibroblast Gene Expression," American Thoracic Society International Meeting, Denver, CO
05/2011	Thematic Poster Discussion Facilitator, "Studies of Lung Fibrosis, COPD, and Airway Remodeling," American Thoracic Society International Meeting, Denver, CO
05/2012	Thematic Poster Discussion Facilitator, "What's New in Fibrosis and Pneumonitis?", American Thoracic Society International Meeting, San Francisco, CA
05/2013	Session Chair, "Epigenetics" Poster Discussion Session, American Thoracic Society International Meeting, Philadelphia, PA.
05/2014	Thematic Poster Discussion Facilitator "Putting the Genie Back in the Bottle: Regulating Gene Expression" American Thoracic Society International Meeting, San Diego, CA
05/2016	Thematic Poster Lead Discussion Facilitator "Epigenetics" American Thoracic Society International Meeting, San Francisco, CA

Institutional

07/2001-06/2004	Northwestern University Medical School. Teaching of medical students and residents on medicine wards
07/2005-06/2007	University of Michigan, Instructor, M1 small group teaching on Pulmonary & Critical Care Medicine Unit
09/2007	University of Michigan Medical School, Instructor, M2 Small Group Pulmonary Physiology
09/2007-12/2007	University of Michigan, Engineering 100/UC163: "Biotechnology and Human Values," Physician Consultant for Undergraduate Biomedical Engineering Design Class
09/2008	University of Michigan Medical School, Instructor, M2 Small Group Pulmonary Physiology
09/2008-12/2008	University of Michigan, Engineering 100/UC163: "Biotechnology and Human Values," Physician Consultant for Undergraduate Biomedical Engineering Design Class
09/2009	University of Michigan Medical School, Instructor, M2 Small Group Pulmonary Physiology
09/2009-12/2009	University of Michigan, Engineering 100/UC163: "Biotechnology and Human Values," Physician Consultant for Undergraduate Biomedical Engineering Design Class
09/2010	University of Michigan Medical School, Instructor, M2 Small Group Pulmonary Physiology
09/2010-12/2010	University of Michigan, Engineering 100/UC163: "Biotechnology and Human Values," Physician Consultant for Undergraduate Biomedical Engineering Design Class
01/2011	Pulmonary Clinical Conference, "Hypertensive Emergency"
09/2011	University of Michigan Medical School, Instructor, M2 Intubation and Pulmonary Procedures Skills Station
09/2011-12/2011	University of Michigan, Engineering 100/UC163: "Biotechnology and Human Values," Physician Consultant for Undergraduate Biomedical Engineering Design Class
09/2012	University of Michigan Medical School, Instructor, M2 Intubation and Pulmonary Procedures Skills Station
09/2012	University of Michigan Medical School, Instructor, M2 small group Pulmonary Physiology
08/2013	Pulmonary Clinic Grand Rounds
09/2013	University of Michigan Medical School, Instructor, M2 Intubation and Pulmonary Procedures Skills Station
09/2013-12/2013	University of Michigan, Eng 100/UC 163 "Biotechnology and Human Values" Physician consultant for undergraduate biomedical engineering design class
11/2013	"Occupational Lung Diseases", Pulmonary Clinical Fellowship Bootcamp
09/2014	University of Michigan Medical School, Instructor, M2 small group Pulmonary Physiology

09/2014-12/2014	University of Michigan, Eng 100/UC 163 "Biotechnology and Human Values" Physician consultant for undergraduate biomedical engineering design class
03/2015	Preceptor for Department of Internal Medicine Ambulatory Medicine Morning Report
09/2015	University of Michigan Medical School, Instructor, M2 small group Pulmonary Physiology
09/2015-12/2015	University of Michigan, Eng 100/UC 163 "Biotechnology and Human Values" Physician consultant for undergraduate biomedical engineering design class
11/2016	University of Michigan Medical School, Instructor, M1 small group Pulmonary Physiology

Dissertation Committees

2014	Racquel Domingo-Gonzalez, Epigenetics and cyclooxygenase-2 mediate dysfunction in alveolar macrophages and polymorphonuclear neutrophils post-bone marrow transplantation, University of Michigan, Immunology, Committee Member

Committee and Administrative Services

Committee Services

International

2013-present	American Thoracic Society Assembly on Respiratory Cell and Molecular Biology Planning Committee, Committee Member

Institutional

2014-present	Environmental Health Sciences Lifestage Environmental Exposures and Adult Disease (LEEaD) Core Center, Committee Member
2015-present	Pulmonary and Critical Care Medicine Fellowship Program Evaluation Committee, Committee Member
2017	Michigan Environmental Health Sciences Lifestage Environmental Exposures and Adult Disease (M-LEEaD) Core Center Pilot Project Review Committee, Review Committee Member

Visiting Professorships and Extramural Invited Presentations

Visiting Professorships

10/2010	Idiopathic Pulmonary Fibrosis: From Eicosanoids to Epigenetics, University of California, San Diego, October 2010, San Diego, CA
11/2015	Epigenetic Changes and Their Significance in IPF Fibroblasts, University of Pittsburgh, November 2015, Pittsburgh, PA

Extramural Invited Presentations

1. Selective Actions of PKA and Epac-1 in PGE_2 Inhibition of Lung Fibroblasts, Cayman Chemical - Spring Eicosanoid Symposium, May 2008, Ann Arbor, MI
2. PGE_2 Increases Fibroblast DNA Methylation Via Increase in DNA Methyltransferase 3a, Cayman Chemical - Spring Symposium on Lipid Mediators, April 2012, Ann Arbor, MI
3. Contemporary Techniques for Epigenetic and Epigenomic Studies in Lung Disease, American Thoracic Society International Meeting, Sunrise Seminar, May 2012, San Francisco, CA
4. Altered Epigenetic Patterns in Pulmonary Fibrosis, American Thoracic Society International Meeting, Sunrise Seminar, May 2013, Philadelphia, PA
5. Epigenetic Regulation of Fibroblast Phenotypes in Pulmonary Fibrosis, American Thoracic Society International Meeting, Scientific Symposium: Different Targets of Lung Injury and Repair: The New Generation of Investigators, May 2013, Philadelphia, PA
6. Heterogeneity in IPF: From Clinical to Molecular Variances, CHEST, Diffuse and Interstitial Lung Disease Network Meeting, October 2014, Austin, TX
7. Air Pollution Contributes to Chronic Airway Inflammation and Airway Remodeling in Moderate-to-Severe Uncontrolled Asthma, University of Michigan-Peking University Health Sciences Joint Institute Symposium, October 2015, Beijing, China

8. DNA Methylation Changes as a Mechanism for the Effects of Air Pollution on Asthma Severity, University of Michigan-Peking University Health Sciences Joint Institute Symposium, October 2015, Beijing, China
9. Fibroblast/Myofibroblast Phenotypes and Their Epigenetic Profile in IPF, CHEST, October 2016, Los Angeles, CA

Other

1. Epigenetic Alterations Account for Decreased EP2 Receptor Expression in Fibroblasts from Bleomycin-Injured Mice, American Thoracic Society International Meeting, Mini-Symposium, May 2009, San Diego, CA
2. Regulation And Expression Of DNA Methyltransferases In Fibrotic Lung Fibroblasts, American Thoracic Society International Meeting, Mini-Symposium, May 2010, New Orleans, LA
3. Alterations in the DNA Methylome of Fibroblasts from Patients with Idiopathic Pulmonary Fibrosis, CSCTR/MWAFMR Annual Meeting, April 2013, Chicago, IL
4. Alterations in the DNA Methylome of Fibroblasts from Patients with Idiopathic Pulmonary Fibrosis, American Thoracic Society International Meeting, Mini-Symposium: Normal and Diseased Methylomes, May 2013, Philadelphia, PA
5. cAMP-Protein Kinase A Inhibits Macrophage Maturation by DNA Hypermethylation of CSF1R, American Thoracic Society International Meeting, Mini-symposium: Epigenetic Regulation of Inflammation, May 2015, Denver, CO

Seminars

1. Epigenetic Silencing of the E Prostanoid 2 Receptor in Pulmonary Fibrosis, University of Michigan Pulmonary Research Conference, February 2009, Ann Arbor, MI
2. Pulmonary Fibrosis: A Disease of DNA Hypermethylation?, University of Michigan Pulmonary Research Conference, February 2010, Ann Arbor, MI
3. Epigenetic Modifications in Pulmonary Fibrosis: Regulation of the E Prostanoid 2 Receptor, University of Michigan Epigenetics Seminar, October 2010, Ann Arbor, MI
4. Regulation of DNA Methylation and Its Role in IPF, University of Michigan Pulmonary Research Conference, February 2011, Ann Arbor, MI
5. The Regulation of DNA Methylation by PGE_2 and the Epigenomic Landscape in Pulmonary Fibrosis, University of Michigan Pulmonary Research Conference, February 2012, Ann Arbor, MI
6. Altered DNA Methylation in Pulmonary Fibrosis and Its Regulation by Prostaglandin E_2, University of Michigan Epigenetics Seminar, September 2012, Ann Arbor, MI
7. Alterations in the DNA Methylome of Fibroblasts in Patients with Idiopathic Pulmonary Fibrosis, University of Michigan Department of Internal Medicine Annual Research Symposium, May 2013, Ann Arbor, MI
8. Wednesday Pulmonary Clinic Faculty Grand Rounds, University of Michigan Pulmonary Case Conference, August 2013, Ann Arbor, MI
9. The Aberrant DNA Methylome in Pulmonary Fibrosis and the Role of PGE_2 and TGF-beta, University of Michigan Department of Computational Medicine and Bioinformatics Tools and Technology Conference Series, September 2013, Ann Arbor, MI
10. Epigenetic Dysregulation in Idiopathic Pulmonary Fibrosis: Targets for Future Therapy?, University of Michigan Pulmonary Research Conference, October 2013, Ann Arbor, MI
11. Epigenetic Modifications in IPF: What, Where, Why, and How?, University of Michigan Pulmonary Research Conference, October 2014, Ann Arbor, MI
12. DNA Methylation Changes Induced by Particulate Matter in Air Pollution Contributes to Chronic Airway Inflammation in Moderate-to-Severe Uncontrolled Asthma, University of Michigan-Peking University Joint Institute Fourth Annual Symposium, October 2014, Ann Arbor, MI
13. Particulate Matter-Induced DNA Methylation Changes and Its Effect on Asthma, University of Michigan-Peking University Joint Institute Symposium, October 2016, Ann Arbor, MI
14. Epigenetic Changes in Lung Fibroblasts: Insights Into Novel Fibrogenic Pathways, Nephrology Division Basic Science Seminar, University of Michigan, October 2016, Ann Arbor, MI
15. Implications of DNA Methylation Changes in Pulmonary Fibrosis: New Insights into Fibrogenesis, University of Michigan Pulmonary Research Conference, January 2017, Ann Arbor, MI

Bibliography

Peer-Reviewed Journals and Publications

1. Hyzy R, **Huang SK**, Myers J, Flaherty K, Martinez F: Acute exacerbation of idiopathic pulmonary fibrosis. *Chest* 132(5): 1652-1658, 2007. PM17998366
2. **Huang SK**, Wettlaufer SH, Hogaboam C, Aronoff DM, Peters-Golden M: Prostaglandin E_2 inhibits collagen expression and proliferation in patient-derived normal lung fibroblasts via E prostanoid 2 receptor and cAMP signaling. *Am. J. Physiol. Lung Cell Mol. Physiol.* 292(2): L405-L413, 2007. PM17028262
3. Chung J, Serezani CH, **Huang SK**, Stern JN, Keskin DB, Jagirdar R, Brock TG, Aronoff DM, Peters-Golden M: Rap1 activation is required for Fc gamma receptor-dependent phagocytosis. *J. Immunol.* 181(8): 5501-5509, 2008. PM18832707/PMC3077557
4. **Huang SK**, Wettlaufer SH, Chung J, Peters-Golden M: Prostaglandin E_2 inhibits specific lung fibroblast functions via selective actions of PKA and Epac-1. Am. J. Respir. Cell Mol. Biol. 39(4): 482-489, 2008. PM18421013/PMC2551707
5. **Huang SK**, Peters-Golden M: Eicosanoid lipid mediators in fibrotic lung diseases: ready for prime time? *Chest* 133(6): 1442-1450, 2008. PM18574287/PMC2582216
6. **Huang SK**, Wettlaufer SH, Hogaboam CM, Flaherty KR, Martinez FJ, Myers JL, Colby TV, Travis WD, Toews GB, Peters-Golden M: Variable prostaglandin E_2 resistance in fibroblasts from patients with usual interstitial pneumonia. *Am. J. Respir. Crit. Care Med.* 177(1): 66-74, 2008. PM17916807/PMC2176116
7. **Huang SK**, Myers JL, Flaherty KR: The role of lung biopsy in the diagnosis and management of idiopathic interstitial pneumonia. *Expert Opinion on Medical Diagnostics* 2(2): 183-90, 2008. PM23485138
8. **Huang SK**, White ES, Wettlaufer SH, Grifka H, Hogaboam CM, Thannickal VJ, Horowitz JC, Peters-Golden M: Prostaglandin E_2 induces fibroblast apoptosis by modulating multiple survival pathways. *FASEB J.* 23(12): 4317-4326, 2009. PM19671668/PMC2812040
9. Sagana RL, Yan M, Cornett AM, Tsui JL, Stephenson DA, **Huang SK**, Moore BB, Ballinger MN, Melonakos J, Kontos CD, Aronoff DM, Peters-Golden M, White ES: Phosphatase and tensin homologue on chromosome 10 (PTEN) directs prostaglandin E_2-mediated fibroblast responses via regulation of E prostanoid 2 receptor expression. *J. Biol. Chem.* 284(47): 32264-32271, 2009. PM19808686/PMC2781639
10. **Huang SK**, Myers JL, Flaherty KR.: Diagnosing idiopathic interstitial pneumonia: utility of surgical lung biopsy. *Eur Resp Monograph* 46: 24-35, 2009.
11. Bauman KA, Wettlaufer SH, Okunishi K, Vannella KM, Stoolman JS, **Huang SK**, Courey AJ, White ES, Hogaboam CM, Simon RH, Toews GB, Sisson TH, Moore BB, Peters-Golden M: The antifibrotic effects of plasminogen activation occur via prostaglandin E_2 synthesis in humans and mice. *J. Clin. Invest.* 120(6): 1950-1960, 2010. PM20501949/PMC2877926
12. Hao Y, Senn T, Opp JS, Young VB, Thiele T, Srinivas G, **Huang SK**, Aronoff DM: Lethal toxin is a critical determinant of rapid mortality in rodent models of Clostridium sordellii endometritis. *Anaerobe* 16(2): 155-160, 2010. PM19527792/PMC2856776
13. **Huang SK**, Fisher AS, Scruggs AM, White ES, Hogaboam CM, Richardson BC, Peters-Golden M: Hypermethylation of PTGER2 confers prostaglandin E_2 resistance in fibrotic fibroblasts from humans and mice. *Am. J. Pathol.* 177(5): 2245-2255, 2010. PM20889571/PMC2966784
14. Okunishi K, Sisson TH, **Huang SK**, Hogaboam CM, Simon RH, Peters-Golden M: Plasmin overcomes resistance to prostaglandin E_2 in fibrotic lung fibroblasts by reorganizing protein kinase A signaling. *J. Biol. Chem.* 286(37): 32231-32243, 2011. PM21795691/PMC3173171
15. Horowitz JC, Ajayi IO, Kulasekaran P, Rogers DS, White JB, Townsend SK, White ES, Nho RS, Higgins PD, **Huang SK**, Sisson TH.: Survivin expression induced by endothelin-1 promotes myofibroblast resistance to apoptosis. *Intrnl J Biochem Cell Biol* 44(1): 158-69, 2012. PM22041029/PMC3241828
16. Sisson TH, Maher TM, Ajayi IO, King JE, Higgins PD, Booth AJ, Sagana RL, **Huang SK**, White ES, Moore BB, Horowitz JC: Increased survivin expression contributes to apoptosis-resistance in IPF fibroblasts. *Advances in Bioscience and Biotechnology* 3(6A): 657-664, 2012. PM23355956/PMC3553664

17. **Huang SK**, Scruggs AM, Donaghy J, McEachin RC, Fisher AS, Richardson BC, Peters-Golden M: Prostaglandin E_2 increases fibroblast gene-specific and global DNA methylation via increased DNA methyltransferase expression *FASEB J.* 26(9): 3703-3714, 2012. PM22645246/PMC3425823
18. Domingo-Gonzalez R, **Huang SK**, Laouar Y, Wilke CA, Moore BB: COX-2 expression is upregulated by DNA hypomethylation after hematopoietic stem cell transplantation *J. Immunol.* 189(9): 4528-4536, 2012. PM23008450/PMC3478470
19. Garrison G, **Huang SK**, Okunishi K, Scott JP, Kumar Penke LR, Scruggs AM, Peters-Golden M: Reversal of myofibroblast differentiation by prostaglandin E_2. *Am. J. Respir. Cell Mol. Biol.* 48(5): 550-558, 2013. PM23470625/PMC3478470
20. Rosenberg AA, Haft JW, Bartlett R, Iwashyna TJ, **Huang SK**, Lynch WR, Napolitano LM: Prolonged duration ECMO for ARDS: Futility, native lung recovery, or transplantation? *ASAIO J.* 59(6): 642-650, 2013. PM24172270
21. **Huang SK**, Scruggs AM, Donaghy J, Horowitz JC, Zaslona Z, Przybranowski S, White ES, Peters-Golden M: Histone modifications are responsible for decreased Fas expression and apoptosis resistance in fibrotic lung fibroblasts. *Cell Death & Disease* 4: e621, 2013. PM23640463/PMC3674355
22. Ajayi IO, Sisson TH, Higgins PD, Booth AJ, Sagana RL, **Huang SK**, White ES, King JE, Moore BB, Horowitz JC: X-linked inhibitor of apoptosis regulates lung fibroblast resistance to fas-mediated apoptosis. *Am J Respir Cell Mol Biol* 49(1): 86-95, 2013. PM23492187/PMC3727886
23. Penke LR, **Huang SK**, White ES, Peters-Golden M: Prostaglandin E_2 inhibits α-smooth muscle actin transcription during myofibroblast differentiation via distinct mechanisms of modulation of serum response factor and myocardin-related transcription factor-A. *J. Biol. Chem.* 289(24): 17151-17162, 2014. PM24802754/PMC4059156
24. **Huang SK**, Scruggs AM, McEachin RC, White ES, Peters-Golden M: Lung fibroblasts from patients with idiopathic pulmonary fibrosis exhibit genome-wide differences in DNA methylation compared to fibroblasts from nonfibrotic lung. *PloS ONE* 9(9): e107055, 2014. PM25215577/PMC4162578
25. **Huang SK**, Horowitz JC: Outstaying their welcome: the persistent myofibroblast in IPF. *Austin J Pulm Respir Med* 1(1): 3, 2014. PM25309962/PMC4189780
26. Domingo-Gonzalez R, Wilke CA, **Huang SK**, Laouar Y, Brown JP, Freeman CM, Curtis JL, Yanik GA, Moore BB: Transforming growth factor-β induces microRNA-29b to promote murine alveolar macrophage dysfunction after bone marrow transplantation. *Am J Physiol Lung Cell Mol Physiol* 308(1): L86-95, 2015. PM25361568/PMC4281703
27. Neagos J, Standiford TJ, Newstead MW, Zeng X, **Huang SK**, Ballinger MN: Epigenetic regulation of tolerance to toll-Like receptor ligands in alveolar epithelial cells. *Am J Respir Cell Mol Biol* 53(6): 872-81, 2015. PM25965198/PMC4742943
28. Wettlaufer SH, Scott JP, McEachin RC, Peters-Golden M, **Huang SK**: Reversal of the transcriptome by prostaglandin E_2 during myofibroblast dedifferentiation. *Am J Respir Cell Mol Biol* 54(1): 114-27, 2016. PM26098591/PMC4742926
29. Zasłona Z, Scruggs AM, Peters-Golden M, **Huang SK**: Protein kinase A inhibition of macrophage maturation is accompanied by an increase in DNA methylation of the colony stimulating factor 1 receptor gene. *Immunology* 149(2): 225-37, 2016. PM27353657/PMC5011683
30. Koh HB, Scruggs AM, **Huang SK**: Transforming growth factor-β1 increases DNA methyltransferase 1 and -3a expression through distinct post-transcriptional mechanisms in lung fibroblasts. *J Biol Chem* 291(37): 19287-98, 2016. PM27405758/PMC5016670
31. Sanders YY, Liu H, Scruggs AM, Duncan SR, **Huang SK**, Thannickal VJ: Epigenetic Regulation of Caveolin-1 Gene Expression in Lung Fibroblasts. *Am J Respir Cell Mol Biol* 56(1): 50-61, 2017. PM27560128

Non-Peer-Reviewed Journals and Publications

1. **Huang SK**, Hyzy R.: Alternate Modes of Ventilation. UptoDate [On line reference]: [Epub], 2007.
2. Huang SK, Peters-Golden M: Prostaglandin E_2 and Polyenylphosphatidylcholine: Stiff Competition for the Fibrotic Complications of Inflammatory Bowel Disease? *Dig. Dis. Sci.* 60(6): 1514-1516, 2015. PM25902749/PMC4830265

Abstracts

1. **Huang SK**, Shepard ME, Barnas C, Schwartz JB: Age and Gender Effects on Protein Binding of Verapamil, American Geriatric Society Annual Meeting, Philadelphia, PA, 1999.
2. **Huang SK**, Wettlaufer SH, Peters-Golden M: PGE2 Suppresses Fibroblast Activation Via Protein Kinase A in Primary Cultures of Adult Human Lung Fibroblasts, American Thoracic Society International Meeting, San Diego, CA, 2006.
3. **Huang SK**, Wettlaufer SH, Peters-Golden M: Impaired Responsiveness of Lung Fibroblasts to PGE2 in Patients with Pulmonary Fibrosis, Eicosanoides in Inflammation, Keystone Symposium, Park City, UT, 2006.
4. **Huang SK**, Wettlaufer SH, Hogaboam CM, Flaherty KR, Martinez FJ, Toews GB, Peters-Golden M: Prostaglandin E2 Inhibition of Proliferation and Collagen Synthesis is Diminished in Fibroblasts from Patients with Idiopathic Interstitial Pneumonia, American Thoracic Society International Meeting, San Francisco, CA, 2007.
5. **Huang SK**, Wettlaufer SH, Peters-Golden M: Proteine Kinase A and Exchange Protein Activated by cAMP Play Distinct Roles in PGE2 Mediated Inhibition of Collagen Synthesis and Proliferation in Lung Fibroblasts, Winter Eicosanoid Meeting, Baltimore, MD, 2007.
6. **Huang SK**, Wettlaufer SH, Horowitz JC, Peters-Golden M: Prostaglandin E2 Stimulates Lung Fibroblast Apoptosis Through E Prostanoid 2 Receptor and cAMP Signaling, American Thoracic Society International Meeting, Toronto, CA, 2008.
7. **Huang SK**, Wettlaufer SH, Chung J, Peters-Golden M: Prostaglandin E2 Inhibits Lung Fibroblast Proliferation and Collagen Expression Via Distinct cAMP Effector Pathways: Differential Roles of PKA and Epac-1, Experimental Biology International Meeting, San Diego, CA, FASEB J, 22, 832.2, 2008.
8. **Huang SK**, Wettlaufer SH, Sagana R, White E, Horowitz JC, Thannickal VJ, Peters-Golden M: Activation of PTEN/Inhibition of Akt is Responsible for the Pro-Apoptotic Effects of Prostaglandin E2 in Lung Fibroblasts, American Thoracic Society International Meeting, San Deigo, CA, 2009.
9. **Huang SK,** Moore BB, Richardson B, Peters-Golden M: Epigenetic Alterations Account for Decreased EP2 Receptor Expression in Fibroblasts from Bleomycin-Injured Mice, American Thoracic Society International Meeting, San Diego, CA, 2009.
10. Kovalszki A, Wettlaufer SH, **Huang SK**, Sisson T, Peters-Golden M: Prostaglandin E2 Promotes Net Plasminogen Activation in Human Lung Fibroblasts, Annual Meeting of the American Academy of Allergy, Asthma, and Immunology, Washington, DC, 2009.
11. **Huang SK**, Moore BB, Richardson B, Peters-Golden M: Epigenetic Alterations Account for Decreased EP2 Receptor Expression in Fibroblasts from Bleomycin-Injured Mice, Complex Lipids in Biology: Signaling, Compartmentalization and Disease Keystone Symposium, Lake Tahoe, CA, 2009.
12. Okunishi K, **Huang SK**, Wettlaufer SH, Sisson T, Simon R, Peters-Golden M: Plasminogen activation enhances responsiveness to PGE2 inhibition of collagen synthesis in human fibrotic lung fibroblasts, Complex Lipids in Biology: Signaling, Compartmentalization and Disease Keystone Symposium, Lake Tahoe, CA, 2009.
13. **Huang SK**, Scruggs AM, Richardson BC, Peters-Golden M: Regulation and Expression of DNA Methyltransferases in Fibrotic Lung Fibroblasts, American Thoracic Society International Meeting, New Orleans, LA, 2010.
14. **Huang SK,** Scruggs AM, Fisher AS, Richardson BC, Peters-Golden M: Prostaglandin E2 Upregulates DNA Methyltransferase Expression And Activity To Increase Global DNA Methylation, American Thoracic Society International Meeting, Denver, CO, 2011.
15. **Huang SK**, Scruggs AM, Fisher AS, Richardson BC, Peters-Golden M: Prostaglandin E2 Upregulates DNA Methyltransferase Expression And Activity, Environmental Epigenomics and Disease Susceptibility Keystone Symposium, Ashville, NC, 2011.
16. **Huang SK**, Scruggs AM, Donaghy J, Peters-Golden M: Histone Deacetylation is Associated with Diminished Fibroblast Fas Expression in Murine Bleomycin-Induced Pulmonary Fibrosis, American Thoracic Society International Meeting, San Francisco, CA, 2012.
17. **Huang SK**, Scruggs AM, Donaghy J, McEachin R, Richardson BC, Peters-Golden M: Prostaglandin E2 increases lung fibroblast DNA methylation via upregulation of DNA methyltransferase 3a, Epigenomics Keystone Symposium, Keystone, CO, 2012.

18. **Huang SK**, Scruggs AM, McEachin R, Peters-Golden M: Alterations in the DNA Methylome of Fibroblasts in Patients with Idiopathic Pulmonary Fibrosis, ASCI/AAP Annual Meeting, Chicago, IL, 2013.
19. Scott JP, Johnson C, **Huang SK**, Peters-Golden M: Reversal of Myofibroblast Differentiation by Prostaglandin E2: Using Gene Expression Profiling to Better Understand Determinants of Myofibroblast Phenotype, American Thoracic Society International Meeting, Philadelphia, PA, 2013.
20. **Huang SK**, Scruggs AM, McEachin R, Peters-Golden M: Alterations in the DNA Methylome of Fibroblasts in Patients with Idiopathic Pulmonary Fibrosis, CSCTR/MWAFMR Annual Meeting, Chicago, IL, 2013.
21. **Huang SK**, Scruggs AM, McEachin R, Horowitz JC, Peters-Golden M: Regulation of DNA Methyltransferase 1 and 3a by Transforming Growth Factor-beta1 and Prostaglandin E_2, American Thoracic Society International Meeting, San Diego, CA, 2014.
22. **Huang, SK**, Koh HB, Scruggs, AM, McEachin, RC, Horowitz JC, Peters-Golden, M: Regulation of DNA Methyltransferase 1 and 3a by Transforming Growth Factor-beta1 and Prostaglandin E_2, University of Michigan Department of Internal Medicine Annual Research Symposium, Ann Arbor, MI, 2014.
23. Scruggs AM, Horowitz JC, White E, **Huang SK**: DNA Hypermethylation of CDKN2B Contributes to a Pro-Fibrotic Phenotype in IPF Fibroblasts, American Thoracic Society International Meeting, Denver, CO, 2015.
24. Zasłona Z, Scruggs AM, Peters-Golden M, **Huang SK**: cAMP-protein kinase A inhibits macrophage maturation by DNA hypermethylation of CSF1R, American Thoracic Society International Meeting, Denver, CO, 2015.
25. **Huang SK**, Koh H, Scruggs AM, McEachin R, Peters-Golden M: Transforming Growth Factor-β1 and Prostaglandin E2 Alters the Global DNA Methylome in Fibroblasts Via Upregulation of DNA Methyltransferase 1 and 3a, Keystone Symposium: DNA Methylation, Keystone, CO, 2015.
26. Scruggs AM, Koh HB, Leeper NJ, Penke LR, **Huang SK**: Decreased Expression of the Cell Cycle Inhibitor CDKN2B Promotes Pulmonary Fibrosis Through Increased Myofibroblast Differentiation Rather Than Increased Proliferation, American Thoracic Society International Meeting, San Francisco, CA, 2016.