Har ard Medical School C rric 1 m Vitae

Date Prepared: May 10th, 2018

Name: Ivan O. Rosas, M.D.

Office Address: Pulmonary and Critical Care Medicine, Brigham and Women's Hospital, Boston, MA

Home Address: 665 Washington Street, Boston, MA

Work Phone: 617-732-7420

Work Email: irosas@rics.bwh.harvard.edu

Work FAX: 617-732-7421

Place of Birth: Bogotá, Colombia

Ed cation

7/85 - 6/91	M.D.	Medicine	Universidad Nacional de Colombia,
			Bogotá, Colombia

Postdoctoral Training

7/94 – 6/95	Intern	Internal Medicine	New York University School of Medicine, Brooklyn Hospital Center, Brooklyn, NY
7/95 – 6/97	Resident	Internal Medicine	University of Miami School of Medicine, Jackson Memorial Hospital, Miami, FL
7/97 – 6/98	Clinical Associate	Clinical Research	National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health (NIH, Bethesda, MD
6/98 – 7/02	Clinical Fellow	Pulmonary and Critical Care Medicine	Johns Hopkins University, Baltimore, MD
7/02 – 6/05	Sr. Clinical Fellow	Pulmonary and Critical Care Medicine	NHLBI, NIH

Fac It Academic Appointments 7/05 6/09 A spictory Professor

7/05 – 6/08 Assistant Professor Medicine University of Pitti	sburgh, Pittsburgh, PA
7/08 – 6/10 Lecturer Medicine Harvard Medical	School, Boston, MA
7/10 – 02/17 Assistant Professor Medicine Harvard Medical	School
3/17 — Associate Professor Medicine Harvard Medical	School

Appointments at Hospitals/Affiliated Instit tions

7/05 - 6/08	Assistant Professor	Pulmonary and Critical	University of Pittsburgh Medical Center,
		Care Medicine	Pittsburgh, PA
7/08 -	Associate Physician	Pulmonary and Critical	Brigham and Women's Hospital, Boston,
		Care Medicine	MA

Major Administrati e Leadership Positions

Local

2013 -Director, Interstitial Lung Disease (ILD) Pulmonary and Critical Care Medicine,

> Program Brigham and Women's Hospital

National

2010 – 2014 Director, Pulmonary Fibrosis Program Lovelace Respiratory Research Institute,

Albuquerque, NM

Co-Founder

Committee Ser ice

Local

2009 – 2013 Organizing Committee – Idiopathic Brigham and Women's Hospital and Beth

> Pulmonary Fibrosis Patient Symposium Israel Deaconess Medical Center

2009 - 2013Organizer and member

2010 -Herlihy Registry for Interstitial Lung Brigham and Women's Hospital

> Disease 2010

2010 -Principal Investigator

Brigham and Women's Hospital 2012 -Organizing Committee, Let's Tee it Up:

Pulmonary Fibrosis Golf Tournament

2012 Co-Founder 2012-Member

National

2014 -

2013 Annual New Mexico Idiopathic Pulmonary New Mexico Thoracic Society

Fibrosis conference

2013 Organizer

National Heart, Lung and Blood Institute Scleroderma Lung Study II 2015

Data Safety Monitoring Board Member

Professional Societies

1997 -American Thoracic Society Member

American College of Chest Physicians 1997 -Member Fellow

Latin American Thoracic Association

2013

2014-Member, Interstitial Lung Disease

Subcommittee

Senior Advisor, Latin American Registry of 2014-

Member

Interstitial Lung Disease

2015 -Colombian Respiratory Society Member European Respiratory Society Member 2015 -

Grant Re ie Acti ities

Pulmonary Grant Review Panel 2013 Federal Drug Administration (FDA), Office

of Orphan Products Development

2013 Ad hoc member

2014	Peer Reviewed Medical Research Program Discovery Award–Illnesses Related to Radiation Exposure 2014	Department of Defense (DOD) Congressionally Directed Medical Research Programs (CDMRP) Ad hoc member
2014	NHLBI Small Business Innovations Grants (SBIR) – Respiratory Sciences	NIH
2015	2014 Peer Reviewed Medical Research Program Discovery Award – Focused Program Award 2015	Ad hoc member Department of Defense Congressionally Directed Medical Research Programs (CDMRP) Ad hoc member
2015	American Lung Association Grant Review Committee C 2015-	Nationwide Research Programs of the American Lung Association Ad hoc member
2015	Peer Reviewed Medical Research Program Investigator Initiated Research and Technology/Therapeutic Development – Pulmonary Fibrosis Award	Department of Defense Congressionally Directed Medical Research Programs (CDMRP)
2015	2015 R13 Conference Grant Application Review Scientific Review Group 2015/10 ZHL1 CSR-S 2015	Ad hoc member National Heart, Lung and Blood Institute Special Emphasis Panel Ad hoc member
2017	NHLBI Program Project Grant Special Review Committee	Ad hoc member
2017	Special Emphasis Panel NHLBI Biorepository: Scientific Opportunities for Exploratory Research (R21)	Ad hoc member

Editorial Acti ities

Ad hoc Reviewer

American Journal of Respiratory and Critical Care Medicine

American Journal of Cell and Molecular Biology

American Journal of Lung Cellular and Molecular Physiology

Chest

European Respiratory Journal

Federation of American Societies Experimental Biology (FASEB)

Journal of Clinical Investigation

PloS One

Nature Medicine

Thorax

Other Editorial Roles

2009 -	Editorial Board Member	American Journal of Respiratory and Critical Care Medicine
2010 -	Editorial Board Member	Chest
2015 -	Associate Editor	Revista Americana de Medicina Respiratoria

Honors and Pri es

2013 Brigham and Women's Hospital Chair's Research Award

Elected Member of the American Society for Clinical Investigation 2016

Report of F nded and Unf nded Projects

F nding Information

Past

2008 - 2013 Syndecan-2 and Clinical Progression of Idiopathic Pulmonary Fibrosis

NHLBI K23 HL087030

Role: Principal Investigator

The specific aims of this proposal are: 1) To determine whether syndecan-2 levels are indicative and predictive of disease development and progression. 2) To determine which matrix metalloproteinases (MMPs), increased in idiopathic pulmonary fibrosis (IPF), regulate syndecan-2 shedding. 3) To determine the effects of syndecan expression and shedding on chemokine and growth factor bioavailability. The proposed research will offer insight into the role of syndecan-2 in IPF disease progression.

Surrogate Biomarkers of IPF Progression 2008 - 2013

NHLBI P50 HL0894932

Role: Co-investigator

The overall goal of this project is to translate basic knowledge in antigen recognition, mechanisms of allergy and tolerance, and high-throughput genomics and proteomics to 1) improve our understanding of allergic and fibrotic diseases and 2) use this knowledge to design interventions to prevent or ameliorate these pathogenic processes.

2010 - 2014 F C H BI 10 H 080413; 10 H 080413 I

> F . Prednisone, Azathioprine and Nacetylcysteine: a Study That Evaluates Response in IPF (A HE -I F)

(AC).

IF. 2010 - 2015 II I \mathbf{C} I

H BI 01 H 105371 : I

Α

F I . A I F

2012 - 2015 Ex-vivo \mathbf{C} \mathbf{C} Ι (CI I) G Ι I

```
ex-vivo
    2015 Ex-vivo
20
                         C
                    B G
            E
                 Ι
                       ex-vivo
C | en
2013 - 2018 D
                               F E
                                                 C
          H BI 01 H 114501
           : I
                             4 / $211,926
                                               (C D)
                                                       I F
              . I
           C D I F
2015 - 2018 C
                                              Ι
                                                        D
         H BI 01 H 15024
          : I
                         / $321,698
         I
                                                            (I D)
                                  10-
                                                        ΙF
                                        I D
2016 - 2017 A
                                                      F (A -
         IF)
          H BI 1 H 105371
                            /$35,186 ( I :
                I
                                                     D
                                                            ΙF
                                                            ΙF
2016 - 2018
          H BI 01 H 119960
          : C -I ( I:
                             )
         I
                                             positron emission tomography
         (E)
                                                  AH.
2016 2019 C G
                                      F
          H BI 01 H 130974
           : C - I
, C - I
                           / $494,271 (C
                                                     : B
                                             I
                           : G . H
```

, I F. , (F), 2016 - 2021 II E A A D I I - G I A 52 . E 2017-2021 I A Α I E-I F). F (1 H 105371 H BI I I F I F I K3-2017-2021 H BI 01 H 133801 I K3-: C -I (I: (. C /A. C)

Report of Local Teaching and Training

Teaching of St dents in Co rses

Teaching prior to c rrent Har ard appointment 2006 – 2007

exam and patient round robin (PDII

IN761.23)

Role Preceptor

2016 Practice of Medicine Course: Physical Harvard Medical School

diagnosis, pulmonary - advanced exam and

patient round robin (POM 100.23)

Role Preceptor

Formal Teaching of Residents, Clinical Fello s and Research Fello s (post-docs)

2009 – 2010 Techniques in Molecular Biology Brigham and Women's Hospital

Interns/Residents 10 hrs/yr

Clinical S per isor and Training Responsibilities

2005 – 2008 ILD Clinic Supervising Attending / 50 hrs/yr

University of Pittsburgh Medical Center

2008 - ILD Clinic Preceptor (Clinical Fellows), ½ session/every other wk/yr*

Brigham and Women's Hospital

2008 - Lung Transplant Clinic Preceptor (Clinical ½ session/every other wk/yr*

Fellows), Brigham and Women's Hospital

Laborator and Other Research S per isor and Training Responsibilities

2008 - Supervise and train postdoctoral research Daily mentorship

fellows / Pulmonary and Critical Care Medicine, Brigham and Women's Hospital

Mentored Trainees and Fac lt

Jose D. Herazo, MD, Assistant Professor of Medicine, Pulmonary and Critical Care Division, Yale School of Medicine, New Haven, CT. *Career stage:* research fellow. *Mentoring role:* research advisor. *Accomplishments:* co-author scholarship of mentored research at University of Pittsburgh.

2008 – 2011 Andrew Goodwin, MD, Assistant Professor of Medicine, Pulmonary and Critical Care Division, University of South Carolina, Columbia, SC. *Career stage:* research fellow. *Mentoring role:* research advisor. *Accomplishments:* co-author scholarship of mentored research at BWH.

Yuanyuan Shi, PhD, Executive Dean & Distinguished Professor, School of Life Sciences, Beijing University of Chinese Medicine. *Career stage:* research fellow. *Mentoring role:* research advisor. *Accomplishments:* first-author scholarship of mentored research at BWH.

2008 – 2011 Isis E. Fernandez MD, Post-Doctoral Research Fellow, Comprehensive Pneumology Center, Ludwig-Maximilians-Universität, München, Germany. *Career stage:* research fellow. *Mentoring role:* research advisor. *Accomplishments:* co-author scholarship of mentored research at BWH.

^{*} Please note: My clinic alternates between transplant and ILD on a weekly basis.

2008 - 2014Avignat Patel, MD, Assistant Professor of Medicine, Pulmonary and Critical Care Section, Lahey Clinic, Burlington, MA; Tufts University, Boston, MA. Career stage: research fellow. Mentoring role: research advisor. Accomplishments: first author scholarship of mentored research at BWH. 2009 - 2011 Cristobal Risquez, MD, Post-Doctoral Research Fellow, Pulmonary and Critical Care Medicine, Weill Cornell Medical School, New York, NY. Career stage: research fellow. Mentoring role: research advisor. Accomplishments: co-author scholarship of mentored research at BWH. 2009 -Tracy J. Doyle, MD, Instructor in Medicine, Pulmonary and Critical Care Division, Brigham and Women's Hospital/Harvard Medical School. Career stage: research fellow. Mentoring role: research advisor. Accomplishments: first-author scholarship of mentored research at BWH. Mentor of NIH Loan Repayment Program, Institutional Harvard KL2 grant, and National Heart Lung and Blood Institute K23 mentored award. 2011 - 2013

2017- Xiaoliang Liang, PhD, Post-Doctoral Research Fellow, Pulmonary and Critical Care

Division, Brigham and Women's Hospital. *Career stage*: research fellow. Mentoring role: research advisor. *Accomplishments*: first-authored scholarship of mentored

research at BWH.

2017- Benjamin Stump, MD, Clinical/Research Fellow, Pulmonary and Critical Care Division,

Brigham and Women's Hospital. *Career stage*: research fellow. *Mentoring role*: research advisor. *Accomplishments*: first-author scholarship of mentored research at

BWH.

2017- Luisa Quesada, MD, Post-Doctoral Research Fellow. Career stage: Medical Doctor.

Mentoring role: research advisor. Accomplishments: first-authored scholarship of

mentored research at BWH.

Formal Teaching of Peers (e.g., CME and other contin ing ed cation co rses)

No presentations below were sponsored by outside entities.

2011 - 2014 Idiopathic Interstitial Pneumonia Single talk per year

Pulmonary Board Review Course – Boston, MA

Brigham and Women's Hospital

2016 An Interdisciplinary Approach to Interstitial Single talk

Lung Disease

Advances in the Practice of Pulmonary and Boston, MA

Critical Care Medicine HMS CME course

Local In ited Presentations

No presentations below were sponsored by outside entities.

2005 Sub-Clinical interstitial lung disease in familial idiopathic pulmonary fibrosis (Lecture)

Department of Medicine, University of Pittsburgh Medical Center, Pittsburgh, PA

2006 Chemokine and HSPG interactions in pulmonary fibrosis (Grand Rounds)

Department of Medicine, University of Pittsburgh Medical Center

2007 Impact of lung disease and functional genomics on clinical medicine (Lecture)

Department of Medicine, University of Pittsburgh Medical Center

2007 Familial pulmonary fibrosis: What have we learned? (Grand Rounds)

Department of Medicine, University of Pittsburgh Medical Center

2007 Early ILD and syndecan-

2011	Idiopathic Pulmonary Fibrosis and Update (Grand Rounds)
	Department of Medicine, Faulkner Hospital, Boston, MA
2015	Interstitial Lung Disease in Rheumatoid Arthritis: Risk Stratification and Early Detection
	Pulmonary Grand Rounds
	Department of Medicine, Massachusetts General Hospital
2016	Advances in the Treatment of Autoimmune Interstitial Lung Disease (Pulmonary Grand
	Rounds)
	Department of Medicine, Brigham and Women's Hospital
2017	Advances in the Treatment of Interstitial Lung Disease (Medical Grand Rounds)
	Department of Medicine, Gaylord Hospital
2017	Pirfenidone for the Treatment of Interstitial Lung Disease in Rheumatoid Arthritis
	(Advances in Clinical Research Seminar Series)
	Lung Center, Brigham and Women's Hospital

Report of Regional, National and International In ited Teaching and Presentations

In ited Presentations and Co rses

No presentations below were sponsored by outside entities.

Regional	
2011	Subclinical Interstitial Lung Disease in Subjects at risk of Developing Pulmonary Fibrosis (Grand Rounds)
	Department of Medicine, Memorial Hospital of Rhode Island
2012	Update on Idiopathic Pulmonary Fibrosis (Grand Rounds)
	Department of Medicine, University of Massachusetts (Worcester)
2012	Subclinical Interstitial Lung Disease: Why you should care (Grand Rounds)
	Department of Medicine, University of Massachusetts (Worcester)
2014	Primary Prevention of Pulmonary Fibrosis: Rationale and Feasibility (Grand Rounds)
	State Chest Lecture, Section of Pulmonary, Critical Care & Sleep, Department of
	Medicine/Yale University, New Haven, CT
2014	Syndecan-2 exerts Antifibrotic effects by Inhibiting TGF-β1 Signaling.
	Pulmonary Research Conference, Section of Pulmonary, Critical Care & Sleep,
	Department of Medicine/Yale University, New Haven, CT
2016	Idiopathic Interstitial Pneumonias: Classification and Management (Pulmonary Grand
	Rounds, April 19, 2016)
	Department of Medicine, Tufts Medical Center, Boston, MA
2017	Advances in the Treatment of Interstitial Lung Disease (Medical Grand Rounds)
	Department of Medicine, Gaylord Hospital, CT

National	
2007	Expression Arrays in Inflammatory Lung Disease (Podium Presentation)
	Pulmonary Pathology Society Biennial Meeting, Santa Fe, NM
2009	Preclinical Interstitial Lung Disease in Subjects at Risk of Developing Idiopathic
	Interstitial Pneumonia
	4 th International Workshop on Pulmonary Function Imaging, Department of Radiology,
	Brigham and Women's Hospital

2012	Subclinical Interstitial Lung Disease: Why you should care (Grand Rounds)
2012	Department of Medicine, Division of Pulmonary Medicine, Mount Sinai Hospital, NY, NY Syndecan-2, a Cytoprotective Molecule that Inhibits Pulmonary Fibrosis (Lecture)
2013	Department of Medicine, Pulmonary Division, University of Miami, FL Prevention of Pulmonary Fibrosis: Rationale and Feasibility (Medical Grand Rounds)
2013	Department of Medicine, University of Miami, Miami, FL A Roadmap for Rheumatoid Arthritis Interstitial Lung Disease Research (Lecture) Department of Medicine, Rheumatology Division, University of Miami, FL
2013	Inflammasome Activation in Experimental Pulmonary Fibrosis (Lecture) Interdisciplinary Approaches to Idiopathic Lung Fibrosis, Banbury Center, Cold Spring Harbor, NY
2013	Implementing Protein-based Biomarkers in IPF Challenges and Future Directions (Lecture)
	Pulmonary Fibrosis Foundation Summit 2013, San Diego, CA
2014	Idiopathic Pulmonary Fibrosis: Potentially Treating Disease by the Inhaled Route? (Lecture)
	Association of Inhalation Toxicologists and International Society for Aerosols in Medicine Meeting, Princeton, NJ
2014	Interstitial Lung Disease in Rheumatoid Arthritis: Risk Stratification and Early Detection Pulmonary Grand Rounds
2015	Department of Medicine, Baylor College of Medicine, Houston, TX Prevention of Pulmonary Fibrosis: Rationale and Feasibility
2010	Division of Pulmonary, Critical Care & Sleep, Department of Medicine/National Jewish Health, Denver, CO
2015	Prevention of Pulmonary Fibrosis: Rationale and Feasibility (Pulmonary Grand Rounds lecture)
2015	Pulmonary and Critical Care Medicine, Temple University, Philadelphia, PA Personalized Medicine for Pulmonary Fibrosis (Lecture)
2016	Pulmonary Fibrosis Foundation Summit 2015, Washington, DC Prevention of Pulmonary Fibrosis: Rationale and Feasibility (Pulmonary Grand Rounds
2010	lecture)
2016	Pulmonary and Critical Care Medicine, University of Pittsburgh, Pittsburgh, PA Prevention of Pulmonary Fibrosis: Rationale and Feasibility (Pulmonary Grand Rounds)
	Department of Pulmonary and Critical Care Medicine, Weill Cornell Medical Center, New York, NY
International	
2006	Genetics and Genomics of Interstitial Lung Disease (Podium Presentation) 3 rd International World Associate of Sarcoidosis and Other Granulomatous (WASOG)
	Conference on Diffuse Lung Disease – Catania, Italy
2007	Idiopathic Pulmonary Fibrosis, Genetic and Molecular Mechanisms of Disease (Podium Presentation)
	4th International World Association for Sarcoidosis and Other Granulomatous Disorders (WASOG) Conference on Diffuse Lung Diseases – Tokyo, Japan
2010	Scientific Symposium Clinical Trials in IPF: Past, Present and Future. IPF Biomarkers -

	The Next Frontier (Podium Presentation)
0040	American Thoracic Society International Conference, New Orleans, LA
2012	Preclinical Interstitial Lung Disease in Subjects at Risk of Developing Idiopathic
	Interstitial Pneumonia
0040	International Colloquium of Lung and Airway Fibrosis, Modena, Italy
2013	The Epidemiology of Idiopathic Pulmonary Fibrosis (IPF): Natural History, Risk Factors,
	and Burden of Disease, (Podium Presentation)
	Chest annual meeting, Chicago, IL
2014	Implementing Genomic Medicine in the Pulmonary Clinic: Challenges and Opportunities.
	Genomics of IPF and COPD (Podium Presentation)
	World Chest Meeting, Madrid, Spain
2014	Biomarkers for the Detection of Subclinical Interstitial Lung Disease: Advances in
	Interstitial Lung Disease
	Latin American Thoracic Society, Medellin, Colombia
2014	I F
	I A 2014, ,G
2014	A -A I D
	E B B
	International Colloquium of Lung and Airway Fibrosis, Mont Treblant, Quebec, Canada
2015	Low-Dose Inhaled Carbon Monoxide for the Treatment of Idiopathic Pulmonary Fibrosis
	(Podium Presentation)
	American Thoracic Society International Conference, Denver, CO

2000	Exhaled Breath Biomarkers of Acute Allograft Rejection in Lung Transplant Recipients (Podium Presentation)
	Àmerican Thoracic Society International Conference, San Diego, CA
2000	Lung Transplantation in Systemic Sclerosis (Podium Presentation)
	Chest International Meeting, San Francisco, CA
2005	Sub-Clinical Pulmonary Fibrosis in Families Affected with Idiopathic Pulmonary Fibrosis
	(Podium Presentation)
	American Thoracic Society International Conference, San Diego, CA
2008	Matrix metalloproteinase-7 (MMP7) and matrix metalloproteinase-1 (MMP1) as a
	potential blood biomarker in Idiopathic Pulmonary Fibrosis (Podium Presentation)
	American Thoracic Society International Conference, Toronto, Canada
2013	Syndecan-2 and Radiation. Late Breaking Abstract Session
	American Thoracic Society International Conference, Philadelphia, PA

Report of Clinical Acti ities and Inno ations

C rrent Licens re and Certification

2002	American Board of Internal Medicine – Internal Medicine
2003	American Board of Internal Medicine – Pulmonary Diseases
2004	American Board of Internal Medicine – Critical Care Medicine
2008	MA Medical License - Full

Practice Acti ities

2008 -	Inpatient Care	Lung Transplant, Pulmonary and Critical	4 wks/yr
		Care Medicine, Brigham and Women's	
		Hospital	
2008 -	Ambulatory Care	Lung Transplant Clinic, Brigham and	½ session/every other
	•	Women's Hospital	wk/yr
2008 -	Ambulatory Care	ILD Clinic, Brigham and Women's	½ session/every other
	,	Hospital	wk/yr
		r	• •

Report of Technological and Other Scientific Inno ations

Novel Panel of Biomarkers to Predict and Diagnosis Idiopathic Pulmonary Fibrosis Kaminski N, Richards T, Gibson K, Rosas IO, Gochuico B and Selman M. "MMP1 and MMP7 as peripheral blood biomarkers in idiopathic pulmonary fibrosis" [Pitt Ref. No. 01749] and "Novel Panel of Biomarkers to Predict and Diagnosis Idiopathic Pulmonary Fibrosis" [Pitt Ref. No. 01750]. The provisional combined patent application is

docketed under Pitt Ref. No. 01750. 2009

MMP7, in conjunction with other markers, is the most reproducible diagnostic and prognostic peripheral blood biomarker. Additionally

MMP7could be used as an early marker of disease.

Report of Ed cation of Patients and Ser ice to the Comm nit

No activities below were sponsored by outside entities.

Acti ities

2005 – 2008 Lecturer, Idiopathic Pulmonary Fibrosis Support Group, Simmons Interstitial Lung

Disease Meeting, Boston, MA

2014 - Co-Founder and Lecturer, Idiopathic Pulmonary Fibrosis Patient Symposium, Brigham and Women's Hospital, Beth Israel Deaconess Medical Center, Boston, MA

Report of Scholarship

Peer re ie ed p blications in print or other media

Research Investigations

1. , JB, \mathbf{Ro} a \mathbf{IO} , K JA, C KA, , C J , B B, H.

. J H 2000;20, 11:1158-116.

2. , **Ro a IO**, D D, H , B E , G B . I . A J C C 2007; 175:1151-1157.

3. **Ro a IO,** , A A, C CK, F J, D, C J , H , D , A -B , D D, G B . E . A J C C . 2007 1; 176(7):698-705.

6. K C , E J , G B , G, K , **Ro a IO**, D.
-1 . J B C . 2009; 284(6):3537-3545.

7. E - C , D, E, I , BA, - G, Ro a IO, A , D , D, H , D, C , F, C , D, G ,

. A A 2009; 106(10):3958-3963. (ID 19237567)

8. J, E A, G K, , F C, G B, F , C , K , Ro a IO, A D . C

J -1 - . A 2009; 60(7):2183-92. (ID: 19565490)

9. G , DA, , J, , F, H G , F, EK, **Ro a IO**, H H. I C DG . A 2010; 17(1):48-53. (ID 1978163).

10. , K, , G B , **Ro a IO**, C A , A. B I -1 - I -17A . J E . 2010 F

22. ID: 20176803

 $11. \hspace{1cm} G \hspace{0.1cm} , \hspace{0.1cm} H \hspace{1cm} G \hspace{0.1cm} , \hspace{1cm} F \hspace{1cm} IE, \hspace{1cm} , \hspace{1cm} , \hspace{1cm} JC, \hspace{1cm}$

- E , DA, B J , A K , D AA, K , D'A K, FC, EK, H H, **Ro a IO**.

 . E J . 2011 10; 364(10):897-906.
- 13. **Ro a IO**, J, A A, C CK, G A, G B . A C 140(6):1590-7. (ID: 21622544).

- -1-- 1 . A J C C
- 2013 1; 188(7):831-41.
- 25. G, CВ \mathbf{C}
- D, . A J C B . 2014 ; 50(3):605-13.
- 27. D J, J, D F, JA, E, F A, A D, G K. JH, D K, B KK, C H , **Ro a IO**. A . C . 2014 1; 145(3):454-63.
- $28.\,\mathrm{C}$, JC, C, H, ,G B , D, **Ro a IO**, E -C . - 1 . 2014; 20:120-J H2-34.
- 29. C J, F, -C E, , , JC, G B, Ro a IO, CA. -8 (-8) . 2014; 9(5): 97485.
- 30. $HG, K H, G J, , JC, \mathbf{Ro} \ \mathbf{a} \ \mathbf{IO},$, J . CC 1 . A J C . 2014 A 15; 307(4): 326-37.
- 31. H , G B , **Ro a IO**, D J, JC, , C CC, C , D . A -90 .C I .2014 ; 155(1):60-70.
- $E, \qquad , \qquad , \qquad , G \qquad , \qquad JC, \textbf{Ro a IO}, \quad KF, K \qquad \quad DJ,$ 32. C, A2
- 33. G C . 2015 J 1; 147(6):1549-57. . C
- 34. C , J, C, G A, , , G , H, G G, E, C G, D -E , D JD, **Ro a IO**, E -C . B . 2014 D ; 12(4):238-50.

 35. F, D, C K , A, , CK, H E, H, H JC, **Ro a IO**, F E, F -B C, , A ,
- DJ. A A

- C . 2015 F ;308(4): 344-57.
- $36.\,G\qquad A\ ,\qquad F,\,B\qquad \ \ \, ,\,D\qquad ,\,\textbf{Ro}\,\,\textbf{a}\,\,\textbf{IO},\,C\qquad C,\,F\qquad \quad A,\,G\qquad H,\,E\,-$ C . 2015 ; 109(3):427-33.
- C , Ro a IO, A D . B A . 2015 J ; 67(1):28-38.
- 39. K, , A , H AE, C B , D JE, H C, A , Ro a IO, A, JC, H KJ, G BB, K , , , , , , D, DJ, K F, B A, G B , , K, J , A DG, J , B A, D, AB, J C, C G A-210-I C 1/2 . E B .2015; 7(6):695-713.
- J, A, H
 H, G, JC, G
 F, A, C G,

 , I
 CK, K
 D, F
 C, E, E C
 , G,

 G, C
 A, D
 F, C, A, A
 D, Ro a IO.

 A
 -I
 D
 I E
 B
 . A J

 40. D F Η D C C . 2015 J 15; 191(12):1403-12.
- F, C BG, J, -C , ,I A, A, J A, J, ,, , Ro a IO, A A, C B , CA. B C -A F . F C D . A J C C . 2015 15; 192(6):695-705. D Α
- HJ, H , C , **Ro a IO**, E, B , C , K , K J , 42. G C F , H E . E . E J. 2015 ; 46(3):783-94. A , A, **Ro a IO**, A H, G D . II

- 45. C , K, E, F, H, G G, D, A E, D'A E, G HJ, A, F , **Ro a IO**, G, E-C . .JCI. 2015 2;125(11):4255-68
- , C KA, A , B B, G B , JC, **Ro a IO**, H KJ, C KE, C B, C . A A / A -130/301 2015; 5:18277.
- $47. \hspace{1cm} K,H \hspace{1cm} H,A \hspace{1cm} G \hspace{1cm},G \hspace{1cm},\hspace{1cm},\hspace{1cm},\hspace{1cm} D \hspace{1cm} J,$

- , C IE, EF, E JC, C H. E -C H, CB, F , G , B EF, E Е , D AA, G, A J , J, K G, H JE. C, , H D CJ, J, H Β, E C D I G, EK. C G, **Roa IO**, H G . A В A -C I . JA A 2016 F ;315(7):672-81. A , C 48. J E, D , B , F A, E -C A, G HJ, Ro a IO, C . D . E J \mathbf{C} . 2016 ; 49(5):1344-7. ID: 26468269. 49. , D C , F BB, C , F Κ, , D J, J, D I , K F, JD, FJ. -D, -7, I D I F C C Ι Ι . A J . 2016 15; 194(10):1242-1251. ID: 27149370. 50. B , K K, Roa IO, J. A . C Η -C . A В C В В B . 2016 . A ID: 26550921. 54(5):656-63. 51. K IE, D A, B D, C, DE, A, Ro a IO, -E , K , K Η. G, , H Η, , B J, H K, E, E F \mathbf{C} \mathbf{C} . I D C C . 2016 J 1; 193(11):1230-41. ID: . A 26756824. H, GK, H , D J, JC, E, K 52. A Í, J G , 'C G, H G. JC. DA, D F Α J C C . 2016 D 15; 194(12):1514-1522. 53. Ho JE, Gao W, Levy D, Santhanakrishnan R, Araki T, Rosas IO, Hatabu H, Latourelle JC, Nishino M, Dupuis J, Washko GR, O'Connor GT, Hunninghake GM. Galectin-3 Is Associated with Restrictive Lung Disease and Interstitial Lung Abnormalities. Am J Respir Crit Care Med. 2016 Jul 1; 194(1):77-83. PMID: 26771117. D , H , C J, C G, J, E -C -D I A F Ro a IO. A -D 3 . A J \mathbf{C} B . 2016 A ; 55(2):252-63. ID: 26933834. Α 55. , H , Ro a IO, G В, , B K, C CJ, I H 90 D . E C E C E . J I . 2016 1; 197(5):1926-36. ID:
- 56. C A , , F A, D , **Ro a IO**, C C, HH, B , E C , DJ, G HJ. . C . 2016 ; 30(9):1053-8. ID: 27312895.

27448590.

58. E, E, A,F ,K , K, I,B ,G I, C ,E-C , Ro a IO, C A, E, G HJ.

H A A D I D C A
D C AD D . .2016 23. ID: 27893614.

59. A , H , JC, D AA, H G , K, J, FJ, C A , DA, H H, Ro a IO, E , G . I

I A .A .2016 D 15. ID: 27989445 27989445. 60. E -C J -28192114. 61. C , K, A, - G, ,K , B, G F, **Ro a IO**, C, H E , J, E -C .A K C2 .C .2017 F 15. ID: 28202529. 61. C , C A B C . 2017 F 28. ID: 28244139.

63. A ,H , D , JA, K,G ,C CE, JC, H G ,E-C ,D J, ,-F HJ, Ro a IO, J E , G . D J, -F G , G 07; 18(1):45. ID: 28264721. 64. A, K, A, A, , J, B , C H, **Ro a IO**, F A, K , G HJ. C , D , E -C . J H 55. A , H , K, JC, D AA, H G , FJ, C A , DA, H H, **Ro a IO**, J E , G . C . C . 2017

12. ID: 28506611. 65. A , H FJ, C G A .E J. 2017 ; 50(3). ID: 28893869. 67. E , K, ,H ,A , G ,**Ro a IO**, H , H G .H , A C .2017 21. ID: 28934558. 68. H - JD, J, , , JA, A, H, J -G B , C, JC, , G, A , K , K J, F,

A D

- . 2017 20. ID: 28942086.
- F .C .2018 J ; 153(1):94-104. ID: 29100885.
- C B . 2018 02; 58(2):208-215. ID: 28886261.
- 2018 F ; 105(2):441-447. ID: 29223419.
- 72. A , H , K, JC, FJ, C A , B , EA, C , J , H K, B C, 'K, H H, DA, **Ro a IO**, H G , J E , G . A 72. A , H
- 73. D AA, , C H , JC, J E , D, E , **Ro a IO**, H G , K, H H, A, K G , H JE, EK,
 C J, G . D D A B C
 D F . C . 2018 ; 153(3):638-645. ID: 29066389.

 74. F, H , D, K CB, **Ro a IO**, G , D, B J, H, H
- , . A J C B . 2018 F 21. ID: 29465261.
- 75. E C , 'B KJ, D, G , G HJ, C J , C , A C , Ro a IO, , A G , G A, G B . C . 2018; 13(3): 0194193. ID: 29547626.
- K, ,H ,A , , G ,**Ro a IO**, H G .H ,I A C ... A J C C ... 2018 A 01; 197(7):955-958. ID: Ε, 28934558.
- 77. D J, D , , C F, F EA, K DC, A , JC, **Ro a**10, C , D F. I D A

 A : A C .J .2018 A 01. ID: 29606668.

Research Publications without named authorship

1. C F , I , J, G, C, K, B AF, C J , B , J , B KK, J 3 , G HJ, , K B , D G , EJ, C , K , C , K , -D A , H , K

```
28;364(17):1595-606. E 2011 16. ID: 21410393 (*
                           , G, A KJ, K E,
       F C
 JA, FJ. ,
   . E J
3. H K, B D, H G, E, F K, GB, A KJ, FJ.
     . C . 2013 J ; 143(6):1699-708. (*
4. C H , E, , A KJ, G
                            C.
                                 . 2013; 14:73. (*
                             )
                                 , E, G. A -
                       FJ, I,
5. J, C H, A KJ,
                        . 2013 J ; 1(5):369-76. (*
                                  F . A
   JJ, D, B KK, B A, G KE,
                                   . 2014 J ; 108(1):181-8.
(*
7. I F C
K E J , G.
. 2014 29; 370(22):2093-101. (*
7. I
                             8. C H, B KK, FJ, G, , A KJ.
                                        . C 2014 ;
146(5):1256-62. (*
9. A J, , C H , G -B I F C . C . 2015 1; 148(4):1034-42. (*
                              , C , D, K J. (I F ): D A
                              , C
10. J , F, FJ, A KJ, G, DA, E, , C, , H , E, I. I , C5B, -A , F . A J C C . 2015 D 15;
192(12):1475-82. (*
11. K, H J, C , HD, J, B,
     DA.
     J. 2016 A ; 47(4):1189-97. ID: 26917616. (*
Other Peer Reviewed Publications
```

```
. A
                                               2000: 5:3:38-43.
2. K
           , Ro a IO. G
                                                              ΙF
                                                                           : C
                                             2006; 3:339-344.
                               A
                                                   - I F
                                                               I, F
3. Roa, IO, K
                             C
                  . A J
                                         2007; 175(1):5-6.
4. D
                     G, Roa IO.
                                                                 :
                C
                      . 2012 J 1; 185(11):1147-53.
             C
                              D, C
                                     B, Roa IO.
5. D
                                                 . C
                                                      . 2012
                                                               1; 142(4):1027-34.
6. Ro a IO,
                    C C
                               . 2013 F 15; 187(4):336-8.
        . A J
7. G
         J , Ro a IO.
                                                    . 2013 A 22.
                                J.
8. Roa IO, K
                         C C
                                    . 2013
                                             1; 188(7):765-6.
        D, Ro a IO.
9.
                                                               . A
                                                                              . 2014
  F
      10; 76:493-513.
10. D
                                   JA,
                                            E, F, A, A
                                                                   D, G
         J,
                          F,
                                                                                  K,
                            KK, C H, Roa IO. A
       JH, D K, B
                                                                   . C
                                                                        . 2014
                                                                                   1;
   145(3):454-63.
11.
           K, Ro a IO, H
                                   G \cdot G
                    \mathbf{C}
                               . 2014 A 1; 189(7):770-8.
         . A J
12. Ro a IO, D
                     F,
                              DJ, K
                                                             FJ.
                                         D.
                                                                            I
                      Ι
                                    D
                                         . A
                                                     Α
                                                                            . A
                                                                                 Α
            . 2014 A ; 11
                             3: 169-77.
13. Ro a IO, K
                               D
                                                      D
                                                             2013. A J
                                                                                C
      . 2015 F 1; 191(3):270-274.
14.
                        JC E
              Α.
                 . 2015,
                              F, Ro a IO. E
                      ? A
                             . 2015
                                   ; 15 (3) 83-89.
                  J, F
                            EA, A
                                           D. Roa IO.
15.
         F. D
  I
                 D
                            I
                                              F
                                              Ι
                                                    C . 2015
                         D
                                                                   ; 67(5):280-6.
```

17. Chu SG, El-Chemaly S, Rosas IO. Genetics and Idiopathic Interstitial Pneumonias. Semin Respir Crit Care Med 2016; 37:1–10.

I

F

E

. 2016 J 15; 193(2):112-113.

A , Ro a IO. B

C

A J

- 18. Rosas IO. Imaging and molecular biomarkers: a novel approach to screen populations at risk of pulmonary fibrosis? Eur Respir J. 2016 Nov; 48(5):1271-1273. PMID: 27799380.
- 19. Kristof AS, Petrof BJ, Hamid Q, Kolb M, Landry JS, MacKenzie A, McCormack FX, Murawski IJ, Moss J, Rauch F, Rosas IO, Shapiro AJ, Smith BM, Thomas DY, Trapnell BC, Young LR, Zariwala MA. An Official American Thoracic Society Workshop Report: Translational Research in Rare

Respiratory Diseases. Ann Am Thorac Soc. 2017 Aug; 14(8):1239-1247. PMID: 28763267.

20. Ghanta S, Kwon MY, Rosas IO, Liu X, Perrella MA. Mesenchymal Stromal Cell Therapy: Does the Source Matter? Crit Care Med. 2018 Feb; 46(2):343-345. PMID: 29337802.

Non-Peer Reviewed Publications

Chap e

-	up v				
1.	D F, Ro a IO . E,	Н, .	.I:H	C, , A: E	AJ, J, 2011
	1, .315-20.				
2.	D F, Ro a IO.		. I : H	C,	AJ, J,
	E,	Н, .	.6 E .	, A: E	, 2015
	1, .274-78.				
3.	AD, H	G , Ro a IO. G		F I	
	I	F . I:	Α, ,	. C	A
	I F	. , K	K: F	, 2015. p. 42-63	B. E . (Doi:
	10.2217/fmeb2013.14.97)				
4.	D, Roa IO,	D .		. I : H	C,
	AJ, J,	Ε,	Н, .	. 7 E .	, A:
	E . 2018; 292-297.				
5.	H G, Roa	IO. I	D . H	I	
	20 E :	G -H	D	, 2018. I .	

Narrati e Report

My principal effort at BWH and HMS is in translational investigation of human pulmonary fibrosis. Since my recruitment in 2008, I have focused on developing strategies for early detection of interstitial lung disease (ILD) in at risk populations, identification of non-invasive biomarkers, and development of novel therapies for patients affected with idiopathic pulmonary fibrosis (IPF) and other progressive fibrotic lung diseases. The clinical care of complex patients referred to our ILD center, enables me to apply the most current diagnostic and therapeutic approaches, which in turn has positioned our lung fibrosis program as a premier clinical trial site. Importantly, this cutting-edge multi-disciplinary clinical care informs my translational research program as described below.

My studies have shown that subclinical pulmonary fibrosis can be detected in at-risk populations including families affected with pulmonary fibrosis (American Journal of Respiratory and Critical Care Medicine [AJRCCM], 2007), smokers (New England Journal of Medicine, 2011) and patients affected with rheumatoid arthritis (Chest, 2014). I have also shown that MMP7 is a robust non-invasive biomarker for detection of IPF and subclinical ILD in populations at risk of developing pulmonary fibrosis (PLoS Medicine, 2008 and AJRCCM, 2015). These studies are transformative, as they provide critical evidence that prevention is feasible in a devastating disease with high morbidity and mortality. Furthermore, I have shown that syndecan-2, a glycoprotein increased in the lungs and blood of IPF patients, inhibits transforming growth factor—beta (TGF-B), a master regulator of pulmonary fibrosis (AJRCCM, 2013). Ongoing preclinical studies are being conducted to investigate the therapeutic role of a syndecan-2 mimetic in pulmonary fibrosis. Finally, I have led several clinical trials testing novel therapies for patients affected with pulmonary fibrosis.

Recognition of the importance of my work is reflected not only in high-impact publications, but also in National Heart, Lung and Blood Institute (NHLBI)-sponsored research. These NHLBI grants include a UO1 testing the therapeutic role of carbon monoxide in IPF, a program project grant (PPG) exploring divergent and overlapping disease mechanisms in IPF and chronic obstructive pulmonary disease, an R01 determining clinical and molecular phenotypes in smokers, an R01 studying families affected with pulmonary fibrosis, and a K23 exploring the role of syndecan-2 in the development and progression of IPF. Additionally, I'm frequently invited to speak at the American Thoracic Society and Chest international meetings, the Pulmonary Fibrosis Foundation Summit, and Colloquium of Lung and Airway Fibrosis. Furthermore, I serve on the editorial board of the prominent pulmonary subspecialty journals AJRCCM and Chest. Finally, I serve as ad hoc reviewer for NHLBI, DOD, and FDA grant review panels. I supervise and teach HMS medical students, Residents and Pulmonary Fellows during my inpatient (6-8 week/year) and outpatient ILD and transplant sessions (every other week for the ambulatory care), therefore providing trainees with unique exposure to subspecialty care of advanced fibrotic lung disease. I also meet with post-doctoral Fellows and junior faculty who conduct research in my laboratory every week to discuss work in progress.

In summary, I am a physician-scientist active in translational research, patient care, and training of HMS medical students, Fellows, and physicians. These activities occur at BWH and flow mainly through my focus on developing novel approaches to detect diverse forms of pulmonary fibrosis and treat patients affected with these conditions.