

**CURRICULUM VITAE**  
**Carmen (Kika) C. Sucharov**  
**03/09/2022**

**Personal History**

Title: Professor with Tenure

Director, Pediatric Cardiovascular Research Laboratories

Director, Cardiology Fellowship Research Oversight Committee

Division of Cardiology, Department of Medicine

B139

University of Colorado, Anschutz Medical Campus

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Spouse: Peter Mariner, PhD

Daughter: Juliana Sucharov-Costa

**Education and Training**

B.S. (1990)

Genetics – Universidade Federal do Rio de Janeiro.

Undergraduate Research support to Carmen C. Sucharov (CNPq – Brazilian Government)

M.S. (1995)

Genetics – Universidade Federal do Rio de Janeiro.

Research support to Carmen C. Sucharov (CNPq – Brazilian Government)

Master fellowship grant support to Carmen C. Sucharov (CNPq – Brazilian Government)

PhD (1997)

Genetics – University of Pennsylvania/ Universidade Federal do Rio de Janeiro.

PhD fellowship grant support to Carmen C. Sucharov (CNPq – Brazilian Government)

Post-Doctoral (1998 – 2002)

University of Colorado, Boulder

Post-Doctoral (2003 - 2004)

University of Colorado Health Sciences Center.

**Academic Appointments**

1997-1998

Federal University of Rio de Janeiro, Brazil – Adjunct Professor – Biophysics Institute.

2004-2011

Department of Medicine, University of Colorado Denver – Assistant Professor

2011 – 2019

Department of Medicine, University of Colorado Denver – Associate Professor

2014 – 2019

Department of Pharmacology, University of Colorado Denver – Associate Professor

2014 – 2019

Department of Physiology, University of Colorado Denver – Associate Professor

2017 – present	Director, Pediatric Cardiovascular Research Laboratories
2019 – present	Director, Mentorship Oversight Committee
2019 – present	Department of Medicine, University of Colorado Anschutz Medical Campus – Professor
2019 - present	Pharmacology Program, University of Colorado Anschutz Medical Campus –Professor
2019 - present	Physiology Program, University of Colorado Anschutz Medical Campus – Professor
2021 – present	Director of Graduate Student Admission, Integrative Physiology
2022 – present	Award of Tenure

### **Other Professional Activities**

2002 – 2008	Board of Directors – DNA Goes To School. <u>Responsibilities:</u> Scientific support for projects related to teaching scientific experiments to high school students in Latin America and Portugal.
2007 – 2019	Founding Scientist – Miragen, Inc.
2015 – 2021	Founding Scientist and Member of the Scientific Advisory Board – CoramiR.

### **Honors and Awards**

- 2004 – Jay N. Cohn New Investigator Award Finalist. Heart Failure Society of America.
- 2005 - Jay N. Cohn New Investigator Award Finalist. Heart Failure Society of America.
- 2005 – Outstanding Early Career Investigator Award Finalist. 2<sup>nd</sup> BCV American Heart Association.
- 2009-2010 - PhD Research and Teaching Award. University of Colorado, Denver.
- 2016 - Awarded *Best Paper* in the pediatric transplantation category for “Circulating miRNA as a Biomarker for Recovery in Pediatric Dilated Cardiomyopathy”, *Journal of Heart and Lung Transplantation and the International Society of Heart and Lung Transplantation*.
- 2017 - Awarded APS*select* designation for, “Children with Dilated Cardiomyopathy Modulate Pathological Responses in Cardiomyocytes”, *American Journal of Physiology-Heart and Circulatory Physiology*. Selected by APS as among the “best recently published articles in physiological research”.

### **Memberships in Professional Organizations**

- American Heart Association – Member since 2000.
- American Physiological Society – Member since 2011.
- International Society for Heart Research – Member since 2011.
- DNA Goes to School – Member since 2002. Board of Directors.

### **Major Committee and Service Responsibilities**

#### **Division:**

- Director – Cardiology Fellowship Research Oversight Committee
- Director of Education

**Departmental:**

- PAGE – Program to Advance Gender Equity – co-chair of the Implementation task force
- Member of search committee for Faculty recruitment in the Section of Development Biology.
- Parental Leave Committee
- Chair of the DOM PhD Task Force
- Member of the Research Lessons Learned from the Pandemic Committee
- Promotions Committee – Assistant to Associate Professor

**SOM:**

- Member of the MSTP recruitment/review committee (2016-2018).
- Member of the Women in Medicine and Science Committee
- Member, Scholarship Oversight Committee for Critical Care Fellows (2015 – 2017)
- Chair of Admissions, Physiology Graduate Program

**National:**

- American Heart Association Task Force that reviewed and re-structured all classifications related to AHA grant applications.
- Mentorship advice to American Heart Association Scientific Sessions attendees - 2018
- Early Career Investigator Council Leadership and Faculty Liaison at the International Society for Heart Research (since 2021).
- International Society for Heart Research elected council member (2022-2025).
- Co-chair of the North American Chapter of the International Society for Heart Research. Denver in-person meeting, September of 2021.

**Leadership Training**

- Association of American Medical Colleges Mid-Career Women Faculty Leadership Development Seminar (2018). One of two University of Colorado School of Medicine faculty selected to attend the seminar.
- Leadership for Innovative Team Science (LITeS), a year-long program focused on the development of leadership and team-building skills within the context of the academic health center (2019-2020).

**Inventions, Intellectual Property and Patents**

- U.S. Patent Application No. 61/241,730. Polymorphism in the PDE3A gene. Inventors: **Carmen Sucharov**, Mathew Taylor, Michael Bristow, Dobromir Slavov. Patent Pending.
- UTEC.P0024US.P1. Selective inhibition of  $\beta$ 1-adrenergic receptor for the treatment of pediatric heart failure. Inventors: **Carmen Sucharov**, Shelley Miyamoto, Brian Stauffer. Patent Approved.
- U.S. Patent Application No. 14/203,022. miRNAs as a prognostic biomarker in pediatric heart failure. Inventors: **Carmen Sucharov**, Shelley Miyamoto, Brian Stauffer. Patent Pending.

**Scientific and Medical Advisory Boards**

- 2007 Scientific co-founder of miRagen Therapeutics, Boulder CO. The mission of miRagen is to develop miRNA-based therapeutics.

- 2014 – present Co-Founder and Member of the Scientific Advisory Board for CoramiR Biomedical, Inc. The mission of CoramiR is to utilize circulating microRNA as a diagnostic tool in heart disease.

### **Review and Referee Work**

#### **Editorial Board:**

- Journal of Molecular and Cellular Cardiology – since 2018
- Journal of Cardiology and Vascular Medicine – since 2014
- Frontiers in Endocrinology, Cardiovascular Section – since 2021
- Journal of Cardiovascular Development and Disease – since 2022
- Journal of Clinical Medicine – since 2022

#### **Reviewer (Grants):**

- American Heart Association (Since 2010)
- Horizon Programme, Netherlands Genomics Initiative (2009-2011)
- National Institutes of Health (Since 2015):
  - MCBS – NHLBI Mentored Clinical and Basic Science Review Committee - Ad Hoc
  - CCHF – Cardiac Contractility, Hypertrophy and Failure Study Section – Ad Hoc
  - ZRG1 CVRS-S 80 – Ad Hoc
  - MIM – Myocardial Ischemia and Metabolism Study Section – Ad Hoc
  - CICS - Clinical and Integrative Cardiovascular Sciences Study Section – Ad Hoc
  - Special Emphasis Panel ZRG1 CVRS-J 80 – Ad Hoc
  - Special Emphasis Panel ZRG1 CVRS-C (02) – Ad Hoc
  - NIH Cardiovascular SBIR/STTR – Ad Hoc
  - MPPA – Myocardial Physiology/Pathophysiology A. Ad Hoc and Permanent member since 2021
- Grant reviewer – Stanford Diabetes Research center (2017)

#### **Reviewer (Journals):**

- American Journal of Human Biology
- Circulation
- Circulation Research
- Circulation Heart Failure
- American Journal of Physiology – Regulatory, Integrative and Comparative Physiology
- European Journal of Heart Failure
- ISL Medical Science Monitor
- Molecular Cell Biology
- American Journal of Physiology – Cell Physiology
- Human Genetics
- Journal of Cardiovascular Pharmacology
- Journal of Cardiovascular Translational Research

- Journal of Cardiac Failure
- PLOS One
- Biochimica and Biophysica Acta
- Genes
- American Heart Journal
- JMCC
- Science Translational Medicine
- JCDD
- JACC

### **Invited Extramural Lectures and Presentations**

#### **Invited Presentations**

##### **Local:**

- Division of Cardiology Research Conference. “Molecular Pathways involved in the  $\beta_1$ -adrenergic receptor hypertrophic response.” University of Colorado Denver, 2005
- Division of Cardiology Lab Meeting Seminar Series. “Cardiac Hypertrophy – signaling pathways and gene expression.” University of Colorado Denver, 2006
- Division of Cardiology Research Conference. “The transcription factor YY1 protects against pathologic cardiac hypertrophy by interacting with HDAC5”. University of Colorado Denver, 2007
- Division of Cardiology Research Conference. Differential Expression of miRNAs in Heart Disease. University of Colorado Denver, 2009.
- Division of Cardiology Lab Meeting Seminar Series. “ $\beta_1$ -adrenergic receptor and signaling pathways in heart disease.” University of Colorado Denver, 2009
- Division of Cardiology Lab Meeting Seminar Series. “Overview of talks presented at the AHA Basic Cardiovascular Meeting.” University of Colorado Denver, 2009
- Molecular Biology Department. “Molecular Pathways in Pediatric Heart failure.” University of Colorado Denver, 2011
- Department of Medicine Research Conference series. “miRNAs as Biomarkers in Dilated Cardiomyopathy.” University of Colorado Denver, 2012
- Division of Cardiology Research Conference. “miRNA Regulation in the Cardiac System.” University of Colorado Denver, 2012.
- Translational Cardiovascular Biology seminar series. “Regulation of miRNA Function in Cardiac Disease and Cardiomyocyte Differentiation.” University of Colorado Denver, 2014
- Pharmacology Program. “Novel mechanisms of Heart Failure. Lessons from the Pediatric Heart.” University of Colorado Denver, 2015
- Translational Cardiovascular Biology seminar series. “Novel mechanisms of Heart Failure. Lessons from the Pediatric Heart.” University of Colorado Denver, 2015.
- Division of Cardiology Research Conference. “Novel mechanisms of Heart Failure. Lessons from the Pediatric Heart.” University of Colorado Denver, 2017
- Translational Cardiovascular Biology seminar series. “Novel Mechanistic Approaches to Investigate Heart Failure: The Ins and Outs of the Pediatric Heart.” University of Colorado Denver, 2017

- Neonatology Department. “Novel Mechanistic Approaches to Investigate Heart Failure: The Ins and Outs of the Pediatric Heart.” University of Colorado Denver, 2017
- Somalogic Invited Speaker. Serum Circulating Factors in Pediatric Heart Failure. Somalogic, Boulder, Colorado, 2017.
- Translational Cardiovascular Biology seminar series. “Pathogenesis of Heart Failure in Children and Adults: Key Differences in Treatment Implications.” University of Colorado Anschutz Medical Campus. 2020
- Translational Cardiovascular Biology seminar series. “Pathogenesis of Heart Failure in Children and Adults: Key Differences in Treatment Implications.” University of Colorado Anschutz Medical Campus. 2020
- Division of Cardiology Research Conference Clinical and Research talks. “Pathogenesis of Heart Failure in Children and Adults: Key Differences in Treatment Implications – in vivo and in vitro studies.” University of Colorado Anschutz Medical Campus. 2020
- Division of Cardiology Research Conference. “Mitochondrial Dysfunction in Human Dilated Cardiomyopathy: Possible Therapies and Their Effect on Contractility”. University of Colorado Anschutz Medical Campus. 2020
- Integrated Research Talks - Biomarkers to predict response to therapy and/or diagnose disease subtypes. University of Colorado Anschutz Medical Campus. 2022

**National:**

- Heart Failure Society of America, 9<sup>th</sup> Annual Scientific Meeting “YY1 protects against pathologic cardiac hypertrophy through a mechanism that involves HDAC5 interaction: evidence of CaMKII inhibition of YY1-HDAC5 interaction”. Boca Raton, FL. 2005.
- 2<sup>nd</sup> BCVS American Heart Association “YY1 protects against pathologic cardiac hypertrophy through a mechanism that involves HDAC5 interaction: evidence of CaMKII inhibition of YY1-HDAC5 interaction”. Keystone, CO, 2005.
- FASEB Research Summer Conference on Histone Deacetylases “The Transcription Factor YY1 Protects Against Pathologic Hypertrophy by Interacting with HDAC5”. Snowmass, CO. 2007.
- Heart Failure Society of America, 13<sup>th</sup> Annual Scientific Meeting “Differential Expression of miRNAs in Heart Disease”. Boston, MA. 2009.
- International Society for Heart Research, North American Session “Regulation of miRNA Function in Heart Disease and Myocyte Differentiation”. Miami, FL. May 2014.
- International Society for Heart Research, North American Session “Novel Mechanisms of Heart Failure – Lessons from the Pediatric Heart”. Seattle, WA. June 2015.
- Children’s Cardiomyopathy Foundation 4<sup>th</sup> International Conference on Cardiomyopathy in Children “Age and Gender Differences in Response to Heart Failure Medications in Children: Evidence for What Works and Impact of Future Trials”. Baltimore, MD, May 2017.
- International Society for Heart Research, North American Session “Novel Cardioprotective Signals” New Orleans, LA 2017.

- PCMR Winter Retreat “Prognostic Significance of microRNA Expression in Children with Cardiomyopathy”. microRNA Grant Presentation. New Orleans, LA, February, 2018.
- Gordon Conference on Cyclic Nucleotide Phosphodiesterases “A Novel Polymorphism in the PDE3A Promoter Regulates cAMP-Induced Transcriptional Activity and Affects cAMP Levels in Failing Human Heart”. Newry, ME, June, 2018.
- International Society for Heart Research, North American Session. “The Ins and Outs of the Pediatric Heart”. Online Conference, September, 2020
- PCMR Spring Retreat “Circulating and Tissue microRNA Expression in Children with Cardiomyopathy”. Online Conference, April, 2020.
- BCVS American Heart Association “Pediatric DCM Secretome and its role in Pathologic Remodeling”. Online Conference, July, 2021
- International Society for Heart Research, North American Session. “The Role of the Secretome in Pediatric Dilated Cardiomyopathy”. Denver, CO, September, 2021
- Cleveland Clinic. “The Role of Serum Circulating Factors in Pediatric Heart Failure”. Online invited presentation. September, 2021.
- University of Minnesota. “The Secretome in Heart Failure: miRNAs and Proteins in Pathologic Remodeling”. April 07, 2022.
- Albert Einstein College of Medicine. “The Secretome in Heart Failure: miRNAs and Proteins in Pathologic Remodeling”. April 12, 2022.
- Stanford University. Frontiers in Cardiovascular Science. “Pediatric Heart Failure Secretome in Pathologic Remodeling and Mitochondrial Dysfunction”. June, 2022.

#### **International:**

- Universidade Federal do Rio de Janeiro. “Identification of a new transcription factor that is increased in Heart Failure and represses the human  $\alpha$ MyHC promoter activity”. Rio de Janeiro, Brazil. 2003.
- Heart Failure Society of America, 8<sup>th</sup> Annual Scientific Meeting. “The Ku protein complex interacts with YY1, is up-regulated in human heart failure and represses the activity of the  $\alpha$ MyHC promoter”. Toronto, Canada, 2004.
- International Society for Heart Research, XXI ISHR World Congress “A Polymorphism in the PDE3A Gene Promoter that Prevents cAMP-Induced Increases in Transcriptional Activity, and May Protect Against PDE3A Inhibitor Drug Tolerance”. San Diego, CA. July 2013.
- St. Boniface Research Center. “Novel Mechanistic Approaches to Investigate Heart Failure: Lessons from the Pediatric Heart”. Winnipeg, Canada, 2017.
- Midkine Conference. “The Role of Midkine in Pediatric Dilated Cardiomyopathy”. Munich, Germany, 2018.
- International Society for Heart Research, North American Session. “The Pathogenesis of Heart Failure in Children and Adults: Key Differences and Treatment Implications”. Halifax, Canada, 2018
- 2<sup>nd</sup> Olympiad in Cardiovascular Medicine. “The Secretome and Cellular Respiration in Cardiomyopathies”. Heraklion, Greece, 2022.

#### **Community Outreach:**

- AHA donor presentation – Children’s Hospital, Colorado. 2017
- For Elysa Foundation donor presentation – online. 2020
- STEM Scholars presentation; 8<sup>th</sup> grade – online. 2021
- International Society For Heart Research – Women’s breakfast – Issues facing women in STEM.

**Invited Podcasts:**

- AJP Heart and Circ Physiol – April 2017. Exosomes from Pediatric Dilated Cardiomyopathy Patients Modulate a Pathological Response in Cardiomyocytes
- Pediatric Research – March 2022. Integrated Analysis of miRNA-mRNA Interaction in Pediatric Dilated Cardiomyopathy

**Teaching Record**

**Classroom instructional activities:**

1. IDPT7646: Tissue Biology and Disease. March, 2006. University of Colorado, Cell Biology Graduate Course Program. Role: Lecture given.
2. Transcription Regulation, Signal Transduction and Cardiomyopathies. October, 2007. University of Colorado Cardiology Fellowship Core Curriculum. Role: Lecture given.
3. Molecular Biology techniques and their application in disease. November, 2007. University of Colorado Cardiology Fellowship Core Curriculum. Role: Lecture given.
4. IDPT5001: Problem Base Learning. August, 2010 – May, 2011 (20 classes). University of Colorado Medical School. Role: Small group leader.
5. Transcription Regulation, Signal Transduction and Cardiomyopathies. September, 2010. University of Colorado Cardiology Fellowship Core Curriculum. Role: Lecture given.
6. Molecular Biology techniques and their application in disease. October, 2010. University of Colorado Cardiology Fellowship Core Curriculum. Role: Lecture given.
7. Graduate School of Bioengineering. May 2012. University of Colorado, Department of Bioengineering. Role: Lecture given.
8. Graduate School of Bioengineering. May 2013. University of Colorado, Department of Bioengineering. Role: Lecture given.
9. Transcription Regulation, Signal Transduction and Cardiomyopathies. September, 2013. University of Colorado Cardiology Fellowship Core Curriculum. Role: Lecture given.
10. Molecular Biology techniques and their application in disease. October, 2013. University of Colorado Cardiology Fellowship Core Curriculum. Role: Lecture given.
11. Molecular Mechanisms of Heart Failure. September, 2015. University of Colorado Pharmacology Graduate Program. Role: Lecture given.
12. Molecular Mechanisms of Heart Failure. September, 2016. University of Colorado Pharmacology Graduate Program. Role: Lecture given.
13. Transcription Regulation, Signal Transduction and Cardiomyopathies. September, 2016. University of Colorado Cardiology Fellowship Core Curriculum. Role: Lecture given.
14. Molecular Mechanisms of Heart Failure. September, 2017. University of Colorado Pharmacology Graduate Program. Role: Lecture given.
15. Molecular Mechanisms of Heart Failure. September, 2020. University of Colorado Pharmacology Graduate Program. Role: Lecture given.
16. Heart Failure – Clinical Manifestations and Molecular Mechanisms. February, 2021. University of Colorado Physiology Graduate Program. Role: Lecture given.



**Teaching administration:**

1. Faculty, Co-Director - University of Colorado Denver, Division of Cardiology Lab Meeting Seminar Series. 2006-2009. These seminar series are presented in a bi-monthly basis by Faculty and Post-Docs of the Research group of the Division of Cardiology. Its main objective is to integrate the various research laboratories in possible collaborations and problem solving.
2. Faculty, Director – University of Colorado Denver, Division of Cardiology Journal Club Series. 2016 – 2019. I initiated a Journal Club series for post-docs and graduate students in the Division. These happen on a monthly basis and focus on recently published articles. The main goal of these presentations is to increase discussions on current topics in molecular cardiology.
3. Faculty, Director - University of Colorado Denver, Division of Cardiology Grant Rant. 2016 – 2018. These seminar series are presented in a monthly basis by investigators applying for grants. Its main objective is to provide criticism to grant applications before submission.
4. Faculty, Director, Research Oversight Committee – Cardiology Fellows – University of Colorado Anschutz Medical Campus. 2019 – present. My responsibility is to oversee and insure that cardiology fellows have appropriate research projects.
5. Chair of Admission Committee – Integrative Physiology Graduate Program - University of Colorado Anschutz Medical Campus. 2020 – present.
6. Curriculum Development - University of Colorado Anschutz Medical Campus, Integrative Physiology Graduate Program. 2020-2021. I am a faculty member of the committee that developed the new core curriculum for the Integrative Physiology Graduate Program
7. Faculty, Director of Education – Cardiology Division. University of Colorado Anschutz Medical Campus. 2021-present. I supervise the basic research educational component of the division, including organizing Cardiology Research Conference.

**Trainees and Mentees:****List of Current and Past Trainees. NA – Not applicable – member only of oversight or thesis committees.**

Year	Name	My Role	Accomplishments (During Mentorship)	Current Position or Degree
<b>Undergraduate and Graduate Students</b>				
2006-2008	Katie Melhado	Primary Mentor	-Poster presentation	DO
2009-2010	Lisa Walker	Primary Mentor	-Publication -APS Undergraduate Research Grant	PhD Graduate Harvard University
2009-2011	Jamie Hijmans	Co-Mentor	-Publication	PhD Graduate, University of Colorado Boulder
2010	Raquel Barra	Primary Mentor	-Poster presentation	MD
2012	Gloria Russell	Primary Mentor	-Publication	MD
2012	Robert Van Dusen	Primary Mentor	-Publication	MBA student
2012-2013	Jonathan Grudis	Co-Mentor	- Achievement Rewards for College Scientists	Medical Student, University of Colorado

			(ARCS) Foundation Scholarship -Publication	School of Medicine, Aurora, CO
2013	William Melhado	Primary Mentor	-Publication	HS Chemistry Teacher
2013	Sam Payne	Co-Mentor	-Poster presentation -Oral Presentation at Scientific Meeting	Medical Student, University of Colorado School of Medicine, Aurora, CO
2013-2018	Juliana Sucharov	Primary Mentor	-Poster presentation -Oral Presentation at Scientific Meeting -Publications -Children's Colorado Summer Research and APS undergraduate research grants	PhD student at UCSF
2013-2014	Mackenzie Cecil	Primary Mentor	-Poster presentation -Oral Presentation at Scientific Meeting -Publications	Graduated from College
2013	Sean Wickers	Primary Mentor	-Publication	Medical Student, University of Colorado School of Medicine, Aurora, CO
2016	Tara Riedl	Primary Mentor	-AHA undergraduate research grant	Graduated from College
2017	Emma Selner	Co-Mentor	-Children's Hospital of Colorado Summer Research Program Award -Formal presentation of her findings; will be co- author on submitted manuscript	In DO school
2017- present	Danting Cao	Pre-Doctoral Thesis Committee	NA	PhD graduate
2017- present	Keith Strand	Pre-Doctoral Thesis Committee Chair	NA	PhD graduate
2018	Joseph Wall	Co-mentor	-Children's Hospital of Colorado Summer Research Program Award -Poster presentation	Medical Student at New York Medical College
2017-2020	Denis Ohlstrom	Co-mentor	-Publication	MSTP student at Emory University
2021	Danielle Jeffrey	Mentor Rotation Student	-Publication	PhD Student, Pharmacology Program
2022	Ilili Wakgari	Co-mentor	- Children's Colorado Summer Research and oral	Undergraduate student

			presentation at the end of summer project	
2022	Ethan Rausch	Primary mentor		Undergraduate student
2022	Nardos Getahun	Primary mentor	-GEMS fellowship and oral presentation at the end of summer project	Undergraduate student
<b>MD or PhD Fellows</b>				
2004-2005	Peter Robinson, MD	Co-mentor	-Poster presentations	Assistant Professor – UCONN Health
2004-2006	Sarah Weiss, MD	Co-mentor	-Poster presentations	Cardiologist – Virginia Mason Hospital and Seattle Medical Center
2008-2010	Daniela Botolin, MD	Mentor		Surgeon – El Paso County, CO
2010-2013	Daren Wang, PhD	Co-mentor	-Publication	Research Associate, Division of Oral Maxillofacial Pathology and Radiology College of Dentistry. The Ohio State University.
2013	Kathryn Chatfield, MD, PhD	Co-mentor	-KO8 Award -Center for Women’s Health Research Seed Grant -Publications	Associate Professor – Department of Pediatrics
2011-2013	Stephanie Nakano, MD	Mentor	-Cardiology T32 -Publications	Assistant Professor – Department of Pediatrics
2012-2016	Elizabeth Medina, PhD	Co-mentor	-R01 Minority Supplement -Publication	Adjunct Assistant Professor – Regis University
2015-2018	Megan Soohoo, MD	Co-mentor	- Children’s Hospital Funding -Poster presentation -Publications	Assistant Professor of Pediatrics, University of Colorado
2013-2015	Austine Siomos, MD	Co-mentor	-Publications	Pediatric Cardiologist – Rocky Mountain Heart and Lung, MT
2014-2017	Ryan Good, MD	Co-mentor and member of advisory committee	-Publications	Assistant Professor – Department of Pediatrics
2014-2017	Alison Santana, MD	Co-mentor and member of advisory committee	-Manuscript submitted	Private practice
2014-2017	Kathleen Woulfe, PhD	Co-mentor	-Cardiovascular Pulmonary T32 -AHA post-doc award -Publications	Assistant Professor – Department of Medicine – University of Colorado – K award recipient.
2015-2017	Kalin Swain, PhD	Co-mentor	-Publication	

2015-2018	Xuan Jiang, PhD	Mentor	-Cardiovascular Pulmonary T32 -Publications	Assistant Instructor – University of Texas Southwestern
2015-2019	Anastacia Garcia, PhD	Co-primary mentor	-R01 Minority Supplement -AHA Post-doc award -CCTSI -Publications	Assistant Professor. Department of Pediatrics
2016-2019	Lee Toni, PhD	Primary Mentor	-Cardiovascular Pulmonary T32 -Publication	Medical writer, Teleflex
2017-2018	Eleanor Schuchardt, MD	Co-primary mentor	-Children’s Hospital Funding -Poster presentation -Manuscript in revision	Assistant Professor, Pediatric Cardiologist, University of California, San Diego, CA
2017-2018	Jessica McPhaul, MD	Co-mentor	-Poster presentation -Publication	Pediatric cardiology fellow
2018-present	Eileen Chang, PhD	Member of advisory committee	NA	NA
2018-present	Frehiwet Hailu, DVM	Primary Mentor	-NIH minority supplement T32 training grant -Publication	Post-doctoral fellow
2018-present	Julie Pires da Silva, PhD	Primary Mentor	-Publication	Post-doctoral fellow
2018-present	Suet-Nee Chen, PhD	Member of advisory committee	NA	NA
2018-present	Emily Willner, MD	Primary Mentor	-Publication	
2018-present	Chloe Nielsen, MD	Primary Mentor	-Poster presentation	Maternal Fetal Medicine Fellow
2020-Present	Sarkis Derderian, MD	Mentor	-Submitted two pilot grants	Assistant Professor, Department of Pediatrics University of Colorado
<b>MD or PhD Faculty</b>				
2014-2018	Scott Auerbach, MD	Co-mentor	-AHA MCPR Award -AHA Scientific Sessions Oral Abstract Presentation -Manuscript in preparation	Associate Professor, Department of Pediatrics, University of Colorado
2014-2019	Kathryn Chatfield, MD, PhD	Co-mentor	-K08 award -Publications	Associate Professor, Department of Pediatrics, University of Colorado
2016-present	Stephanie Nakano, MD	Mentor	-K08 award -AHA Scientific Sessions Oral Abstract Presentation -AHA MCPR Award -Publications	Assistant Professor, Department of Pediatrics, University of Colorado
2015-2017	Katja Gist, MD	Co-mentor	-AHA MCPR -Publication	Associate Professor, Department of Pediatrics, University of Colorado
2017-present	Vitaly Kheyfets, PhD	Co-mentor	-K25 award -Entelligence Grant -Publication	Assistant Professor, School of Bioengineering, University of Colorado

2017-2019	Pei-Ni Jone, MD	Co-mentor	-AHA MCPR Award -AHA Scientific Sessions Oral Abstract Presentation -Publication	Associate Professor, Department of Pediatrics, University of Colorado
2018-present	Kathleen Woulfe, PhD	Mentor	-K12 BIRCWH Award -Lorna Grindlay Moore Faculty Launch Award -K01 awardee	Assistant Professor, Department of Medicine, University of Colorado
2018-present	Brisa Pena Castellanos, PhD	Member of advisory committee	-K25 Awardee	Assistant Professor, School of Bioengineering, University of Colorado
2019-present	Anastacia Garcia, PhD	Co-primary mentor	-Publications -KL2-funded	Assistant Professor. Department of Pediatrics University of Colorado
2020-present	Roni Jacobsen, MD	Member of advisory committee	-Resubmission of K23	Assistant Professor. Department of Pediatrics University of Colorado
2021-present	Benjamin Frank, MD	Member of advisory committee	-Submission of K23	Assistant Professor. Department of Pediatrics University of Colorado

### Scholarly Oversight Committee

Alison Santana – Pediatric Critical Care Fellow

Ryan Good – Pediatric Critical Care Fellow

### Mentorship Committee

Suet-Nee Chen – Assistant Professor, Cardiology Division

Brisa Pena Castellanos – Assistant Professor, Cardiology Division

Eileen Chang – Instructor, Neonatology Division

### Pre-Doctoral Thesis Committee

Danting Cao – PhD candidate, Pharmacology Program

Keith Strand – PhD candidate, Physiology Program

Alisson Dubner – PhD candidate, Physiology Program

### Grant Support

**R01 HL156670 (Sucharov, MPI)**

**03/15/2021-03/14/2026**

**2.4 calendar**

NIH/NHLBI

“Targeting Mitochondria in Single Ventricle Heart Disease”

The purpose of this study is to define the mechanisms by which PDE5 inhibition improves mitochondrial function in the single ventricle disease population.

**R01 HL157973 (Sucharov, MPI)**

**04/10/2021- 04/09/2025**

**2.4 calendar**

NIH/NHLBI

“Cardiac dysfunction after ischemic AKI in mice”

The purpose of this study is to investigate the consequences of Acute Kidney Injury on metabolism, cardiac hemodynamic and mitochondrial function.

**RNA Biosciences Initiative (Sucharov) 07/15/2021 – 07/14/2022 0.6 calendar**  
 RNA Biosciences Initiative, University of Colorado Anschutz Medical Campus  
 "Spatial Transcriptomics in the Failing Pediatric Heart"

This is a pilot grant to investigate the spatial transcriptomics profile from hearts of pediatric dilated cardiomyopathy patients.

**K24 HL 150630-01 (Sucharov) 12/01/2019 – 11/30/2024 3.6 calendar**  
 NIH/NHLBI

"Investigations of Pathologic Remodeling Using Pediatric Heart Failure Serum"

The goal of this project is to define the mechanistic effect of pediatric heart failure serum circulating factors in pathologic remodeling of neonatal cardiomyocytes.

**Transformative Research Program (Stauffer) 07/01/2019 – 06/30/2022 0.6 calendar**  
 AHA

"Bioenergetics and Myofibril Function in Pediatric Dilated Cardiomyopathy"

The general aim of this project is to identify novel mitochondrial interventions for heart failure in children.

**R56 HL153740 (Chatfield) 9/17/2020 - 8/31/2021 (NCE) 0.6 calendar**  
 NIH/NHLBI

"Oxidization of Cardiolipin and its Role in Mitochondrial Dynamics in Pediatric Dilated Cardiomyopathy"

The purpose of this study is to determine the role of oxidation of the mitochondrial phospholipid cardiolipin in mitochondrial dynamics. We propose to use a neonatal rat ventricular myocyte culture system with oxidizing agents to create oxCLs and assay mitophagy as a result of oxCL formation.

**Transplant Longevity Award (Miyamoto) 07/01/2019 – 10/31/2023 0.36 calendar**  
 ISHLT/Enduring Hearts

"Circulating microRNAs: Biomarker for Acute Graft Rejection in Pediatric Heart Transplant Recipients"

The goal of this project is to determine if circulating miRNAs can predict acute graft rejection in pediatric heart transplant recipients.

**R01 HL 139968 (Sucharov, MPI) 02/17/2018 – 01/31/2023 (NCE) 1.8 calendar**  
 NIH/NHLBI

"Prognostic Significance of microRNA Expression in Children with Cardiomyopathy"

The goal of this application is to identify biomarkers of outcomes in the pediatric DCM population

**K08 HL130592 (Nakano, PI; Sucharov, mentor) 01/01/2017 - 12/31/2021 (NCE)**  
 NIH/NICHD

"Functional Characterization of Phosphodiesterase 1 in Single Ventricle Heart Disease"

The goal of this proposal is to investigate the role of PDE1 in the myocardium of pediatric patients with severe forms of congenital heart disease and the intracellular consequences of PDE-inhibition in cardiac myocytes.

**K01AG066845 (Woulfe, PI; Sucharov, mentor) 05/01/2020 – 03/31/2024**  
 NIH/NIA

"Sex-specific regulation of myofibrillar function in the aging heart"

The overall goal of this proposal is to define the differences in myofibril relaxation between males and females during normal cardiac aging.

### **Past Support**

**POCg, Sucharov, PI** 10/31/2006 – 10/31/2008

University of Colorado Technology Transfer

“Preventing Pathologic Cardiac Hypertrophy”

The goal of this project is to identify a peptide sequence that can retain HDAC5 in the nucleus and prevent pathologic cardiac hypertrophy.

**POCg Port, PI (Sucharov, Co-PI)** 02/01/2008–01/31/2009

University of Colorado Technology Transfer

“microRNAs as therapeutic targets in heart failure”

The goal of this project is to analyze microRNA expression in serial biopsies of heart failure patients.

**Innovative and collaborative grant initiatives - Sucharov, PI** 03/01/2008-02/28/2009

Department of Medicine, University of Colorado Denver

“Target Delivery of TAT-siRNA to the Rat Heart”

The goal of this project is to generate a reliable methodology of siRNA delivery to the heart tissue

**Department of Medicine Small Grants Sucharov, PI** 06/01/2009-05/31/2010

Department of medicine, University of Colorado

“Regulation of miRNA function in the human failing heart”

The goal of this project is to understand how miRNA function is regulated in human heart failure.

**CCTSI. Sucharov, PI** 01/10/2010-01/09/2011

Child and Maternal Health Pilot Grant

" $\beta$ -Adrenergic Receptor Regulation in Pediatric Heart Failure”

The goal of this project is to determine the relative contribution of  $\beta$ 1- and  $\beta$ 2-adrenergic receptors in pediatric heart failure.

**R21 HL097123 Sucharov, PI (MPI)** 09/01/2009-08/31/2011

NIH NHLBI

“Cardiac Beta-Adrenergic Adaptation in Pediatric Heart Failure”

The general aim of this project is to determine whether the beta-adrenergic receptor changes in response to heart failure are similar between children and adults.

**Leducq Transatlantic Networks of Excellence. Bristow, PI (Sucharov, Co-I)**

12/01/2006-11/30/2011

“Localized Control of cAMP Signaling and Novel Therapeutic Approaches for Heart Failure”

The general aim of this project is to determine the relative contribution of cAMP and its downstream signaling pathways to heart failure.

**Children Cardiomyopathy Foundation Sucharov, PI** 02/01/2012-01/31/2013

“microRNA expression in children with heart failure”

The goal of this project is to define circulating microRNAs in children with dilated cardiomyopathy.

**K01 HL088708 Sucharov PI** 04/01/2007-03/31/2012

## NIH NHLBI

“Mechanisms of YY1 Inhibition of Cardiac Hypertrophy”

The major goal of this project is to establish the role of YY1 in preventing Cardiac Hypertrophy.

**11IRG5070006**

**Sucharov, PI**

01/01/2011-12/31/2012

American Heart Association

“Regulation of miRNA function in cardiac disease”

The goal of this project is to understand how miRNA function is regulated in heart disease.

**State of Colorado and University of Colorado Sucharov, PI**

06/09/2011-04/30/2013

“Selective  $\beta_1$ -adrenergic Blockade in Children with Heart Failure”

The goal of this project is to determine the efficiency of selective  $\beta_1$ -adrenergic blockade for the treatment of pediatric heart failure.

**Sponsored Research Agreement Sucharov, PI**

08/01/2010-07/31/2013

Miragen, Inc.

“miRNA regulation in the failing human heart”

The goal of this project is to analyze the miRNA expression profile in human heart failure patients treated with beta-blockers.

**Cardiology and Cardiac Surgery Research Fellowship Nakano, PI (Sucharov, Mentor)**

American Academy of Pediatrics

06/01/2012-12/31/2013

“Regulation of Phosphodiesterase Activity in Pediatric Heart Failure”. The purpose of this grant is to investigate the activity of phosphodiesterase isoforms in the hearts of children with idiopathic dilated cardiomyopathy.

**Clinical Research Program Award - Auerbach, PI (Sucharov, Co-I)**

American Heart Association

07/01/2013-06/30/2015

“Circulating miRNAs as a Biomarker to Predict Cardiac Allograft Vasculopathy in Pediatric

Heart Transplant Recipients”. The purpose of this project is to prospectively investigate circulating miRNAs as a biomarker of cardiac allograft vasculopathy in pediatric heart transplant recipients.

**13GRNT16950045**

**Sucharov, PI**

07/01/2013-06/30/2015

American Heart Association

“Regulation and Function of SRF isoforms in Pediatric Heart Failure”

The purpose of this study is to investigate the role of pediatric isoforms of the SRF transcription factor in regulating miRNA expression and protein phosphorylation in children with heart failure secondary to idiopathic dilated cardiomyopathy.

**Bioscience Discovery Evaluation Grant**

02/01/2015-09/30/2016

State of Colorado and University of Colorado

“Non-invasive Diagnostic Tests for Pediatric Heart Failure Patients”

The miRNA biomarkers identified by the research efforts at the University of Colorado have the potential to significantly impact children diagnosed with heart failure. Funding for the early stages of test development is required, however, in order to translate the basic research that discovered the miRNA biomarker into a diagnostic option that can be offered to these patients. It is the objective of this project to develop a non-invasive test for measuring miRNA biomarkers in serum samples obtained from pediatric heart failure patients.





NIH NHLBI

“miRNA Regulation of Vascular Permeability and Inflammation in the Lung Injury”

The purpose of this study is to study the miRNAs involved in lung injury, and alter their expression in the lung.

**Children’s Cardiomyopathy Foundation - Miyamoto, PI (Sucharov, Co-I) 12/01/2017-11/30/2018**

“Circulating MicroRNA in Genotype-Positive Hypertrophic Cardiomyopathy”

The goal of this project is to determine if circulating microRNAs (miRs) can serve as a useful biomarker to assess the future risk of the development of hypertrophic cardiomyopathy (HCM) in individuals with HCM-associated gene mutations.

**Clinical Research Program Award - Jone, PI (Sucharov, Co-I) 07/01/2017-06/30/2019**  
American Heart Association

“Circulating microRNA as a diagnostic and prognostic biomarker of Kawasaki Disease”. The purpose of this project is to investigate circulating miRNAs as a biomarker for the diagnosis, risk stratification for the development of associated coronary disease and as a predictor of IVIG resistance in children with Kawasaki Disease.

**Academic Industry Accelerator Sucharov, PI (MPI) 07/01/2016-02/28/2019**  
State of Colorado

Biomarker test for pediatric Cardiac Allograft Vasculopathy

The purpose of this study is to develop a miRNA-based biomarker test for cardiac allograft vasculopathy patients.

**R25 HL146166-01 (Flores, Site PI) 01/07/2019 – 12/31/2023**  
NIH/NHLBI

“PRIDE Academy: Impact of Ancestry and Gender on omics of lung diseases”

This project will recruit 8 junior faculty members from under-represented backgrounds to participate in 2 summer academies that will focus on didactic, career development, cultural and social components to improve retention of these faculties in academic medicine. The scholars will be paired with mentors who will stay in contact with the scholars throughout the 2 years of the training.

**16SFRN31420008 (Bristow, PI) 07/01/2016 – 06/30/2021 (NCE) 0.6 calendar**  
AHA

Therapeutic Molecular and Structural Phenotypic Changes of Heart Rate Reduction in HFrEF.

The goal of this application is to define b1-adrenergic receptor gene network in heart failure patients.

**R01 HL126928 (Miyamoto) 04/01/2015 – 03/31/2021**  
NIH/NHLBI

“Myocardial Effects of PDE5-inhibition in Single Ventricle Heart Disease”

The goal of this proposal is to determine the contribution of PDE5 to right ventricle dysfunction in single ventricle heart disease patients.

**KL2TR002534 (Garcia, PI; Sucharov, mentor) 12/1/2019 - 11/31/2021**  
NIH/NCATS Colorado CTSI KL2 (K12)

“Metabolic Remodeling in the Failing Pediatric Right Ventricle”

The purpose of this project is to determine changes in mitochondrial bioenergetics in explanted pediatric heart tissue and assess the impact of PDE5 inhibition in human SV myocardium and in primary cardiomyocytes treated with SV patient serum. The PDE5-mediated metabolic consequences of sphingolipid remodeling in vitro and in vivo will also be assessed.

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### **Book Chapters**

1. Port JD, **Sucharov C**, and Bristow MR, Adrenergic Receptor Signaling in Chronic Heart Failure. In: *Heart Failure: A Companion to Braunwald's Heart Disease*. 2<sup>nd</sup> Edition. Edited by Mann DL. W.B. Saunders Co., 2010
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### **Abstracts (since 2003)**

1. **Sucharov CC**, Mariner P., Long, C., Bristow, M., Leinwand LA. (2003). YY1 is increased in human heart failure and represses the activity of the human  $\alpha$ MyHC promoter. *Journal of Cardiac Failure*, 9:5(Suppl 1), S40. Presented at the 7<sup>th</sup> Annual Scientific Meeting of the Heart Failure Society of America. Poster.
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57. Garcia AM, Stauffer BL, **Sucharov CC**, Miyamoto SD. (2016). Investigations of the Failing Single Ventricle: Role of Circulating Factors. Presented at the Keystone Symposia on Exosomes. Keystone, CO. Poster.
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67. Santana A, Grayck E, **Sucharov C**, Mourani P, Karimpour A, Burgess K, Carpenter T. (2017). Identification Of Plasma Microrna Changes Highly Associated With Pediatric Acute Respiratory Distress Syndrome. American Thoracic Society Annual Meeting. Poster.
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70. Jiang X, Woulfe K, Karimpour-fard A, Koch K, Stauffer B, Miyamoto S, **Sucharov C**. (2017). The role of Midkine in Children with Dilated Cardiomyopathy. Presented at 36<sup>th</sup> the International Society for Heart Research North America Session. New Orleans, LA. Poster.

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72. Garcia AM, Nakano SJ, Karimpour-Fard A, Stauffer BL, **Sucharov CC**, Miyamoto SD. (2017). Transcriptome Profiling and a Novel in vitro Model of Single Ventricle Congenital Heart Disease. *Circulation*, 136: A20597. American Heart Association Scientific Sessions, Anaheim, CA. **Oral.**
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75. Woulfe KC, Jiang X, Phillips EK, Jeffery DA, Sparagna GC, Chatfield KC, Miyamoto SD, Stauffer BL, **Sucharov CC**. (2017). Treatment of primary cardiomyocytes with serum from pediatric dilated cardiomyopathy patients induces gene expression and functional changes observed in the pediatric heart. *Circulation*, 136: A20616. American Heart Association Scientific Sessions, Anaheim, CA. Poster.
76. Allawzi A, Swain K, Hernandez-Laguna L, **Sucharov C**, Mouradian G, Gaurav R, Bowler R (2017). R213G Polymorphism of SOD3 Augments M1 Polarization of Macrophages in a Mouse Model of Bleomycin-Induced Pulmonary Fibrosis. American Thoracic Society International Conference. Poster.
77. Grayck EN, Elajaili H, Allawzi A, Hernandez-Lagunas L, Nguyen K, El Kasmi K, Sherlock L, Wright C, Gaurav R, Bowler R, Karimpour-Fard A, **Sucharov C**. (2017). The SOD3 R213G Polymorphism Promotes Resolution of Innate Immune Activation and Blocks Induction of miR29b in Bleomycin Induced Lung Inflammation and Fibrosis. SfRBM 24<sup>th</sup> Annual Conference. **Oral.**
78. Jone PN, Korst A, Dominguez SR, Miyamoto SD, **Sucharov CC**. (2018). Circulating MicroRNA in Kawasaki Disease and Viral Infection Patients. 12IKDS, Yokohama, Japan. Poster.
79. Woulfe KC, Wilson CE, Jiang X, Jeong MY, Miyamoto SD, Stauffer BL, **Sucharov CC**. (2018). Sex-dependent regulation of autophagy by midkine in pediatric dilated cardiomyopathy. Presented at the 37<sup>th</sup> International Society for Heart Research North

America Session. Halifax, Canada. Poster.

80. Woulfe KC, Lin YH, Li X, Mahaffey JH, Sweet ME, Taylor MRG, Mestroni L, Miyamoto SD, Stauffer BL, **Sucharov CC**, Jeong MY. (2018). Age-specific changes in myofibril mechanics in pediatric dilated cardiomyopathy. Presented at the 37<sup>th</sup> International Society for Heart Research North America Session. Halifax, Canada. Poster.
81. Garcia AM, Nakano SJ, Karimpour-Fard A, Stauffer BL, **Sucharov CC**, Miyamoto SD. (2018). Phosphodiesterase-5 is Elevated in Failing Single Ventricle Myocardium and Affects Cardiomyocyte Remodeling in vitro North America Session. Presented at the 37<sup>th</sup> International Society for Heart Research. Halifax, Canada. Poster.
82. Woulfe KC, Lin YH, Li X, Mahaffey JH, Miyamoto SD, Stauffer BL, **Sucharov CC**, Jeong MY. (2018). Altered relaxation mechanics in pediatric dilated cardiomyopathy is associated with differences in myofibril acetylation. Presented at the 2018 Myofilament Meeting. Madison, WI. **Oral**.
83. Nakano SJ, Garcia AM, Nunley K, Movsesian M, Nelson P, Stauffer BL, **Sucharov CC**, Miyamoto SD. (2018). Unique Upregulation of PDE1 in Single Ventricle Congenital Heart Disease. Gordon Research Conference on Cyclic Nucleotide Phosphodiesterases. Newry, ME. Poster.
84. Auerbach SR, Miyamoto SD, Karimpour-Fard A, Gralla J, Stauffer BL, **Sucharov CC** (2018). Circulating Mirnas Can Predict Pediatric Cardiac Allograft Vasculopathy in Pediatric Heart Transplant Recipient. Accepted to the 2018 American Heart Association Scientific Sessions. Poster.
85. Jone PN, Korst A, Karimpour-Fard A, Thomas T, Dominguez SR, **Sucharov CC**, Miyamoto SD (2018). Circulating Microrna Differentiate Kawasaki Disease From Infectious Febrile Illnesses in Childhood. Accepted to the 2018 American Heart Association Scientific Sessions. **Oral**.
86. Garcia AM, Chatfield KC, Sparagna GC, Phillips EK, Karimpour-Fard A, Stauffer BL, **Sucharov CC**, Miyamoto SD (2018). Metabolic Gene Expression and Mitochondrial Function Are Altered in the Failing Single Ventricle Myocardium. American Heart Association Scientific Sessions. Poster.
87. McPhaul JC, Garcia AM, Sparagna GC, Patel SS, Stauffer BL, **Sucharov CC**, Miyamoto SD, Chatfield KC. (2018) Alteration of Cardiolipin Biosynthesis and Remodeling in Single Right Ventricles. American Heart Association Scientific Sessions. Poster.
88. Schuchardt EL, Crombleholme TM, Zuk J, Korst A, Karimpour-Fard A, Cuneo B, Howley LW, Miyamoto S; **Sucharov CC** (2018). The Unique Micro-Rna Signature in Amniotic Fluid of Recipients Fetuses With Twin-Twin Transfusion Syndrome Cardiomyopathy. Accepted to the 2018 American Heart Association Scientific Sessions. Poster.

89. Nakano SJ, SooHoo M, Karimpour-Fard A, Korst A, Pauly K, Michael A, Mackey A, Miyamoto SD, **Sucharov CC** (2018). Circulating Micrnas as Prognostic Biomarkers in Single Ventricle Heart Disease. Accepted to the 2018 American Heart Association Scientific Sessions. Poster.
90. Allawzi A, Nguyen K, Banimostafa L, Riemondy K, Gaurav R, Hesselberth J Garcia A, El Kasmi KC, Stenmark KR, **Sucharov C**, Janssen WR, Bowler RP, Grayck EN (2018). Redistribution of Extracellular Superoxide Dismutase (SOD3) Due to the R213G SNP Alters RNA-seq Profile of Recruited Alveolar Macrophages in Response to Bleomycin. American Thoracic Society International Conference. Poster.
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