

CURRICULUM VITAE

CHARLES C. HONG, M.D., Ph.D., F.A.H.A
Associate Professor of Medicine, Pharmacology,
and Cell and Developmental Biology,
Vanderbilt University School of Medicine

Office Address: Division of Cardiovascular Medicine
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Date & Place of Birth: February 25, 1967; Seoul, Republic of Korea

PERSONAL DATA:

Home Address: 1400 Wolf Creek Drive, Nolensville, TN 37135
Home Phone Number: (615) 776-1971
Marital Status, Spouse: Married, Stephanie S. Hong
Nationality: USA

EDUCATION

9/1984-5/1988 B.S. in Life Sciences
Massachusetts Institute of Technology, Cambridge, MA

1986-1988 Undergraduate Research Assistant
M.I.T/Whitehead Institute, Cambridge, MA
Cooperation of Oncogenes in Transgenic Mice
Advisor: Rudolf Jaenisch, M.D.

9/1988-5/1998 M.D., Ph.D., Genetics and Medicine
Yale School of Medicine, New Haven, CT
Ph.D. Thesis with Highest Honors: *Nudel, an unusual mosaic protease involved in defining the embryonic dorsal-ventral axis of Drosophila Melanogaster.*

1989-1990 Sarnoff Fellow, Massachusetts General Hospital/Harvard Medical School
Molecular Characterization of Endothelin Genes
Advisor: Tom Quertermous, M.D.

1990-1995 Graduate Student, Yale School of Medicine
Genetic Analysis of Dorsoventral Axis Formation in Drosophila Embryo
Advisor: Carl Hashimoto, Ph.D.

7/1998-6/1999 Intern in Medicine
Yale-New Haven Hospital, New Haven, CT
Chair: Ralph I. Horowitz, M.D.

7/1999-6/2001 Resident in Medicine

Yale-New Haven Hospital, New Haven, CT
Chair: Ralph I. Horowitz, M.D.

7/2001-6/2005 Cardiology Fellow - MGH
Massachusetts General Hospital, Boston, MA
Chiefs: Mark C. Fishman, M.D., and George William Dec, Jr., M.D.

2001-2005 Research Fellow in Medicine
Harvard Medical School, Boston, MA
Chemical Genetic Analysis of Vertebrate Vascular Development
Advisor: Randall T. Peterson, Ph.D., Dean, School of Pharmacy, University of Utah, Salt Lake City, Utah

LICENSURE AND CERTIFICATION

- Medical License, Massachusetts, #209459, 2001 (lapsed)
- Medical License, Tennessee, #41638, 2019 (current)
- ABIM Board Certification in Internal Medicine, 2001 (lapsed)
- ABIM Board Certification in Cardiovascular Disease, 2025 (current)

ACADEMIC APPOINTMENTS

7/2005-8/2006 Instructor
Department of Medicine
Harvard Medical School, Boston, MA

9/2006-12/2012 Assistant Professor
Department of Medicine
Vanderbilt University School of Medicine, Nashville, TN

9/2006-12/2012 Assistant Professor
Department of Pharmacology
Vanderbilt University School of Medicine, Nashville, TN

8/2010-12/2012 Assistant Professor
Department of Cell and Developmental Biology
Vanderbilt University School of Medicine, Nashville, TN

12/2012-5/2018 Associate Professor (with Tenure)
Departments of Medicine, Pharmacology, Cell and Developmental Biology
Vanderbilt University School of Medicine, Nashville, TN

6/2018 - Melvin Sharoky Professor of Medicine, Director of Cardiology Research,
Univeristy of Maryland School of Medicine, Baltimore, MD

6/2018 - Professor of Biochemistry and Molecular Biology,
Univeristy of Maryland School of Medicine, Baltimore, MD

HOSPITAL APPOINTMENTS

- 7/2004-6/2006 Graduate Assistant in Medicine
Massachusetts General Hospital, Boston, MA
- 7/2005-7/2006 Attending Cardiologist
Cambridge Hospital, Cambridge, MA,
- 7/2006-8/2006 Assistant in Medicine (Attending Cardiologist)
Massachusetts General Hospital, Boston, MA
- 9/2006-present Attending Cardiologist
Vanderbilt University Medical Center, Nashville, TN
- 7/2008-12/2012 Director, Adult Inherited Heart Disease Clinic
Vanderbilt Heart and Vascular Institute, Nashville, TN
- 7/2009-5/2018 Attending Cardiologist
Nashville VA Medical Center, Nashville, TN
- 6/2018 (pending) Associate Chief of Cardiology,
University of Maryland Medical Center, Baltimore, MD

HONORS AND AWARDS

- 1984-1990 United Methodist HANA Scholar, M.I.T. and Yale School of Medicine
- 1986-1988 Carl P. and Marie G. Dennett Scholarship, M.I.T.
- 1988 Sigma Xi, M.I.T.
- 1989-1990 Stanley J. Sarnoff Fellowship in Cardiovascular Research
- 1992-1998 Medical Scientist Training Program Fellowship, Yale School of Medicine
- 1998 M.D./Ph.D. Prize, Yale School of Medicine, given to the outstanding graduating student in the MD-PhD Program.
- 2002 William A. Schreyer Fellow Award, Massachusetts General Hospital
- 2004 Poster of Distinction in Basic Research, 2004 MGH Research Symposium.
- 2005 Stanley J. Sarnoff Scholar Award
- 2007 GlaxoSmithKline Research & Education Foundation for Cardiovascular Disease International Competitive Grant Award for Young Investigators
- 2007 American Heart Association Irvin H. Page Young Investigator Research Award Finalist
- 2007, 2011 Distinguished Service Award, University of Pennsylvania, on behalf of International Fibrodysplasia Ossificans Progressiva Association
- 2009 Department of Veterans Affairs Career Development Transition Award
- 2013 Elected, American Society for Clinical Investigation
- 2013 Fellow, American Heart Association
- 2014 Alumni Achievement Award, Sarnoff Cardiovascular Research Foundation

PROFESSIONAL ORGANIZATIONS

- American Society for Clinical Investigation

- American Heart Association, Councils on Basic Cardiovascular Sciences and on Arteriosclerosis, Thrombosis, and Vascular Biology.
- American Chemical Society
- American Society for Cell Biology
- International Clinical Consortium on Fibrodysplasia Ossificans Progressiva.
- Sarnoff Cardiovascular Research Foundation
- Paul Dudley White Society
- American Society for Pharmacology and Experimental Therapeutics (ASPET)
- American Association for Cancer Research

PROFESSIONAL ACTIVITIES

Intramural

- 2009 - 2011 Organizing Committee, Annual Vanderbilt Cardiovascular Research Day Symposium.
- 2009 - 2011 Education Committee, Cardiovascular Disease Fellowship Program
Vanderbilt University School of Medicine
- 2009 - 2011 Co-director, Research Rotation, Cardiovascular Disease Fellowship Program,
Vanderbilt University School of Medicine
- 2008 - 2013 Faculty Associate, Crawford House, Vanderbilt University Freshmen Commons
One of 50 faculty members selected from the university-wide community to mentor Vanderbilt freshmen living in one of the 10 freshman houses.
- 2011 - 2016 Research & Development Committee, Veterans Affairs TVHS
- 2014 - 2016 Member, VUMC Institutional Shared Resource Oversight Committee (ISROC)
This committee provides executive oversight of all core facilities within the medical center. The ISROC provides a framework for institutional support of core facilities, and advises individual core advisory committees. In addition, the ISROC reviews proposals for Shared Instrumentation grants and makes recommendations for matching fund commitments.
- 2016 - 2017 Chair, Accelerating Drug Repurposing Incubator, Vanderbilt Clinical Translational Science Awards (CTSA) Program
*ADRI is an interdisciplinary team focused on **Human Biotarget Discovery**, involving the application of BioVU (human DNA repository linked to de-identified electronic health records), PheWAS (phenome-wide association study) and information synthesis to rapidly identify new therapeutic targets.*
- 2006 - 2018 Zebrafish Advisory Committee
- 2010 - 2018 Founding Member, Vanderbilt Center for Regenerative Cardiology
- 2010 - 2018 Steering Committee, Vanderbilt Progenitor Cell Biology Consortium
- 2010 - 2018 Scientific Review Committee, Vanderbilt Heart Tissue Repository
- 2010 - 2018 Physician Sponsor, Vanderbilt Chapter of Asian Pacific American Medical Student Association
- 2010 - 2018 Member, Program in Developmental Biology
- 2011 - 2018 Operating Committee, Vanderbilt Institute of Chemical Biology
- 2011 - 2018 Advisory Board, VICB Chemical Synthesis Core
- 2012 - 2018 Member, the Scripps Research Institute-Vanderbilt Human Chemical Sciences Institute

2014 - 2018 Member, Medical Scientist Training Program (MSTP) Admissions Committee.

Extramural

2008 - 2011 Educational Council, Massachusetts Institute of Technology
2008 - 2011 Alumni Committee, Sarnoff Cardiovascular Research Foundation
2008 - 2012 Medical Advisory Board, International Clinical Consortium on Fibrodysplasia
Ossificans Progressiva
2008 - 2017 Scientific Committee, Sarnoff Cardiovascular Research Foundation
2012 - 2017 Nomination Committee, Sarnoff Cardiovascular Research Foundation
2015 - 2018 Sarnoff Scholar Task Force, Sarnoff Cardiovascular Research Foundation
2017 - present Steering Committee, BMP Inhibitor Clinical Development, La Jolla Pharmaceutical
Co.

Study sections

2008 New York State Department of Health's Empire State Stem Cell Board, Stem Cell
Lineage Panel
2009, 2012 United Kingdom Medical Research Council (MRC) Molecular and Cellular Medicine
Board
2009 NIH RC2 Special Emphasis Panel NHLBI ZHL1 CSR-W, "Characterizing
Differentiated Stem Cells"
2009 - 2010 NIH/NHLBI, "Meetings, Conferences, and Networks for Research Partnerships to
Improve Functional Outcomes (R13)," 2009-2010
2010 NIH/NIMH/NINDS SBIR/STTR Program, "Molecular, Cellular and Developmental
Neurobiological Small Business Applications (ETTN-H13)"
2010 Technoestichting STW, Netherland's funding agency for university research
2010 Der Wissenschaftsfonds (FWF), Austria's central funding organization for basic
research
2010 Deutsche Forschungsgemeinschaft (DFG), Germany's major research funding
organization
2010 Bank of America Foundation, Biomedical Research Grant Program
2011 - 2013 American Heart Association, Molecular Signaling Study Section
2012, 2013 NIH Special Emphasis Panels, "Tools for Zebrafish Research"
2012 Slovak Research and Development Agency (APVV)
2013 Reviewer, NIH/NHLBI K99 Pathway to Independence Panel, ZHL1 CSR-P
2013 New York State Department of Health's Empire State Stem Cell Board, Stem Cell
Lineage Panel
2014 Reviewer, Saudi National Science Agency: Cardiology, Metabolic Disease, Drug
Targeting
2013, 2014 Reviewer, NIH/NIAMS, "Arthritis, Musculoskeletal and Skin Diseases"
2014 Reviewer, NIH Special Emphasis Panel, "Improvement of Animal Models for Stem
Cell based Regenerative Medicine"
2014 Reviewer, NIH Special Emphasis Panel "Cardiovascular Development and Molecular
Genetics"
2015 Reviewer, Connecticut Regenerative Medicine Research Fund

- 2015 Reviewer, NIH Special Emphasis Panels, “Improvement of Animal Models for Stem Cell based Regenerative Medicine” and “Differentiation and Integration of Stem Cells Into Developing or Damaged Tissues.”
- 2017 Reviewer, NHLBI Outstanding Investigator Award (OIA) (R35)
- 2017 Reviewer, National Natural Science Foundation of China (NSFC) /Research Grant Council (RGC) of Hong Kong Joint Research Award Program
- 2018 Reviewer, NIH 2018/05 ZRG1 IMST-H. Small Business: Cell and Molecular Biology

Ad hoc journal reviewer

ACS Chemical Biology, ACS Chemical Neuroscience, Arteriosclerosis Thrombosis and Vascular Biology, Biochemical Pharmacology, BMC Developmental Biology, Cardiology Research and Practice, Chemistry & Biology, Circulation, Circulation Research, Developmental Biology, Disease Models & Mechanisms, Experimental Biology and Medicine, FEBS Journal, Future Medicinal Chemistry, Journal of the American College of Cardiology, Journal of Clinical Investigation, Journal of Molecular and Cellular Cardiology, Journal of Neurology, Medicinal Chemistry Communications, Molecular Biology of the Cell, Nature Chemical Biology, Nature Communications, Nature Protocols, PLoS ONE, Science Translational Medicine, Stem Cells and Differentiation, Stem Cell Reports, Tissue Engineering, Trends in Pharmacological Sciences, Zebrafish

Editorial Board

- Senior Editor, for volume entitled *Methods in Chemical Biology*, Humana Press, USA.
- Senior Editor, book entitled *Chemical Biology in Regenerative Medicine: Bridging Stem Cells and Future Therapies*, Wiley Press, USA.

Other professional activities

- 2007 Moderator, 2007 Arteriosclerosis, Thrombosis, and Vascular Biology Annual Conference, Chicago, IL.
- 2009 Moderator, Cell and Developmental Vascular Biology Session, 2009 AHA Annual Scientific Meeting, Orlando, FL.
- 2011 Program Committee, Annual Scientific Meeting of the Sarnoff Cardiovascular Research Foundation, National Harbor, MD.
- 2013 Program Committee, Annual Scientific Meeting of the Sarnoff Cardiovascular Research Foundation, National Harbor, MD.
- 2017 Co-chair, Workshop on Chemical Biology, 2017 Strategic Conference for Zebrafish Investigators, Asilomar, CA.

TEACHING ACTIVITIES

Undergraduate education

- 2008 - 2013 Faculty Associate, Crawford House, Vanderbilt University Freshmen Commons. *I am one of 50 faculty members selected from the university-wide community to mentor Vanderbilt freshmen in one of the 10 freshman houses. Number of informal seminars and meetings throughout the academic year*

- 2011 Fall Tissue Engineering, BME280. Vanderbilt University, Instructor. Lecture on stem cells and regenerative medicine. 1.5 hour contact time. 1 lecture.
- 2014 Fall Therapeutic Bioengineering, BME275. Vanderbilt University, Instructor. Lecture on strategies to block heterotopic ossification. 1.5 hour contact time. 1 lecture.
- 2015 Fall Therapeutic Bioengineering, BME275. Vanderbilt University, Instructor. Lecture on strategies to block heterotopic ossification. 1.5 hour contact time. 1 lecture.
- 2017 Fall Therapeutic Bioengineering, BME275. Vanderbilt University, Instructor. Lecture on drug delivery. 1.5 hour contact time. 1 lecture.

Medical school education

- 1992 Fall Principles of Human Genetics, Yale University School of Medicine, Teaching Assistant. 20 first-year medical students. Approximately 4 hours preparation time and 4 hours contact time per week
- 1994 Spring Clinical Correlations Peer Lecture Series for M.D./Ph.D. students, Yale University School of Medicine, 1 lecture
- 2001 Spring Introduction to Clinical Medicine, Yale University School of Medicine. Tutor. 100 second-year medical students. 8 hours contact time, 2 lectures
- 2002 Spring Introduction to Physical Diagnosis, Harvard Medical School, Tutor. 10 second-year medical students. 4 hours contact time, 1 lecture
- 2003 Spring Introduction to Physical Diagnosis, Harvard Medical School, Tutor. 10 second-year medical students. 4 hours contact time, 1 lecture
- 2004 Spring Introduction to Physical Diagnosis, Harvard Medical School, Tutor. 10 second-year medical students. 4 hours contact time, 1 lecture
- 2010 May Lecture for Vanderbilt Student Research Training Program. Inherited heart diseases: clinical genetic testing and future of biology. 1 hour contact time, 1 lecture.
- 2010-present Physician Sponsor, Vanderbilt Chapter of Asian Pacific American Medical Student Association.
I serve as physician mentor to the Asian Pacific American medical students at Vanderbilt.
- 2011 Spring Capstone 2011, Vanderbilt University School of Medicine, 11 4th-year students in the MD program. Module on drug discovery and medical innovation. 6 hour contact time, 2 lectures.
- 2012 Spring Capstone 2012, Vanderbilt University School of Medicine, 11 4th-year students in the MD program. Module on drug discovery and medical innovation. 6 hour contact time, 2 lectures.
- 2012 May Lecture for Vanderbilt Student Research Training Program. Chemical biology of development and regenerative medicine. 1 hour contact time, 1 lecture.
- 2013 Spring Capstone 2013, Vanderbilt University School of Medicine, 11 4th-year students in the MD program. Module on drug discovery and medical innovation. 6 hour contact time, 2 lectures.
- 2016 Fall CASE: Clinical Applications of Scientific Evidence course for 1st year VU medical students. 2 hour contact time, 2 sessions.
- 2017 Fall CASE: Clinical Applications of Scientific Evidence course for 1st year VU medical students. 1 hour contact time, 1 session.

Graduate school education

- 2007 Fall Developmental Biology Minisymposium, Bioregulation Course, Vanderbilt University, 50 students in the Interdisciplinary Graduate Program (IGP), 1 lecture.
- 2008 Spring Cancer Biology 344, Vanderbilt University School of Medicine, Instructor, 13 graduate students in the Cancer Biology program. Taught module on angiogenic signaling pathways. 3 hours contact time, 1 lecture.
- 2011 Spring Genetics of Model Organisms, CBio349/ HGen349/ MPB34, Vanderbilt University School of Medicine, 8 graduate students in IGP program. Lectured on chemical screening approaches to identify pathways in zebrafish. 2 hour contact time, 1 lecture.
- 2011 Fall Molecular and Cellular Basis of Vascular Diseases. Path337, Vanderbilt University School of Medicine, Instructor. Module on chemical modulators of angiogenesis. 2 hours contact time, 1 lecture.
- 2012 Spring Angiogenesis: the good and the bad. Bioregulation II. Vanderbilt University School of Medicine, the Interdisciplinary Graduate Program. 2 hour contact time, 1 lecture.
- 2012 Spring Fundamentals of Chemical Biology. CBP320, Vanderbilt University. 2 lectures.
- 2012 Fall Cell Biology, CBIO310, Vanderbilt University. 2 Lectures, 4 hour contact time.
- 2012 Fall Modern Drug Discovery, PHAR 327, Vanderbilt University, 1 Lecture, 2 hours.
- 2013 Spring Angiogenesis: the good and the bad. Bioregulation II. Vanderbilt University School of Medicine, the Interdisciplinary Graduate Program. 2 hour contact time, 1 lecture.
- 2013 Spring Fundamentals of Chemical Biology. CBP320, Vanderbilt University. 2 lectures.
- 2013 Spring Cancer and Development, CBIO330, Vanderbilt University. 2 Lectures.
- 2013 Fall Molecular and Cellular Basis of Vascular Diseases. Path337, Vanderbilt University School of Medicine, Instructor. Module on chemical modulators of angiogenesis. 2 hours contact time. 1 lecture
- 2013 Fall Cell Biology, CBIO310, Vanderbilt University. 2 Lectures, 4 hour contact time.
- 2013 Fall Modern Drug Discovery, PHAR 327, Vanderbilt University, 1 Lecture, 2 hours.
- 2014 Spring Angiogenesis: the good and the bad. Bioregulation II. Vanderbilt University School of Medicine, the Interdisciplinary Graduate Program. 5 hour contact time plus exam and grading.
- 2014 Spring Fundamentals of Chemical Biology. CBP320, Vanderbilt University. 2 lectures.
- 2014 Fall Molecular and Cellular Basis of Vascular Diseases. Path337, Vanderbilt University School of Medicine, Instructor. Module on chemical modulators of angiogenesis. 5 hours contact time plus exam and grading.
- 2015 Spring Cancer and Development, CBIO330, Vanderbilt University. 2 Lectures.
- 2017 Spring Introduction to Clinical/Translational Research, Vanderbilt University. Phenotypic screening for drug discovery: challenges to clinical translation. 1 Lecture
- 2018 Spring Signal Transduction in Disease, Minimester 1, Vanderbilt University, Hedgehog signaling. 1 Lecture plus exam and grading
- 2018 Spring Introduction to Clinical/Translational Research, Vanderbilt University. Phenotypic screening for drug discovery: challenges to clinical translation. 1 Lecture

Graduate medical education

- 2000 Fall Introduction to Genomics, Yale Internal Medicine Program, Yale-New Haven Hospital, 1 lecture.
- 2008 Spring Molecular Medicine, Vanderbilt University School of Medicine, Instructor, 20 clinical fellows and faculty in the Masters of Science in Clinical Investigator

- Program. Taught module on gene structure and function. 2 hours contact time, 1 lecture.
- 2009 Spring Molecular Medicine, Vanderbilt University School of Medicine, Instructor, 20 clinical fellows and faculty in the Masters of Science in Clinical Investigator Program. Taught module on gene structure and function. 2 hours contact time, 1 lecture.
- 2009 Spring Vanderbilt Cancer Center, Lecturer, 20 clinical fellows in Hematology-Oncology program. Taught module on drug discovery. 1 lecture.
- 2009 Spring Congenital Heart Disease Seminar. 40 cardiology fellows and faculty. Lectured on genetic testing for inherited heart and vascular diseases, 1 lecture.
- 2009 Spring Fox & Chase Conference, Department of Medicine. 50 internal medicine residents and faculty. Served as an expert discussant on Carney Complex, 1 lecture.
- 2009 Fall Fox & Chase Conference, Department of Medicine. 50 internal medicine residents and faculty. Served as an expert discussant on anemia of chronic inflammation. 1 lecture.
- 2009 - 2011 Co-director for Research Rotation, Cardiovascular Disease Fellowship Program, Vanderbilt University School of Medicine.
- 2009 Fall Cardiology Fellows Lecture Series. 1 lecture on Grants.
- 2010 Spring Molecular Medicine, Vanderbilt University School of Medicine, Instructor, 20 clinical fellows in the Masters of Science in Clinical Investigator Program. Taught module on gene structure and function. 2 hours contact time, 1 lecture.
- 2010 Fall Cardiology Fellows Lecture Series. 1 lecture on Grants.
- 2011 Spring Molecular Medicine, Vanderbilt University School of Medicine, Instructor, 20 clinical fellows in the Masters of Science in Clinical Investigator Program. Teach module on drug development. 2 hours contact time, 1 lecture.
- 2012 Spring Molecular Medicine, Vanderbilt University School of Medicine, Instructor, 20 clinical fellows in the Masters of Science in Clinical Investigator Program. Teach module on drug development. 2 hours contact time, 1 lecture.
- 2013 Spring Molecular Medicine, Vanderbilt University School of Medicine, Instructor, 20 clinical fellows in the Masters of Science in Clinical Investigator Program. Teach module on drug development. 2 hours contact time, 1 lecture.
- 2014 Spring Molecular Medicine, Vanderbilt University School of Medicine, Instructor, 20 clinical fellows in the Masters of Science in Clinical Investigator Program. Teach module on drug development. 2 hours contact time, 1 lecture.
- 2015 Spring Molecular Medicine, Vanderbilt University School of Medicine, Instructor, 20 clinical fellows in the Masters of Science in Clinical Investigator Program. Teach module on drug development. 2 hours contact time, 1 lecture.
- 2017 Spring Fox & Chase Conference, Department of Medicine. 50 internal medicine residents and faculty. Served as an expert discussant on cell therapies for heart failure. 1 lecture.

Continuing medical education

- 2003 ACLS Instructor, Massachusetts General Hospital. Overview of acute coronary syndrome. 2 hours contact time, 1 lecture.

- 2005 ACLS Instructor, Massachusetts General Hospital. Overview of common arrhythmias. 150 MGH clinicians undergoing ACLS recertification. 2 hours contact time. 1 lecture.
- 2009 Spring Cardiology 2009, Nashville, TN. Lecturer, 150 community physicians. Taught module on inherited cardiomyopathies. 1 lecture.
- 2009 Fall Invited Expert Talk. A lecture on inherited cardiomyopathies to community-based cardiologists in Bowling Green, Kentucky. 1 lecture.
- 2011 Fall Invited Expert Talk. Nashville Chapter meeting for the National Marfan Foundation.

Ongoing Clinical Teaching

- 2006 Preceptor, Cardiology Fellows Outpatient Clinic, Massachusetts General Hospital, Boston, MA.
- 2009-present Preceptor, Cardiology Fellows Outpatient Clinic, Veterans Affairs Hospital, Nashville, TN, weekly.
- 2009-present Cardiology Consult Attending, Veterans Affairs Hospital, 2 - 6 weeks/yr.
- 2009-present Coronary Care Unit Attending, Veterans Affairs Hospital, 2 - 6 weeks/yr.

Research Supervision

Postdoctoral PhD Trainees

- Jijun Hao, Ph.D., 2007-2010. Current Position: Assistant Professor, Western University of Health Sciences, Pomona, CA.
- Ada Ao, Ph.D., 2010-2012. Editor, Scribendi, Chatham, ON, Canada.
- Yanfeng Li, Ph.D., 2011-2013. Current Position: Senior Informatics Analyst, Cigna Health Services, Nashville, TN.
- Jamie L. Rickmyre, Ph.D., 2011-2012. Current Position: Research Coordinator, Sarah Cannon Cancer Research Institute, Nashville, TN.
- Young-Wook Chun, Ph.D., 2012-2016. Research Assistant Professor, Vanderbilt University.
- Jonathan Hempel, Ph.D., 2013-2016. Medicinal chemist, Novartis Institutes of Biomedical Research.

Postdoctoral Physician-Scientist Trainees

- Cheri A. Silverstein, M.D., 2007-2009. Current Position: Assistant Professor, Western University of Health Sciences, Pomona, CA.
- Hanmin Wang, M.D., Ph.D., 2009-2010. Current Position: Professor, The 4th Military Medical University, Xi'an, China.
- Quinn S. Wells, M.D., Pharm.D., 2010-2012. Current Position: Assistant Professor of Medicine, Vanderbilt University School of Medicine.
- Hyoung Gon Song, M.D., Ph.D., 2011-2012. Current Position: Chairman and Director, Department of Emergency Medicine, Sungkyunkwan University School of Medicine, Seoul, Korea.
- Ben Mackowiak, M.D., 2012-2014. Neonatologist, The Children's Hospital at Memorial University Medical Center, Mercer University School of Medicine, Savannah, Georgia
- Matthew Durbin, M.D., 2014-2016. Assistant Professor of Pediatrics, Indiana University School of Medicine, Indianapolis, IN.
- Timothy Thayer, M.D. 2015-present. Medical Resident, Vanderbilt University Medical Center.

Postdoctoral Mentoring Committee

- Phillip Owns, Ph.D., 2010-2013. Current Position: Assistant Professor of Pathology, University of Colorado Anschutz Medical Campus

Undergraduate Students

- Weiyi Tan, M.D., 2004-2006. Current Position: Med-Peds Resident, UCLA.
- Ji-Young Hong, M.D., 2005-2006. Current Position: Anesthesiology Resident, Westchester Medical Center
- Marie A. Daleo, M.D., 2006-2007. Current Position: Pediatric Pathology Fellow, Children's Mercy Hospital/University of Missouri Kansas City School of Medicine.
- Clare K. Murphy, M.D. 2007-2008. Current Position: Radiology Resident, University of Tennessee.
- Joshua N. Ho, 2007-2009. Current Position: Graduate Student, Washington University in St. Louis.
- Jessica Keel, M.D. 2007. Current Position: Pediatrics Resident, Children's National Hospital, Washington, D.C.
- Amit S. Patel, M.D. 2008. Current Position: ENT Resident, Tulane University School of Medicine.
- Michelle M. Williams, Ph.D. 2009, Current Position: Postdoctoral Fellow, Vanderbilt University.
- Linda Hong, 2010, Current Position: Medical Student, Nova Southeastern University, Davie, FL.
- Marcus Toral, 2011, Current Position: MD-PhD Student, University of Iowa School of Medicine
- Alec T. Coston, 2011-2013, Current Position: ER Resident, Augusta University School of Medicine
- Joshua N. Cohen, 2012, Current Position: Undergraduate Student, Washington University in St. Louis.
- Kevin Koenders, 2013, Current Position: Graduate Student, University of Florida
- H. Russell Day, 2015. Current Position: Medical Student, Vanderbilt University School of Medicine
- Sungseek Kim, 2015 - 2016. Current Position: Medical Student Student, Gachon University School of Medicine, Republic of Korea
- Tyler Compton, 2015 - present. Current Position: Undergraduate Student, Vanderbilt University
- Amy Woo, 2016 - present. Current Position: Undergraduate Student, Vanderbilt University
- Linzheng Shi, 2017 - present. Current Position: Undergraduate Student, Vanderbilt University
- Grady Clopton, 2017 – present. Current Position: Undergraduate Student, Tennessee State Univ.
- Lena Bichell, 2019 – present. Current Position: Postbaccalaureate Student, Tennessee State Univ.

Medical Students

- Bronwyn Uber Harris, M.D., 2009. Current Position: CEO, Tuelo Health, Redwood City, CA
- Zoe Ghigo, M.D., 2009. Current Position: Medical Student, Univeriste Paris.
- James P. Pirruccello, M.D., 2009-2011. Current Position: Cardiology Fellow, Massachusetts General Hospital.
- Natalie L. Ausborn, M.D. 2010-2013, Current Position: Resident in Radiation Oncology, Memorial Sloan-Kettering Cancer Center, NY, NY.
- Li Zhou, M.D., 2010-2013, Current Position: Chief Medical Resident, Barnes-Jewish Hospital/Washington University in St. Louis.

- Ali Zarrabi, M.D., 2011-2012, Current Position: Assistant Professor of Medicine, Emory University School of Medicine, Atlanta, GA.
- Alejandro E. de Feria Alsina, M.D., 2011, Current Position: Medical Resident, Brigham and Women's Hospital, Boston, MA.
- Calvin Sheng, M.D., 2012-2016, Current Position, Medical Resident, Johns Hopkins University
- Chi Zhang, M.D., 2015-2016, Current Position, Medical Resident, Vanderbilt University

Graduate Rotation Students

- Bryan A. Fioret, 2009 (Rotation Graduate Student, Vanderbilt University)
- Leshana Saint-Jean, 2010 (Rotation Graduate Student, Vanderbilt University)
- David Paik, 2011 (Rotation Graduate Student, Vanderbilt University)
- Tyne Miller, 2011 (Rotation Graduate Student, Vanderbilt University)
- William Chezem, 2011 (Rotation Graduate Student, Vanderbilt University)
- Jessica Luzwick, 2011 (Rotation Graduate Student, Vanderbilt University)
- Piyush Joshi, 2015 (Rotation Graduate Student, Vanderbilt University)
- Nicole D. Kendrick, 2016 (Rotation Graduate Student, Vanderbilt University)
- Nikita Tsyba, 2016 (Rotation Graduate Student, Vanderbilt University)

Graduate Students

- Amy N. Russo, 2011-2013. Completed MS, Dept of Cell and Developmental Biology. Current Position: Research Specialist, Colgate-Palmolive
- Tromondae Kenta Feaster, PhD, Dept of Pharmacology 2011- 2015. Thesis Title: *Implementation of human induced pluripotent stem cell-derived cardiomyocyte to model excitation-contraction coupling in health and disease.* Current Position: Senior Application Scientist, Cellular Dynamics International.
- Charles H. Williams, PhD, Dept of Cell and Developmental Biology 2012 – 2016. Thesis Title: *Tripping on acid: chemical screen identifies Role for pH sensing during migration in development and disease.* Winner, Dept of Cell and Developmental Biology Outstanding Graduate Student Award. Current Position: Postdoctoral Fellow, Vanderbilt University School of Medicine.
- Adrian G. Cadar, PhD, Dept of Molecular Physiology & Biophysics 2012 – 2016. Thesis Title: *Titin regulation and maintenance in the cardiac sarcomere.* Current Position: Medical Student (Full Scholarship), Vanderbilt University School of Medicine
- Joseph Balsamo, PhD Dept of Pharmacology 2016 – present.

PhD Thesis Committees

Completed

- Robert W. Taylor, Dept. of Biological Sciences, Vanderbilt University
Thesis Title: *KCTD12 proteins regulate ULK2 to control the development of asymmetric habenular neuropil.* 2007-2011.
- Joshua M. Barnett, Dept. of Pharmacology, Vanderbilt University.
Thesis Title: *Endothelial progenitor cell subpopulation profile analysis in retinal neovascularization.* 2007-2011.
- R. Nathan Daniels, Dept. of Chemistry, Vanderbilt University.

Thesis Title: *Total Synthesis and Stereochemical Revision of Ciliatamides A-C, Total Synthesis of 8-epi-Lucentamycin A, and Development of Microwave Methodology to Facilitate the Synthesis of BMP Inhibitors*. 2008-2010.

- Weiguang Wang, Dept. of Pharmacology, Vanderbilt University, Committee Chair.
Thesis Title: *Function of ATF4 during endochondral bone formation*, 2009-2011.
- Cynthia R. Allison, Dept. of Pharmacology, Vanderbilt University.
Thesis Title: *TGF β and BMP signaling pathways regulate epicardial cell invasion and differentiation*. 2010-2012.
- Jeffrey S. Bennett, Prog. in Human Genetics, Vanderbilt University.
Thesis Title: *Role of sodium channels in cardiac development*. 2008-2013.
- Benjamin Dean, Neurosciences Graduate Program, Vanderbilt University.
Thesis Title: *Neurogenic determinants of left-right brain asymmetry: developmental investigations of the zebrafish habenular nuclei*. 2011-2014.
- Patrick Gentry, Dept. of Chemistry, Vanderbilt University,.
Thesis Title: *Discovery, optimization, and characterization of novel subtype-selective M5 muscarinic acetylcholine receptor ligands*. 2012-2014.
- Rene Raphemot, Dept. of Pharmacology, Vanderbilt University, Committee Chair.
Thesis Title: *Of mosquitoes and men: targeting inward rectifier potassium (Kir) channels for the development of new therapeutics and insecticides*. 2012 -2014. *Winner, Founder's Medal, highest honor given to graduating PhD student*.
- Kevin Bersell, Dept of Pharmacology, Vanderbilt University/MSTP, Committee Chair,
Thesis Title: *Genetic variation, pathogenicity, and pathophysiology of human channelopathies*. 2014 - 2016.
- Laura Armstrong, Dept. of Cell and Developmental Biology/MSTP, Vanderbilt University,
Thesis Title: *Modeling tuberous sclerosis complex using patient-derived cells*. 2013 - 2017.

Current

- Leshana Saint-Jean, Dept of Cell and Developmental Biology, Vanderbilt University, 2011-present.
- Zachary Sandusky, Dept of Cancer Biology, Vanderbilt University, 2015 - present.
- Casey Nielssen, Dept of Cell and Developmental Biology, Vanderbilt University, 2015 – present.
- Krystian Kozek, Dept of Pharmacology/MSTP, Vanderbilt University, 2015 – present.
- Shan Parikh, Dept of Pharmacology/ MSTP, Vanderbilt University, 2015 – present.
- John P. Snow, Dept of Cell and Developmental Biology, Vanderbilt University, 2016 – present.

RESEARCH PROGRAM

GRANT AWARDS (current)

1R01GM118557-02

6/1/2016 – 5/31/2021

NIH/NIGMS

Chemical genetic analysis of vertebrate development

The goals of this project is to conduct large-scale chemical genetic screen for novel compounds that disrupt embryonic pattern formation in zebrafish and utilize them as chemical tools to elucidate critical developmental pathways and processes.

Role: Primary investigator

1 R01 HL135129-01A1

12/15/2017 - 11/30/2021

NHLBI

Novel Approach to Enhance Myocardial Performance and Improve Heart Failure Outcome

The goal of this project is to identify and validate the targets of a novel inotrope that enhances in vitro myocardial performance that is associated with improved long-term outcomes.

Role: Primary investigator

P50GM115305

7/1/2015 – 6/30/2020

NIH/NIGMS

Improving prediction of drug action (PI: Denny JC, Phillips EJ, Roden DM)

A goal of this project is to use human induced pluripotent stem cell-derived cardiomyocytes (iPSC-CMs) to improve prediction of drug responses.

Role: Co-Investigator

1R21CA208631-02

07/01/2016 - 06/30/2018

NIH/NCI

Dual Action RSK Inhibitor: Targeting Metastasis and Providing Cardioprotection (PI: Lannigan)

Our research focuses on the development and testing of a novel inhibitor that targets the Ser/Thr protein kinase, RSK. This inhibitor has the potential to reduce metastatic tumor burden and to serve as a cardioprotective agent to ameliorate doxorubicin-induced cardiotoxicity. The successful transition of a RSK inhibitor to the clinic would dramatically improve patient outcome.

Role: Co-investigator

1 UG3 TR002097-01

07/01/2017 – 6/30/2022

NCATS

Drug development for tuberous sclerosis complex and other pediatric epileptogenic diseases using neurovascular and cardiac microphysiological models (PIs: Wikswo, Bowman)

Role: co-I

5 R03AI124190-01A1

01/01/2017 - 12/31/2018

NIAID

Targeting the T cell immune synapse in autoimmunity (PI: Major AS)

Role: co-I

GRANT AWARDS (completed)

Stanley J. Sarnoff Scholar Award

2005

Sarnoff Foundation for Cardiovascular Research,
“Chemical Genetics of Vertebrate Vascular Development,”
Principal Investigator (returned upon receipt of K08)

Mentored Clinical Scientist Development Award (K08)

2005 - 2009

NIH/NHLBI Grant # 1K08HL081535-01,
“Chemical Genetics of Vertebrate Vascular Development,”
Principal Investigator.

GSK International Competitive Grant Award for Young Investigators 2007 - 2009
GlaxoSmithKline Research & Education Foundation for Cardiovascular Disease,
“Role of ERK and P13K Signaling in Vascular Development, Remodeling and Regeneration,”
Principal Investigator.

5U01HL100398-01 (PI: Antonis Hatzopoulos) 9/30/2009 - 6/30/2011
NIH/NHLBI, Progenitor Cell Biology Consortium
“Optimizing Cardiovascular Stem Cells for Cardiac Repair and Regeneration”
Role: Co-investigator (10% effort)

The Edwards Lifesciences Fund Strategic Grant 2007 - 2011
“Familial Cardiovascular Disease Initiative”
Role: Principal Investigator

Cali Family Foundation Grant 7/1/2008 - 6/30/2012
The Center for Research in Fibrodysplasia Ossificans Progressiva and Related Disorders at the
University of Pennsylvania,
“Developing Future Drugs to Treat Fibrodysplasia Ossificans Progressiva,”
Role: Principal Investigator

VHA Career Development Transition Award 4/1/2009 - 3/31/2012
US Department of Veterans Affairs.
“Chemical Genetic Analysis of Cardiomyogenesis of Pluripotent Stem Cells.”
Role: Principal Investigator (56% effort)

Cardiac Translational Research Implementation Program (C-TRIP) 2010 - 2012
Multi-center study titled “Using Genetics for Early Phenotyping & Prevention of Hypertrophic
Cardiomyopathy.”
Study Leader: Caroline Ho, MD, Brigham-Women’s Hospital,
Role: Co-Investigator for Vanderbilt Site.

101BX000771 VA Merit Review
Veterans Health Administration 9/1/2010 – 8/31/2014
Grant Title: *Chemical induction of cardiomyogenesis.*
Role: Principal Investigator

5R01HL095813-05
NIH/NHLBI 7/5/2010 – 6/30/2016
Grant Title: Regulation and maintenance of cardiac muscle sarcomere integrity.
Role: Principal Investigator

5R01HL104040-05
NIH/NHLBI 8/1/2010 – 10/30/2015
Grant Title: *Cardiac induction by small molecule BMP inhibitors.*
Role: Principal Investigator

3R01HL104040-05S2

7/1/2013 – 10/30/2015

NIH/NHLBI

Title: Cardiac induction by small molecule BMP inhibitors.

Supplement to train a minority graduate student in stem cell chemical biology.

La Jolla Pharmaceuticals, La Jolla, CA

1/1/2015 - 6/30/2016

The goal of this sponsored research is to examine the therapeutic efficacy of small molecules developed in the Hong lab in preclinical models of heterotopic ossification and muscular dystrophy.

Role: Primary Investigator

2R01HL71670-10

2/12/2003 - 11/30/2017

NIH/NHLBI

Arrhythmia mechanisms in sarcomeric cardiomyopathy (PI; Knollmann BC)

A goal of this project is to use human induced pluripotent stem cell-derived cardiomyocytes (iPSC-CMs) to determine arrhythmogenic mechanisms in patients with sarcomeric cardiomyopathies.

Role: Co-Investigator

CLINICAL RESEARCH PROTOCOLS

- Principal Investigator, Vanderbilt Heart Tissue Repository, 2007-2009
- Principal Investigator, Patient-specific cardiomyocytes engineered from induced pluripotent stem cells, 2009-present.
- Co-Investigator, a multi-center study titled “Using Genetics for Early Phenotyping & Prevention of Hypertrophic Cardiomyopathy.” 2009-2011. Study Leader: Caroline Ho, MD, Brigham-Women’s Hospital, Boston, MA

LICENSING for CLINICAL DEVELOPMENT:

Exclusive Research and License Agreement with La Jolla Pharmaceutical Covering Novel BMP Type-I Receptor Inhibitors, August 18, 2015.

PATENTS:

Issued

1. Inhibitors of the BMP Signaling Pathway (US 8,507,501; Issued 8-13-2013)
2. Compounds and Methods Useful for Directing Stem Cell Differentiation (US 8,822,684; Issued 9-2-2014)
3. Inhibitors of the BMP Signaling Pathway (US 9,045,484; Issued 6-2-2015)
4. Compounds and Methods Useful for Directing Stem Cell Differentiation (US 9,040,694; Issued 5-26-2015)
5. Cancer treatment using BMP inhibitor (US 9,505,763; issued 11-29-2016)
6. Fused heterocyclic compounds as selective BMP inhibitors (US 9,738,636 B2; issued 8-22-2017)
7. Fused heterocyclic compounds as selective BMP inhibitors (European 2900238; issued 11-9-2017)

Pending

1. Methods and Compositions for Use in Treating Vascular Diseases and Conditions (US App. 08/199,449)
2. Methods for Identifying Compounds that Modulate Cell Signaling and Methods Employing Such Compounds (WO 2008/033408; US App. 12/375,871)
3. Inhibitors of bone morphogenetic protein (BMP) signaling for therapeutic purposes (European Patent App. No. EP2270229)
4. Compounds and Methods for Inhibition of Hedgehog Signaling and Phosphodiesterase (PCT/US15/050,024; WO 2016/0404951 A1).
5. Fused heterocyclic compounds as selective BMP inhibitors (distinct from above; US App. 17/051,557)
6. Fused heterocyclic compounds as selective BMP inhibitors (distinct from above; US App. 18/014,239)
7. Fused heterocyclic compounds as selective BMP inhibitors (WO 2014/051698)
8. Fused heterocyclic compounds as selective BMP inhibitors (Australian App. No. 2013324396)
9. Fused heterocyclic compounds as selective BMP inhibitors (Canadian App. No. CA2886187)
10. Fused heterocyclic compounds as selective BMP inhibitors (China App. No. 21380058849.8)
11. Fused heterocyclic compounds as selective BMP inhibitors (Indian App. No. 3581/DELNP/2015)
12. Fused heterocyclic compounds as selective BMP inhibitors (Japanese App. No. 2015/534463)
13. Fused heterocyclic compounds as selective BMP inhibitors (Singapore App. No. 11201503299Y)
14. Method for differentiation of stem cells and progenitor cells into neuronal and neuroglial cells (provisional patent app)
15. Small Molecule Inhibitors of Wnt Signaling and Their Uses (provisional patent app)
16. Small Molecule Inhibitors of the BMP Signaling and Their Uses (distinct from above, Vanderbilt, provisional patent app)
17. Small Molecule Inhibitors of Wnt Signaling and Their Uses (distinct from above, provisional patent app)
18. Chemically Defined Medium for Robust Cardiomyocyte Induction of Human Induced Pluripotent Stem Cells (pending).
19. Compounds and Methods to Treat Triple Negative and Metastatic Breast Cancers (pending).
20. Chemically Defined Medium for Long-term Maintenance of Human Embryonic Stem and Induced Pluripotent Stem Cells (pending).
21. Small Molecule Inhibitors of Extracellular Proton Signaling and Their Uses (pending)
22. Small Molecule Inhibitors of Lipid Signaling and Their Uses (pending)
23. Small Molecule Potentiators of BMP Signaling and Their Uses (pending)
24. Small Molecule Potentiators of Wnt Signaling and Their Uses (pending)
25. Method to Treat Systolic Heart Failure by Localized Inhibition of Phosphodiesterase-4 (pending)

26. Method to Treat Breast Cancer by Targeting Cancer Stem Cells, Tumor Microenvironment and Metastasis (pending)
27. Hydrogel Mattress (pending)
28. Small Molecule Inhibitors of Lysophosphatidic Acid Receptor 1 (LPA1) and Methods of Their Use (pending)

PUBLICATIONS and PRESENTATIONS

Books Edited

1. Senior editor, *Chemical Biology in Regenerative Medicine: Bridging Stem Cells and Future Therapies*, Wiley Press, Hoboken, NJ, USA, publication date: August 2014.
2. Senior editor, *Chemical Biology: Methods and Protocols*, Humana Press, NY, NY, USA, publication date: February 2015.

Peer Reviewed Articles:

1. Bloch KD, **Hong CC**, Eddy RL, Shows TB, Quertermous T. cDNA cloning and chromosomal localization of the endothelin 2 gene: vasoactive intestinal constrictor is rat endothelin 2. *Genomics* 1991; 10:236-242. PMID:1840558.
2. Cicila GT, Rapp JP, Bloch KD, Kurtz TW, Pravence M, Kren V, **Hong CC**, Quertermous T, Ng SC. Cosegregation of the endothelin-3 locus with blood pressure and relative heart weight in inbred Dahl rats. *J. Hypertension* 1994; 12:643-651. PMID:7963489.
3. De la Monte SM, Quertermous T, **Hong CC**, Bloch, KD. Regional and maturation-associated expression of endothelin 2 in rat gastrointestinal tract. *J. Histochemistry and Cytochemistry* 1995; 43:203-209. PMID:7822776.
4. **Hong CC**, Hashimoto C. An unusual mosaic protein with a protease domain, encoded by the nudel gene, is involved in defining embryonic dorsoventral polarity in Drosophila. *Cell* 1995; 82:785-794. PMID:7671306.
Subject of commentaries in Trends in Cell Biology, and others.
5. **Hong CC**, Hashimoto C. The maternal nudel protein of Drosophila has two distinct roles important for embryogenesis. *Genetics* 1996; 143:1653-1661. PMID:8844153. PMCID: PMC1207428.
6. LeMosy EK, **Hong CC**, Hashimoto C. Signal transduction by a protease cascade. *Trends in Cell Biology* 1999; 9:102-107. PMID:10201075.
7. **Hong CC**, Peterson QP, Hong J-Y, Peterson RT. Artery/vein specification is governed by opposing phosphatidylinositol-3 kinase and MAP kinase/ERK signaling. *Current Biology* 2006; 16: 1366-1372. PMID:16824925. PMCID: PMC1930149.
Subject of commentaries in Science Signaling, and others.
8. Yu PM*, **Hong CC***, Sachidanandan C*, Babitt JL, Deng DY, Hoyng SA, Lin HY, Bloch KD, Peterson RT. Dorsomorphin inhibits BMP signals required for embryogenesis and iron

metabolism. *Nature Chemical Biology* 2008; 4:33-41. PMID:18026094. PMCID: PMC2727650. (Citations by Google Scholar: 783) *equal contribution.

Cover article, subject of commentaries in *Nature Chemical Biology, Development, and Signaling-gateway.org*

9. Yu PB, Deng DY, Beppu H, **Hong CC**, Lai C, Hoyng SA, Kawai N, Bloch KD. BMP type II receptor is required for BMP-mediated growth arrest and differentiation in pulmonary artery smooth muscle cells. *J. Biol. Chem.* 2008; 283:3877-3888. PMID:18042551. PMCID: pending.
10. Hao JJ, Daleo MA, Yu PM, Murphy CK, Ho JN, Hu J, Peterson RT, Hatzopoulos AK, **Hong CC**. Dorsomorphin, a selective small molecule inhibitor of the BMP signaling, promotes cardiomyogenesis in embryonic stem cells. *PLoS ONE*, 2008; 3:e2904. PMID:18682835. PMCID: PMC2483414.
11. Yu PB, Deng DY, Lai CS, **Hong CC**, Cuny GD, Bouxsein ML, Peterson RT, Katagiri T, Fukada T, Mishina Y, Bloch KD. BMP type I receptor inhibition reduces heterotopic ossification. *Nature Medicine* 2008; 14:1363-1369. PMID:19029982. PMCID: PMC2846459.
12. **Hong CC**, Kume T, Peterson RT. Role of cross talk between PI3-kinase and ERK/MAP kinase pathways in artery-vein specification. *Circulation Research* 2008; 103:573-579. PMID:18796644. PMCID: PMC2768581.
13. Wang L, Harrington L, Trebicka E, Shi HN, Kagan JC, **Hong CC**, Lin HY, Babitt JL, Cherayil BJ. Selective modulation of TLR4-activated inflammatory responses by altered iron homeostasis. *Journal of Clinical Investigation* 2009; 119:3322-3328. PMID:19809161. PMCID: PMC2769199.
14. Kaplan FS, Zasloff MA, Kitterman JA, Shore EM, **Hong CC**, Rocke D. Early mortality and cardiorespiratory failure in patients with fibrodysplasia ossificans progressiva. *Journal of Bone and Joint Surgery* 2009; 92:686-691. PMID:20194327. PMCID: PMC2827822.
15. **Hong CC**, Yu PB. Applications of small molecule BMP inhibitors in physiology and disease. *Cytokines and Growth Factor Reviews* 2009; 20:409-418. PMID:19914855. PMCID: PMC2813719.
16. Xia T, Babitt JL, Bouley R, Zhang Y, Da Silva N, Chen S, Zhuang Z, Samad TA, Brenner GJ, Anderson JL, **Hong CC**, Schneyer AL, Brown D, Lin HY. Dragon mediates BMP signaling and increases transepithelial resistance in kidney epithelial cells. *Journal of the American Society of Nephrology* 2010; 21:666-677. PMID:20167703. PMCID: PMC3670585.
17. Hao J, Ho, JN, Lewis JA, Karim KA, Daniels, RN, Gentry PR, Hopkins CR, Lindsley C, **Hong CC**. *In vivo* structural activity relationship study of dorsomorphin analogs identifies selective VEGF and BMP inhibitors. *ACS Chemical Biology* 2010; 5:245-253. PMID:20020776. PMCID: PMC2825290.
Subject of commentaries in *Chemistry and Engineering News (CEN), Physorg.com, Biology-blog.com, Science Daily, and others.*

18. Harris B, Pfothenauer J, Silverstein C, Markham L, Schafer K, Exil V, **Hong CC**. Serial Observations and Mutational Analysis of an Adoptee with Family History of Hypertrophic Cardiomyopathy. *Cardiology Research and Practice* 2010; 2010: 697269. PMID:20309391. PMCID: PMC2838361.
19. Alfaro MP, Vincent A, Throne CA, **Hong CC**, Lee E, Young PP. sFRP2 suppression of BMP and Wnt signaling mediates mesenchymal stem cell (MSC) self-renewal promoting engraftment and myocardial repair. *J. Biol. Chem.* 2010; 285:35645-53. PMID:20826809. PMCID: PMC2975189.
20. Wang H, Hao J, **Hong CC**. Cardiac induction of embryonic stem cells by a small molecule inhibitor of Wnt/b-catenin signaling. *ACS Chemical Biology* 2011; 6:192-197. PMID:21077691. PMCID: PMC3076310.
21. Shi ST, Hoogaars WMH, de Gorter DJJ, van Heiningen SH, Lin HY, **Hong CC**, Kemaladewi DU, Aartsma-Rus A, ten Dijke P, 'T Hoen PAC. BMP antagonists enhance myogenic differentiation and ameliorate the dystrophic phenotype in a DMD mouse model. *Neurobiology of Disease* 2011; 41:353-360. PMID:20940052. PMCID: PMC3674857.
22. Xia Y, Cortez-Retamozo V, Niederkofler V, Salie R, Chen S, Samad T, **Hong CC**, Arber S, Vyas JM, Weissleder R, Pittet MJ, Lin HY. Dragon (RGMb) inhibits IL-6 expression in macrophages. *J. Immunology* 2011; 187:1369-1376. PMID:21187450. PMCID: PMC3670585.
23. Hao J, Williams CH, Webb ME, **Hong CC**. Large scale zebrafish-based *in vivo* small molecule screen. *JoVE* 2011; pii:2243. PMID:21248690. PMCID: PMC3159654.
24. Ao A, Williams CH, Hao J, **Hong CC**. Modified mouse embryonic stem cell based assay for quantifying cardiogenic induction efficiency. *JoVE* 2011; pii:2656. PMID:21540823. PMCID: PMC3169259.
25. Wiley DM, Kim J-D, Hao J, **Hong CC**, Bautch VL, Jin S-W. Distinct signaling pathways regulate sprouting angiogenesis from the dorsal aorta and axial vein. *Nature Cell Biology* 2011; 13:687-693. PMID:21572418. PMCID: PMC3107371.
26. Palmisano BT, Rottman JN, DiSalvo TG, **Hong CC**. Familial evaluation for diagnosis of arrhythmogenic right ventricular dysplasia. *Cardiology* 2011; 119:47-53. PMID:21822014. PMCID: PMC3169361.
27. Meynard D, Vaja V, Sun CC, Coradini E, Chen S, Lopez-Otin C, Grgurevic L, **Hong CC**, Stirnber M, Guestschow M, Vukicevic S, Babbit JL, Lin HY. Regulation of TMPRSS6 by activators of hepcidin: BMP6 and Iron. *Blood* 2011; 118:747-756. PMID:21622652. PMCID: PMC3142910.
28. Theurl I, Schroll A, Sonnweber T, Nairz M, Theurl M, Willenbacher W, Eller K, Wolf D, Seifert M, Sun CC, Babbit JL, **Hong CC**, Menhall T, Gearing P, Lin HY, Weiss G. Pharmacologic inhibition of hepcidin reverses anemia of chronic disease in rats. *Blood* 2011; 118:4977-4984. PMID:21730356. PMCID: PMC3208302.

29. Cross EE, Martinez M, Thomason RT, Hokpins, CR, **Hong CC***, Bader DM*. Application of Small Organic Molecules Reveals Cooperative TGF β and BMP Regulation of Mesothelial Cell Behaviors. *ACS Chemical Biology* 2011; 6:952-961. ****co-corresponding authors.** PMID:21740033. PMCID: PMC3177035.
Cover article
30. Wells QS, Ausborn NL, Funke BH, Pfothenouer JP, Fredi JL, Thomas D, DiSalvo TD, **Hong CC**. A familial dilated cardiomyopathy associated with a novel VCL mutation (Lys815Arg) in conjunction with a known MYPBC3 variant: possible gene-gene and genotype-phenotype interactions. *Cardiogenetics* 2011; 1:e10. PMID: 24062880. PMCID: PMC3779542.
31. Gupta MK, Crowder SW, Jung DK, Walthal JM, Venkataramn R, Yu SCS, Feaster TK, **Hong CC**, Baudenbacher FJ, Hatzopoulos AK, Sung HJ. Combinatorial polymer electrospun matrices promote physiologically-relevant cardiomyogenic stem cell differentiation. *PLoS ONE* 2011; 6:e28935. PMID:22216144. PMCID: PMC3246450.
32. Williams CH, **Hong CC**. Multi-step usage of in vivo models during drug discovery and development. *International Journal of Molecular Sciences* 2011; 12:2262-74. PMID:21731440. PMCID: PMC3127116.
33. Hao J, Sawyer DB, Hatzopoulos AK, **Hong CC**. Recent progress on chemical biology of pluripotent stem cell self-renewal, reprogramming and cardiomyogenesis. *Recent Patents on Regenerative Medicine* 2011; 1:263-274. PMID: 22787575. PMCID: PMC3392203.
34. Ao A, Hao J, **Hong CC**. Regenerative chemical biology: current challenges and future potentials. *Chemistry & Biology* 2011; 18:413-424. PMID:21513877. PMCID: PMC3082739.
35. Wang, L, Trebicka, E, Fu, Y, Ellenbogen, S, **Hong, CC**, Babitt, JL, Lin, HY, Cherayil, BJ. The bone morphogenetic protein-hepcidin axis as a therapeutic target in inflammatory bowel disease. *Inflammatory Bowel Diseases* 2012; 18:112-119. PMID:21351217. PMCID: PMC3139830.
36. Saeed O, Otsuka F, Polavarapu R, Karmali V, Weiss D, Davis T, Rostad B, Pachura K, Adams L, Elliott J, Taylor R, Narula J, Kolodgie F, Virmani R, **Hong CC****, Finn AV**. Pharmacologic suppression of hepcidin increases macrophage cholesterol efflux and reduces foam cell formation and atherosclerosis. *Arteriosclerosis, Thrombosis, and Vascular Biology* 2012; 32:299-307. ****co-corresponding authors.** PMID:22095982. PMCID: PMC3262074.
Subject of commentaries in dozens of media outlets.
37. Hill CR, Sanchez NS, Love JD, Arrieta JA, **Hong CC**, Brown CB, Austin FB, Barnett JV. BMP2 signals loss of epithelial character in epicardial cells but requires the Type III TGF β receptor to promote invasion. *Cell Signal* 2012; 24:1012-1022. PMID:22237159. PMCID: PMC3288519.
38. Neely MD, Litt, MJ, Aboud AA, Tidball AM, Li GG, Hedera P, **Hong CC**, Ess KC, Bowman AB. DMH1, a highly selective small molecule BMP inhibitor promotes neurogenesis of hiPSCs: comparison of PAX6 and SOX1 expression during neural induction. *ACS Chemical Neuroscience* 2012; 3:482-491. PMID:22860217. PMCID: PMC3400384.

39. Ao A, Hao J, Hopkins CR, **Hong CC**. DMH1, a novel BMP small molecule inhibitor, increases cardiomyocyte progenitors and promotes cardiac differentiation in mouse embryonic stem cells *PLoS ONE* 2012; 7:e41627. PMID:22848549. PMCID: PMC3407188.
40. Sun CC, Vaja V, Chen S, Theurl I, Stephanek A, Brown D, Cappellini MD, **Hong CC**, Lin HY, Babitt JL. A hepcidin inhibitor mobilizes iron for incorporation into red blood cells in an adenine-induced chronic kidney disease model in rats. *Nephrology Dialysis Transplantation* 2013; 28:1733-43. PMID: 23345622. PMCID: PMC3707526.
41. Engers, DW, Frist AY, Lindsley CW, **Hong CC**, Hopkins CR. Synthesis and structure-activity relationships of a novel and selective bone morphogenetic protein (BMP) receptor inhibitor derived from the pyrazolo[1,5-a]pyrimidine scaffold of Dorsomorphin: the discovery of ML347 as an ALK2 versus ALK3 selective MLPCN probe. *Bioorganic & Medicinal Chemistry Letters* 2013; 23:3248-52. PMID: 23639540. PMCID: PMC3677712.
42. Langenfeld E, **Hong CC**, Lanke G, Langenfeld J. Bone morphogenetic protein type-I receptor antagonists decrease growth and induce cell death of lung cancer cell lines. *PLoS ONE* 2013; 8:e61256. PMID: 23593444. PMCID: PMC3625205.
43. Engers DW, Frist AY, Lindsley CW, **Hong CC**, Hopkins CR. Development of a potent and ALK2 selective bone morphogenetic protein receptor (BMP) inhibitor. *Probe Reports from the NIH Molecular Libraries Program*. 2013 April 12. PMID: 25506972.
44. Williams CH, **Hong CC**. Making models work: library annotation through phenoclustering. *Drug Discovery Today – Model Organisms* 2013; 10:e5-e9. PMID: 24187570. PMCID: PMC3811947.
45. Owens P, Polikowsky H, Pickup MW, Gorska AE, Javanovic B, Shaw AK, Nivitskiy SV, **Hong CC**, Moses HL. Bone morphogenetic proteins stimulate mammary fibroblasts to promote mammary carcinoma cell invasion. *PLoS ONE* 2013; 8:e67533. PMID: 23861363. PMCID: PMC3695869.
46. Shelton EL, Galindo CL, Williams CH, Pfaltzgraff E, **Hong CC**, Bader DM. Autotaxin signaling governs phenotypic heterogeneity in visceral and parietal mesothelia. *PLoS ONE* 2013; 8:e69712. PMID: 23936085. PMCID: PMC3723636.
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50. Talati M, West J, Zaynagetdinov R, **Hong CC**, Han W, Blackwell T, Robinson L, Blackwell TS, Lane K. BMP pathway regulation of and by macrophages *PLoS ONE* 2014; 9:e94119. PMID: 24713633. PMCID: PMC3979749.
51. Yang T, Chun YW, Stroud DM, Knollmann BC, **Hong CC**, Roden DM. Screening for acute Ikr block is insufficient to detect Torsades de Pointes liability: role of the late sodium current. *Circulation Research* 2014;130:224-34. PMID: 24895457. PMCID: PMC4101031.
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79. Durbin MD, Cadar AG, Chun YW, **Hong CC**. Investigating pediatric disorders with induced pluripotent stem cells. *Pediatric Research* (in press).
80. Bersell K, Yang T, Mosley JD, Glazer AC, Campbell CC, **Hong CC**, Well QS, Weil CA, Short L, Blair MA, Shaffer C, Parikh S, Sheng Q, Brown JD, Wang TJ, Kannankeril PJ, Knollmann BC, Roden DM. Establishing a patient-specific disease model of an inherited arrhythmia reveals a general arrhythmogenic signaling pathway (in revision for *Nature*)
81. Williams CH, **Hong CC**. ZePAC (Zebrafish Phenotypic Anatomical Clustering) guides target identification of a Wnt inhibitor Incaskin, a novel, highly selective CK2 α kinase inhibitor (in revision for *Cell Chemical Biology*)
82. Clowes VE, Edwards TL, Angus K, Warrant J, Harbour ME, Hopkins CR, **Hong CC**, Blackstone C, Hanna M, Reid E. The hereditary spastic paraplegia proteins spartin and maspardin interact in a pathway that regulates BMP signaling (under review at *Human Molecular Genetics*).
83. Le Bras A, Vijayaraj P, Yuan L, Kondo M, **Hong CC**, Oettgen P. Induction of Erg during endothelial differentiation of embryonic stem cell is regulated by BMP4. (under review at *Stem Cell Research*).
84. Cadar AG, Feaster TK, Bersell KR, Wang LI, Knollmann BC, Roden DM, Lim CC, **Hong CC**. Real-time visualization reveals extensive recycling of endogenous Titin in human induced pluripotent stem cell-derived cardiomyocytes. (in preparation for *Journal of Cell Science*)
85. Thayer TE, Martyn T, Wunderer F, Shakartzki HR, O'Rourke C, Shelton G, Booton SE, Buswell MD, Bamed H, Li P, Burke MF, Wells Q, Farber-Eger E, Perrien DS, Kuma R, Buys ES, Bloch KD, **Hong CC**, Bloch DB, Malhotra R. Targeting Bone Morphogenetic Protein Signaling in Hepatic Steatosis. (in preparation for *Blood*)
86. Chun YW, Williams CH, Cadar AG, Durbin MD, Sheng CC, Katagiri M, Woo A, Finn AV, Williams JA, Atkinson JB, Farber-Eger E, Wells QS, Su YR, Bicell DP, Hong CC. Rotatin is a new causal gene for congenital dilated cardiomyopathy and is associated with adult heart failure. (in preparation)
87. Rickmyre JL, Williams CH, Hao J, Frist AY, **Hong CC**. Epigenetic modification plays a central role in integrating cellular responses to spatial cues during vertebrate dorsoventral axis (in preparation).
88. Williams CH, Hempel JE, Frist AY, Kolobova E, Goldenring JR, Sulkowski GA, **Hong CC**. Chemical probe of the cAMP microdomain in the basal body (in preparation).

Book Chapters and Invited Reviews:

1. **Hong CC**. Large-Scale Small Molecule Screen Using Zebrafish Embryos. In: *Cell-based Assays in High-Throughput Screening, Methods in Molecular Biology*. Clemons PA, Tolliday NJ, Wagner BK, eds. Totowa, NJ, Humana Press. 2009; 486:43-55. PMID: 19347615.
2. The International Clinical Consortium on FOP (**Hong CC**, contributing member). The medical management of Fibrodysplasia Ossificans Progressiva: current treatment considerations. *Clin. Proc. Intl. Clin. Consort. FOP* 2008; 3:1-82.
3. Hao J, Daleo MA, **Hong CC**. Crosstalk between mitogen-activated protein kinase and phosphoinositide-3 kinase signaling in development and disease. In: *Systems Biology for Signaling Networks*. Choi S, ed. New York, NY, Springer. 2010; pp. 505-530.
4. Hao J, Zhou L, **Hong CC**. Chemical biology of pluripotent stem cells: focus on cardiomyogenesis. In: *Embryonic Stem Cells*. Atwood S, ed. Vienna, Austria, InTech 2011; pp. 51-64.
5. The International Clinical Consortium on FOP (**Hong CC**, contributing member). The medical management of Fibrodysplasia Ossificans Progressiva: current treatment considerations. *Clin. Proc. Intl. Clin. Consort. FOP* 2011; 4:1-100.
6. Sheng CC, **Hong CC**. Mixing of the old with the new: nanoparticle-mediated pioglitazone delivery to enhance therapeutic neovascularization. *Arteriosclerosis, Thrombosis, and Vascular Biology* 2012; 10:2337-2338. PMID:22972937. PMCID: PMC3672409.
7. Sheng CC, **Hong CC**. Pluripotent Stem Cells for Modeling Human Cardiovascular Diseases. In: *Pluripotent Stem Cells*. Bhartiya D, Lenka N, eds. Vienna, Austria, InTech 2013; pp. 439-457.
8. Roden DM, **Hong CC**. Stem Cell-Derived Cardiomyocytes as a Tool for Studying Proarrhythmia: A Better Canary in the Coal Mine? *Circulation* 2013; 127:1641-3. PMID: 23519759. PMCID: PMC3954984.
9. Sheng CC, Hao J, **Hong CC**. Chemically induced pluripotent stem cells (CiPSC): a potential chemical biological breakthrough in reprogramming? In: *Chemical Biology in Regenerative Medicine: Bridging Stem Cells and Future Therapies*. Hong CC, Ao A, Hao J, eds. Hoboken, NJ, USA. Wiley Press. Publication date 2014.
10. Williams CH, **Hong CC**. High content screening for modulators of cardiovascular or global developmental pathways in zebrafish. In: *Chemical Biology: Methods and Protocols*. Hempel JE, Williams CH, Hong CC, eds. New York, NY, Springer Press. 2015; 1263:167-174. PMID: 25618344.
11. Hempel JE, **Hong CC**. Practical Strategies for Small Molecule Probe Development in Chemical Biology. In: *Chemical Biology: Methods and Protocols*. Hempel JE, Williams CH, Hong CC, eds. New York, NY, Springer Press. 2015; 1263:209-223. PMID: 25618348.

12. Zhang C, Cadar AD, Hong CC. The Tell-Tale Heart: The Role of Induced Pluripotent Stem Cell Cardiomyocytes in Modern Medicine. In: *Encyclopedia of Cardiovascular Research and Medicine*. Elsevier, Oxford, UK. 2017

Presentations (Oral):

Peer Reviewed Meeting Presentations (National)

- 1994 Dec. New York Regional Drosophila Research Meeting. *Maternal nudel gene is required for embryonic dorsoventral axis formation*. Cold Spring Harbor, NY.
- 1994 Dec. Annual Meeting of American Society for Cell Biology, Symposium Presentation. *Molecular studies of nudel, a gene required for embryonic dorsoventral polarity*. San Francisco, CA.
- 1995 March Northeast Regional Developmental Biology Conference, Plenary Presentation. *Nudel protease is required for embryonic dorsoventral axis formation*. Woods Hole, MA.
- 1995 April Annual Drosophila Research Conference, Plenary Presentation. *Embryonic axis induction by maternally encoded nudel protease*. Atlanta, GA.
- 2005 Nov. Annual Scientific Meeting of the American Heart Association (AHA), Oral Presentation. *Chemical genetic analysis reveals the opposing effects of phosphatidylinositol-3 kinase and p44 MAP kinase signaling pathways on arterial specification*. Dallas, TX.
- 2006 Nov. Annual Scientific Meeting of the AHA, Oral Presentation. *Opposing effects of phosphatidyl inositol-3 kinase and ERK/MAP kinase signaling pathways on artery-vein specification*. Chicago, IL.
- 2007 April Arteriosclerosis, Thrombosis, and Vascular Biology Annual Conference, Oral Presentation. *Chemical genetic analysis reveals the central role of phosphatidylinositol-3 kinase and MAP kinase/ERK signaling pathways in artery/vein specification*. Chicago, IL.
- 2009 Nov. Annual Scientific Meeting of the AHA, Oral Presentation. *Identification of selective small molecule inhibitors of vascular endothelial growth factor (VEGF) and bone morphogenetic protein (BMP) signaling using zebrafish-based in vivo structure activity relationship studies*. Orlando, FL.
- 2011 Jan. 4th Strategic Conference of Zebrafish Investigators. *Chemical genetic screen of embryonic axis formation identifies a selective β -catenin-1 inhibitor*. Asilomar, CA.
- 2016 Nov. Annual Scientific Meeting of the American Heart Association (AHA), Best of *Circulation Research* Oral Presentation. *Matrigel mattress: a method for the generation of single contracting human-induced pluripotent stem cell-derived cardiomyocytes*. New Orleans, LA.

Invited Lectures (Internal):

- 2002 Dec. Center for Integration of Medicine and Innovative Technology (CIMIT), Massachusetts General Hospital, Vulnerable Plaque Lecture. *C-reactive protein*. Boston, MA.
- 2006 Oct. Division of Cardiovascular Medicine Grand Rounds. *Chemical genetics of vertebrate vascular development*.
- 2007 Oct. Vanderbilt Institute of Chemical Biology, Seminar. *Chemical biology of zebrafish development*.
- 2007 Oct. Division of Nephrology, Seminar. *Chemical genetics of vertebrate vascular development*.

- 2008 April Gottlieb C. Friesinger Society Annual Meeting, Scientific Presentation. *Small molecule discovery at Vanderbilt Heart.*
- 2008 July Department of Pharmacology, Department Seminar. *Chemical genetics of vascular development.*
- 2008 July Vanderbilt Center for Stem Cell Biology, Seminar. *Chemical genetics of cardiomyogenesis.*
- 2010 July Department of Cell and Developmental Biology, Seminar. *Chemical biology of embryonic pattern formation.*
- 2010 July Developmental Biology Program, Seminar. *Chemical genetics of embryonic development and stem cell differentiation.*
- 2011 July Medicine Grand Rounds, *Chemical biology of vertebrate development: Rich ore for therapeutic leads?*
- 2012 Oct Program in Vascular Biology, Retreat Talk. *Chemical genetics of vascular development.*
- 2012 Oct Pathology Grand Rounds, Seminar. *Chemical biology of embryonic pattern formation: insights to pathophysiology and future therapies*
- 2013 March Vanderbilt Institute of Chemical Biology 10th Anniversary Symposium, Speaker. *Chemical biology of embryonic pattern formation: rich ore for future therapies.*
- 2015 March Vanderbilt Institute for Clinical & Translational Research, Personalized Medicine Seminar. *Not so odd couple: marriage of chemical genetics and human genetics.*
- 2015 March MSTP 2nd Look Weekend, Guest Speaker. *Precision medicine from the fish.*
- 2016 Sept. Vanderbilt Institute for Clinical & Translational Research, Panelist, 2016 Personalized Medicine Day
- 2017 Jan Vanderbilt Institute for Clinical & Translational Research Personalized Medicine Seminar. *Tale of 2 Personalized Medicines: Drug Development & Gene Discovery.*

Invited Lectures (National)

- 1994 Dec. University of California - Berkeley, Department of Molecular and Cell Biology, Seminar. *Delayed induction by a maternal nudel protease.* Berkeley, CA.
- 2005 May 25th Anniversary Meeting of the Sarnoff Endowment in Cardiovascular Research, Alumni Presentation. *Chemical genetics of vascular development.* Washington DC.
- 2006 Feb University of Utah, Cardiology Division, Seminar. *Chemical biology of vascular development.* Salt Lake City, UT.
- 2006 March Mayo Clinic, Cardiology Division, and Gonda Vascular Center, Seminar. *Chemical genetic analysis of vascular development reveals signaling pathways regulating artery-vein specification.* Rochester, MN.
- 2006 March Medical College of Wisconsin, Cardiology Division, Seminar. *Chemical biological approach to study vascular development.* Milwaukee, WI
- 2006 April University of North Carolina at Chapel Hill, Carolina Cardiovascular Center, Seminar. *Chemical genetics of vascular development: translational potential.* Chapel Hill, NC.
- 2006 April University of Michigan, Cardiology Division, Seminar. *Chemical suppressors of a genetic vascular defect reveal novel insights into artery-vein specification.* Ann Arbor, MI.
- 2006 May University of Pittsburgh, Cardiology Division, Seminar. *Novel insights into vascular development from chemical suppressors of a vascular mutant.* Pittsburgh, PA.

- 2006 May Washington University in St. Louis, Center for Cardiovascular Diseases, Seminar. *The role of the crosstalk between PI3K and ERK signaling in artery-vein specification*. St. Louis, MO.
- 2006 May University of Pennsylvania, Division of Cardiovascular Medicine, and Department of Cell and Developmental Biology, Seminar. *Chemical genetic analysis reveals signaling pathways critical for vascular development*. Philadelphia, PA.
- 2007 May University of Pennsylvania, Department of Orthopedic Surgery, Seminar. *Small molecule inhibitors of BMP signaling*. Philadelphia, PA.
- 2008 Aug. Bristol-Myers Squibb Company. Seminar. *Chemical biology of stem cell differentiation*. Princeton, NJ
- 2010 Feb. Yale University, Division of Cardiovascular Medicine, and Vascular Biology & Therapeutics Program, Seminar. *Chemical genetics of embryonic development and stem cell differentiation*. New Haven, CT.
- 2010 March University of Pennsylvania, Center for Research in FOP & Related Disorders, Seminar. *Small molecule BMP inhibitors as potential therapeutics for FOP*. Philadelphia, PA.
- 2010 May Emory University, Division of Cardiovascular Medicine, Seminar. *Chemical genetics of embryonic development and stem cell differentiation*. Atlanta, GA.
- 2011 Jan. Yale University, MD-PhD Retreat, Invited Alumnus Speaker. *A zebrafish cardiologist*. New Haven, CT.
- 2011 March Collaborative Research Forum, Invited Speaker. *New Paradigm for Drug Discovery*. Beaver Creek, CO.
- 2011 April Tennessee State University. Department of Biological Sciences, Seminar. *Introduction to zebrafish chemical biology*. Nashville, TN.
- 2011 April Tennessee State University. Department of Biological Sciences, Seminar. *Introduction to stem cell chemical biology*. Nashville, TN.
- 2011 Aug. Strategic Conference of the International Fibrodysplasia Ossificans Progressiva Association (IFOPA), *Hope for a cure? The search for selective ALK2 inhibitors*. Philadelphia, PA.
- 2011 Oct. 9th Annual Clinical Investigator Student Trainee (CIST) Forum, Invited Panelist. . Bethesda, MD.
- 2012 Feb. University of Texas Southwestern Medical Center, Cardiovascular Division. *Chemical biology of embryonic development and regenerative medicine*. Dallas, TX.
- 2012 Feb. Massachusetts General Hospital/Harvard Medical School, Cardiovascular Research Center Seminar. *Cell biological insights from chemical biology*. Boston, MA.
- 2012 May 31st Anniversary Meeting of the Sarnoff Endowment in Cardiovascular Research, Minisymposium on Developmental Biology. *Chemical genetics of vertebrate axis formation*. Arlington, VA.
- 2012 Oct. Sarnoff Foundation Visiting Professor, University of California at San Diego Medical School, Cardiology Division. *Chemical biology and regenerative medicine*. San Diego, CA.
- 2013 Oct Alexion Pharmaceuticals. Lecture: *Development-to-Drugs*. Cheshire, CT.
- 2014 Oct Icahn School of Medicine at Mt. Sinai, Wiener Family Cardiovascular Research Laboratories. *Chemical biology and regenerative medicine*. New York, NY.
- 2014 Nov University of Minnesota, Lillehei Heart Institute, Distinguished Lecturer in Cardiology. *Chemical biology and regenerative medicine*. Minneapolis, MN.

- 2014 Nov FOP (Fibrodysplasia Ossificans Progressiva) Drug Development Forum. *Vanderbilt's effort to develop selective ALK2 inhibitors*. Boston, MA.
- 2015 March MedStar Washington Hospital/Georgetown University School of Medicine, Cardiology Grand Rounds. *Induced pluripotent stem cells to study human heart diseases*. Washington, D.C.
- 2015 Sep Pfizer Pharmaceuticals. Lecture: *Heart failure drug discovery using phenotype screens*. Cambridge, MA.
- 2015 Oct. University of California at Los Angeles, CVRL Seminar. *The translational potential of PSC-derived cardiomyocytes: from chemical biologist perspective*. Los Angeles, CA.
- 2016 Feb Speaker and Expert Panelist, *High Content Analysis & Phenotypic Screening*, Cambridge Innovation Institute, San Diego, CA.
- 2016 March Medical University of South Carolina, Cardiology Grand Rounds. *The translational potential of PSC-derived cardiomyocytes: from chemical biologist perspective*. Charleston, SC.
- 2016 March NHLBI Progenitor Cell Biology Consortium Cardiac Workshop on Stem Cell-based Disease Modeling and Drug Discovery. Stanford University, Stanford, CA.
- 2016 May University of Massachusetts Medical Center, Cardiology Grand Rounds. *Induced pluripotent stem cells to study human heart diseases*. Worcester, MA.
- 2016 Oct FOP (Fibrodysplasia Ossificans Progressiva) Drug Development Forum. *The use of electronic health record-linked DNA database in drug development for FOP*. Boston, MA.
- 2016 Nov University of Cincinnati, Department of Molecular Genetics and Microbiology. *Using the phenome as a tool for drug discovery*. Cincinnati, OH.
- 2016 Nov Speaker and Expert Panelist, *High Content Analysis & Phenotypic Screening*. Cambridge Innovation Institute, Cambridge, MA.
- 2017 April Invited Speaker, 2017 Annual Meeting of American Association for Cancer Research, *Phenotypic screens for developmental modulators in zebrafish: a rich ore to mine for future cancer therapeutics*. Washington, DC.
- 2017 April Inland Empire Stem Cell Consortium, University of California, Riverside. *Induced pluripotent stem cells to study human heart diseases*. Riverside, CA
- 2017 April Invited Speaker, NIH/NHLBI Progenitor Cell Biology Consortium Meeting, Stanford University, *Congenital dilated cardiomyopathy patient-derived iPSCs for identifying a new causal gene*. Stanford, CA.
- 2017 May Invited Faculty, 2017 Heart Rhythm Society Meeting. *How to mature single iPSC-derived cardiomyocytes for contractility and electrophysiological studies*. Chicago, IL.
- 2017 June University of Maryland School of Medicine, Dept. of Medicine. *Tales of Personalized Medicines: Pluripotent Stem Cells, Drug Development and Gene Discovery*. Baltimore, MD
- 2017 June Plenary Speaker, 6th Annual Drug Repositioning, Repurposing and Rescue Conference. *Using Human Genetic Variation to Repurpose Existing Medications for New Diseases*. Chicago, IL
- 2017 July Medical University of South Carolina, Dept. of Regenerative Medicine and Cell Biology. *Personalized Medicines from Embryonic Development and iPSCs*. Charleston, SC.
- 2017 Aug La Jolla Pharmaceutical Co. *Personalized Medicines from Embryos and iPSCs*. San Diego, CA

2017 Nov Johns Hopkins University School of Medicine, Dep. of Cell Biology. *Tale of 2 Personalized Medicines: Drug Development & Gene Discovery*. Baltimore, MD

Invited Lectures (International):

- 2011 June Ajou University, Dept of Molecular Science and Technology, Center for Systems Biology, Seminar. *Chemical genetics of embryonic development*. Suwon, Republic of Korea.
- 2011 June Korea Advance Institute of Science and Technology (KAIST), Dept of Biological Sciences, and Dept of Chemical and Biomolecular Engineering, Seminar. *Rich ore for novel therapeutics: chemical genetics of embryonic development*. Daejeon, Republic of Korea.
- 2011 June Seoul National University, Bio-MAX Institute, Special Lecture. *Chemical genetics of vertebrate embryogenesis: Route to Novel Therapeutics?* Seoul, Republic of Korea.
- 2011 June Seoul National University, Department of Biomodulation, *Chemical biological approach to study vertebrate development*. Seoul, Republic of Korea.
- 2011 June Korea Institute of Science and Technology (KIST), Center for Neural Science, Seminar. *Chemical genetics of embryonic development and stem cell differentiation*. Seoul, Republic of Korea.
- 2011 June Yonsei University, Department of Biotechnology, Seminar. *Chemical genetics of vertebrate embryogenesis*. Seoul, Republic of Korea.
- 2015 June 9th European Zebrafish Meeting, Oslo, Norway. *Chemical genetics of embryonic development: rich ore for novel therapeutics*.
- 2016 March Cambridge University, Biochemical Society Meeting on BMP signaling in cancer. *Therapeutic potential of small molecule-based strategies targeting BMP pathways involved in Cancer*. Cambridge, UK.
- 2016 April IFOPA Italia, *Development of small molecule BMP inhibitors as a treatment for fibrodysplasia ossificans progressiva*. Livorno, Italy.
- 2017 Sept. Plenary Lecture, 3rd Zebrafish for Precision Medicine Conference, *Chemical Genetics of Zebrafish Embryonic Development to Drive Therapeutic Target Discovery in Man*. Toronto, Canada