CURRICULUM VITAE
Christopher H. Contag

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Academic Training:

Stanford University School of Medicine	Postdoctoral Fellow	1990 - 1995
University of Minnesota, Department of Microbiology	Postdoctoral Fellow	1988 - 1989
University of Minnesota, Department of Microbiology	Ph.D., Microbiology	1983 - 1988
University of Minnesota, College of Biological Sciences	B.S., Biology	1981 - 1982
Iowa State University		1978 - 1981

Academic Positions Held:

• Professor	Department of Biomedical Engineering, Michigan State University	2016-present
• Inaugural Chair	Department of Biomedical Engineering, Michigan State University	2016
• Founding Director	Institute for Quantitative Health Science and Engineering Michigan State University	2016-present
• Professor	Department of Microbiology and Molecular Genetics Michigan State University	2016-present
• Professor Emeritus	Neonatal and Developmental Medicine, Department of Pediatrics, Stanford University School of Medicine	2016-present
• Adjunct Professor	Center for Bioethics and Social Justice (by courtesy), Michigan State University	2022-present
• Adjunct Professor	Department of Radiology (by courtesy) Michigan State University	2022-present
• Chair	Department of Biomedical Engineering, Michigan State University	2016-2021
• Faculty member	Program in Immunology, Stanford University	2001-2016
• Faculty member	Molecular Imaging Program Stanford (MIPS)	2003-2016
• Faculty member	BioX Program	2001-2016
• Professor	Neonatal and Developmental Medicine, Department of Pediatrics, Stanford University School of Medicine	2012-2016
• Professor	Department of Microbiology and Immunology (secondary appt.) Stanford University School of Medicine	2012-2016
• Professor	Department of Radiology (by courtesy)	2012-2016
• Professor	Department of Bioengineering (by courtesy)	2015-2016
• Director	Stanford Center for Innovation in *In Vivo* Imaging (SCI^3), Clark Center for Biomedical Engineering and the Bio-X Program, Stanford University	2000-2016
• Assoc Chief (Research)	Division of Neonatal and Developmental Medicine	2009-2016
• Co-director	Child Health Research Institute Stanford University	2015-2016
• Co-director	Molecular Imaging Program at Stanford (MIPS) Stanford University	2003-2016
• Director	Stanford Center for Military Photomedicine	2008-2013
• Director	Stanford Infrared Optical Science and FEL Center	2008
• Assoc. Professor	Neonatal and Developmental Medicine, Department of Pediatrics, Stanford University School of Medicine	2005-2008
• Assoc. Professor	Department of Microbiology and Immunology (secondary appt.) Stanford University School of Medicine	2005-2008
• Assoc. Professor	Department of Radiology (by courtesy) Stanford University School of Medicine	2005-2008
• Asst. Professor	Department of Radiology (by courtesy) Stanford University School of Medicine	2001-2005
• Asst. Professor	Department of Microbiology and Immunology (secondary) Stanford University School of Medicine	2000-2005
• Asst. Professor	Neonatal and Developmental Medicine, Department of Pediatrics Stanford University School of Medicine	2000-2005
• Acting Assistant	Neonatal and Developmental Medicine, Department of	1997

Professor	Pediatrics, Stanford University School of Medicine	
• Pediatrics fellow	Neonatal and Developmental Medicine, Department of Pediatrics, Stanford University School of Medicine	1995-1996
• Postdoctoral fellow	Department of Microbiology and Immunology, Stanford University School of Medicine. In the laboratory of Dr. James I. Mullins	1989-1994
• Investigator	Woods Hole Marine Biological Laboratory, Woods Hole, MA In collaboration with Dr. Harvey Fishman	Summer 1991
• Pre- and Postdoctoral fellow	Department of Microbiology, University of Minnesota In the laboratories of Dr. Peter G.W. Plagemann and Dr. Ashley T. Haase	1983 - 1989

Other Positions Held:

• Founder	Xenogen Corporation, Alameda, CA (Now part of PerkinElmer)	1995
• President	Xenogen Corporation, Alameda, CA (Now part of PerkinElmer)	1995-1997
• Consultant & Chair of the Scientific Advisory Board	Xenogen Corporation, Alameda, CA (Now part of PerkinElmer)	1997-2007
• President Elect	Society for Molecular Imaging	2001-2002
• President	Society for Molecular Imaging	2002-2003
• Founder	BioEclipse Therapeutics (previously ConcentRx Corp)	2010
• Secretary/Treasurer	Center for Molecular Imaging Innovation and Translation Society for Nuclear Medicine and Molecular Imaging (SNMMI)	2012-2014
• Member	Scientific Advisory Board, Bell Biosystems	2014-2017
• Member	Scientific Advisory Board, In Vivo Analytics	2015-
• President Elect	World Molecular Imaging Society	2015
• President	World Molecular Imaging Society	2016
• Founder	PixelGear Inc.	2017
• Member	Scientific Advisory Board, GLAdiator Therapeutics	2018-
• Founder, Advisory Board	EXOForce Inc.	2020-

Google Scholar H-index (2023): 89 i10-index (2023): 288 30,072 total citations
H-index from 2018 to 2023: 45 i10-index (2018-2023): 180 7,903 citations since 2018

Honors and Awards:

<u>FacultyAwards</u>

• **Distinguished Investigator,** Academy for Radiology and Biomedical Imaging	2022
• **John and Bette Klacsmann Visiting Professor**, Mayo Clinic, Jacksonville, Florida	2019
• **James and Kathleen Cornelius Chair**, Departments of Biomedical Engineering and Microbiology & Molecular Genetics, Michigan State University	2017
• **Britton Chance Award** for outstanding lifetime contributions to the field of biomedical optics through the development of innovative, high impact technologies, SPIE	2016
• **John A. Hannah Distinguished Professor** of Biomedical Engineering, Michigan State Univ.	2016
• **Hannah Visiting Professor**, Michigan State University	2016
• **Helen C. Levitt Visiting Professorship**, Department of Molecular Medicine, Mayo Clinic	2016
• **Distinguished Lecturer**, UC Irvine Medical Scientist Training Program (MSTP)	2014
• **Keynote Address,** Seeing is Believing and Beyond, National Cancer Center Korea	2014
• **Stanford Inventors' Hall of Fame**	2013
• **James C. Overall Lecturer in Pediatrics**, Vanderbilt University	2013
• **Keynote Address**, Imaging in Drug Development	2013
• **Fellow** of the World Molecular Imaging Society	2012
• **Invited Lecture**, European Society of Clinical Infectious Disease Milan, Italy	2011
• **Opening Plenary Lecture**, European Society for Molecular Imaging Warsaw Poland.	2010
• **Invited Lecture,** Regenerative Medicine Conference Hilton Head, South Carolina	2009
• **Invited Lecture,** British Society of Immunology, Cambridge University "Visions of Immunology"	2008
• **Distinguished Lecture**, UC Davis: In Vivo Applications of Bioluminescence	2008
• **Invited Lecture**, Nobel Symposium: Watching life through Molecular Imaging	2007
• **Invited Lecturer**, Wallenberg Neuroscience Center at Lund University	2007
• **Keynote Address**, Gordon Research Conference "Cancer Models and Mechanisms",	2007
• **Achievement Award**, Society for Molecular Imaging	2006
• Article entitled "Advances in *in vivo* bioluminescence imaging of gene expression" as	2003

published in the journal "Annual Rev. Biomed. Eng." is **one of the most cited papers** in the field of engineering--ISI

Postdoc Awards

- Imaging of Single Living Cells, Cold Spring Harbor, Award 1996
- American Federation for Clinical Research (AFCR). Upjohn Infectious Disease Prize 1995
- Scholar of the American Foundation for AIDS Research (AmFAR) 1991 -1994
- National Research Service Award, Postdoctoral, NIAID training grant: Molecular Basis of Host Parasite Interactions. Stanford University School of Medicine 1989 -1991

Graduate School Awards

- National Research Service Award; NCI Cancer Biology Training Grant University of Minnesota School of Medicine 1988 -1989
- Viral Research Grant, ViroMed and Minnesota Chapter of the National Foundation for Infectious Diseases 1987 -1988
- Bacaner Research Award, Minnesota Medical Foundation and Basic Science Departments, University of Minnesota. 1988
- National Research Service Award, NCI cancer biology training grant. University of Minnesota School of Medicine. 1984 -1988

Teaching Experience:

- Lecturer, **Microbiology and Molecular Genetics 801** (MMG801), Integrative Microbial Biology Lectures on synthetic biology 2020-2022
- Lecturer, **Biomedical Engineering 891** (BME891), Molecular Imaging Lectures on optical imaging 2020
- Lecturer, Summer School on the Discovery and Development of Diagnostics for Early Detection of Cancer Robinson College, **University of Cambridge, UK**: Optical Imaging for the Early Detection of Cancer 2019
- Lecturer, Great Lakes Advanced Molecular Imaging Course, **MSU and Western Univ**. Foundations of in vivo optical imaging 2019
- Lectures on Successful Scientific Careers **Biomedical Engineering 803:** Research Methods 2017, 2018
- Instructor of record and lecturer, Stanford, **Bioengineering 229:** Topics in Molecular Imaging 2015, 2016
- Lecturer**,** Stanford, **Bioengineering 224:** Chemistry of Molecular Probes 2015
- Lecturer, Stanford, **Bioengineering 222a** and **222b:** Multi-modality Molecular Imaging in Living Subjects 2012-2015
- Lecturer: Cancer Center Course, Stanford University Advanced imaging strategies 2013
- Instructor, **Advanced Molecular Imaging and Clinical Translation** Emerging Technologies for Molecular Imaging Harvard University, Boston, MA 2013
- Lectures on intravital microscopy for the study of the tumor microenvironment Stanford, **Bioengineering 222c:** Multi-modality molecular imaging in living subjects 2013
- Course Director, Stanford, **Bioengineering 222a, 222b, 222c:** Multi-modality molecular imaging in living subjects 2009-2011
- Lecture on immune cell therapies in Cancer Center Course, Stanford University 2008
- Lectures on stem cell imaging Stanford, **Developmental Biology 202**: Stem cell biology and regenerative medicine 2008
- Lectures on i) metabolic enzymes as mediators of immune response, ii) the role of cell fusion in the immune response to infection, and iii) tumor immunology and the cancer stem cell. Stanford, **Advanced Immunology 202**: Topics in Immunology 2006-2011
- Lecture on mini-microscopes and the emerging field of in vivo pathology Stanford, **Medicine 217**: Technological Frontiers in Digestive Diseases 2008
- Lectures on tissue regeneration and cell fusion Stanford, **Bioengineering 390**: Introduction to Bioengineering Research 2007
- Lectures on tissue optics, and reporter gene construction and uses in vivo Stanford, **Bioengineering 222a**: Multi-modality molecular imaging in living subjects 2004-2012
- Lectures on imaging stem cell biology, miniaturized microscopes and cell fusion Stanford, **Bioengineering 222c** 2007-2009
- Lectures on optical reporter genes Stanford, **Bioengineering 222b**: Multi-modality molecular imaging in living subjects 2007-2009
- Lecture on novel methods of studying host pathogen interactions in vivo Stanford, **Microbiology and Immunology 210**: Pathogenesis of Bacteria, Viruses and Eukaryotic Parasites 2004
- Lecturer on Optical Imaging in Medicine 2004

Stanford, **Medicine 459**: Frontiers in Digestive Diseases

- Lecturer on Advancing animal models of human disease 2003
  Stanford, **Comparative Medicine** 208: Animals Advancing Biomedical Technology
- Lecturer on Molecular Imaging 2003
  Stanford, **Radiology 220**: Introduction to Imaging and Image-based Human Anatomy
- Lecturer, Small Animal Imaging Workshop at Stanford University 2006, 2007, 2008
- Organizer, Jackson Labs workshop on *in vivo* imaging 2002
- Instructor, Recent advances in cell-based and *in vivo* imaging, University of Bristol 2000
- Instructor, United Nations AIDS Course on Heteroduplex Analyses of HIV-1, Moscow, Russia 1996
- Instructor, WHO Course on Heteroduplex Analyses of HIV-1; Salvador, Brazil 1995
- Lectures on Toga-, Flavi- Reo- and Retroviruses in Animal Virology (graduate). 1990, 1993, 1996
  Stanford University School of Medicine.
- Virology Section of Medical Microbiology (undergraduate), University of Minnesota. 1987
- Teaching Assistant for laboratory courses at the University of Minnesota:
  Microbiology for Medical Students 1987
  Molecular Biology (graduate laboratory course) 1986
  Virology (undergraduate and graduate) 1985
  General Microbiology (undergraduate) 1984

Service:

MSU

- Chair, Search Committee, Director for the Center for Ethics and Humanities in the Life Sciences 2017
- Member, Search Committee, MSU Provost 2019-2020
- Member, Engineering College Advisory Board (ECAC) 2022-2024

Stanford University

- Member, Administrative Panel on Biosafety (APB) 1999-2002
- Member, Molecular Imaging Faculty Search Committees – Dept. of Radiology 1999, 2003
- Member, Bone Marrow Transplant Faculty Search Committee – Dept. of Medicine 2000-2004
- Member, Graduate student admissions committee, Microbiology and Immunology 2000-2001
- Member, Medical Student Admissions Panel 1999-2004
- Member, Committee on Graduate Education and Research, Dept. of Biomedical Engineering 2002
- Member, Pediatric Cardiopulmonary Faculty Search Committee – Dept. of Pediatrics 2004
- Member, Administrative Committee for the Hansen Experimental Physics Laboratory 2004-2016
- Session Chair, Stanford Photonic Research Center Annual meeting 2005, 2006
- Member, Scientific advisory board, Children's Health Research Program 2008
- Member, Pediatric Pulmonology Faculty Search Committee 2008
- Member, Pediatric Pulmonology Faculty Search Committee 2009
- Chair, Scientific advisory board, Children's Health Research Program 2009-2013
- Member, Stanford Bioengineering Advancement and Promotions (A&P) committee 2013-2016
- Neonatology Fellowship Program Evaluation Committee 2013-2016
- Chair, Ob/Gyn and Reproductive Sciences Faculty Search Committee 2014-2015

National and International

- Associate Editor, **Molecular Imaging and Biology** 2012-
- Associate Editor, **Frontiers in Bioengineering and Biotechnology** 2023
- Member, Editorial Board, **Molecular Imaging** 2001-
- Member, Editorial Board, **Molecular Imaging and Biology** 2010-2020
- Member, Editorial Board, **Cancer Biology and Therapy** 2006-
- Member, Editorial Board, **Disease Models and Mechanisms** 2008-2018
- Member, Editorial Board, **BMC Medical Physics** 2008-
- Member, Editorial Board, **Analytical Cellular Pathology** 2010-
- Member, Editorial Board, **Imaging in Medicine** 2010-
- Member, Editorial Board, **Current Opinion in Biomedical Engineering** 2016-
- Member, Editorial Board, **Neoplasia** 2010-
- Co-Editor, **Current Opinion in Biotechnology**, 2008-
  Analytical Biotechnology section (vol. 20, issue 1)

- Reviewer for:

Nature	**Nature Medicine**	**Gene Therapy**
Science	**PNAS**	**Nature BME**
Scientific Reports	**Nature Reviews Cancer**	**Nature Methods**
Science Advances	**Nature Biotechnology**	**Nature Protocols**
Molecular Imaging and Biol.	**Cellular Microbiology**	**ACS Central Science**
European Journal of Cancer	**Molecular Therapy**	**PLoS One**

Journal Biomedical Optics **Genes and Development** **ACS Synthetic Biology**
Journal of Virology **Human Gene Therapy** **Cancer Research**
Virology **BMC Immunology** **Neoplasia**
International Immunology **Cancer Prevention Research** **Blood**
International Journal of Cancer **Journal of Clinical Investigation**
Journal of Chemistry and Biology **Journal of Infectious Disease**
Clinical and Translational Medicine **Bioorganic & Medicinal Chemistry Letters**
Nature Comms Biol

- NCI/Special Emphasis Study Section, Development and Application of Imaging in Therapeutic Studies. CA98-024; NIH-National Cancer Institute (NCI) 1999
- NCI/Special Emphasis Study Section, Diagnostic Imaging and Guided Therapy in Prostate Cancer. CA99-015; NIH-National Cancer Institute (NCI) 2000
- NCI/Special Emphasis Study Section, Diagnostic Imaging and Guided Therapy in Prostate Cancer. SBIR/STTR. PAR99-149; NIH-National Cancer Institute (NCI) 2000
- Founding Member of the Society for Molecular Imaging (SMI) 2000
  President elect 2002, President 2003, Board member 1999-2010
- External Advisory Board, Vanderbilt University Imaging Program (VIVID) 2001-2005
- Member, NIH/DMG Study Section, Diagnostic Imaging 2002
- Member, Steering Committee, Annual Meeting of the Society for Molecular Imaging (SMI) 2002
- Member, Scientific Program Committee, Annual Meeting of the Society for Molecular Imaging (SMI) 2002
- MOLI Board - National Cancer Institute Molecular Imaging Database 2002
- Member, organizing committee, NIDDK/JDFI Workshop. Imaging the Pancreatic Beta Cell 2003
- AdHoc member, CSR/NIH Biodefense and emerging infectious diseases 2003
- AdHoc member, CSR/NIH Cancer Genetic Study Section Cancer Molecular Pathobiology (CAMP) 2003
- AdHoc member, NIHM/NIH study section ZMH1 BRB-S 04 2003
- Reviewer, NIHM/NIH study section ZRG1 F05 50 R.1 2003
- External reviewer, The Netherlands Organization for Health Research and Development 2003
- Reviewer, European Commission Research Programme on Genomics 2003
- Reviewer, European Commission Research Programme on Molecular Imaging Centers 2003
- Chair, Steering Committee Annual Meeting of the Society for Molecular Imaging (SMI) 2003
- Member, Steering Committee Annual Meeting of the Society for Molecular Imaging (SMI) 2004
- NCI/Special Emphasis Study Section, Small Animal Imaging Resource Programs CA 04-011; NIH-National Cancer Institute (NCI) 2004
- Session Chair. Imaging host pathogen interactions Annual Meeting of the Society for Molecular Imaging (SMI) 2004
- Co-Chair, Steering Committee, Network in Translational Research in Optical Imaging, NCI 2004
- Reviewer, Lymphoma Leukemia Society SCOR grants 2004
- Guest editor Journal Biomedical Optics Special Issue: Chemical and genetic biosensors for biomedical imaging 2005
- Member, Scientific Advisory Board Sandler Foundation for Asthma Research 2005-2007
- Program co-chair, Imaging in 2020, Jackson WY 2005
- Member, Advisory Board Washington University Molecular Imaging Program 2005-2010
- Chair, Steering Committee, Network in Translational Research in Optical Imaging, NCI 2006
- Member Program Committee, Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues III part of SPIE's International Symposium on Biomedical Optics 2006
- Reviewer, NIH Biomedical Imaging and Bioengineering, Medical Imaging (MEDI) 2005, 2006
- Advisory Board Member, NanoSafety Inc 2006
- Organizing committee, OSA Special Topics Meeting 2006
- Member, Medical Imaging Study Section (MEDI), Center for Scientific Review, NIH 2006-2010
- Member, Clinical Molecular Imaging Study Section (CMIP), Center for Scientific Review, NIH 2008-2010
- Member, Scientific Advisory Committee International Society of Bioluminescence and Chemiluminescence 2006
- Member, Special Emphasis Panel, Digestive Disease Research Core Centers ZDK1 GRB-4 [J1] NIH/NIDDK 2006
- Member, Advisory Board University Pennsylvania, Network in Optical Imaging 2005-2010
- Member, Advisory Board University California, Irvine, Small Animal Imaging Program 2007-
- Chair, Steering Committee, Network in Translational Research in Optical Imaging, NCI 2007-2008
- Member Review Committee, Cancer Imaging Centers for the Cancer Research UK (CR-UK) and the Engineering & Physical Sciences Research Council (EPSRC) 2008
- Member Program Committee AACR National Meeting 2009

Molecular Imaging Section
- Member, NCI Special Emphasis Panel: Mouse models of human cancer consortium 2009
- Member, Advisory Board for imaging cancer stem cells, NCI 2009
- Member, Scientific Review Committee for AACR Basic Cancer Research Fellowships 2010
- Category Co-chair and Session Chair, World Molecular Imaging Congress 2010
- Adhoc Reviewer, ZRG1 SBIB-D (01) M Member Conflict: Clinical Molecular Imaging Study Section (CMIP), Center for Scientific Review, NIH 2010
- Adhoc Reviewer, ZRG1 F15-D (20) L Fellowships: Biomedical Imaging and Bioengineering, Center for Scientific Review, NIH 2010
- Adhoc Reviewer, ZRG1 SBIB-E (02) M Member Conflict: SAT and BTSS Study Sections, Center for Scientific Review, NIH 2010
- Member, SNM Molecular Imaging Curriculum Task Force 2010
- Member, SNM Molecular Imaging Center of Excellence 2010
- Member, Board of Directors, SNM Center for Molecular Imaging Innovation and Translation 2011-2016
- Adhoc Reviewer, ZRG1 F15-P; Fellowships Surgical Sciences, Biomedical Imaging and Bioengineering 2011, 2012
- Adhoc Reviewer, ZRG1 F15-P(20)L Special Emphasis Panel Fellowships Surgical Sciences, Biomedical Imaging and Bioengineering 2011, 2012
- Member, American Association of Cancer Research (AACR) Scientific Program Committee 2012
- Chairperson, ***In Vivo* Imaging** Subcommittee of the Tumor Biology Section AACR Program Committee 2012
- Program Committee, BioNanophotonics and Molecular Probes" OSA BIOMED Topical Meeting 2012
- Member, Program Committee, AACR-SNM joint meeting on Imaging of Cancer Biology 2013
- Reviewer, ZRG1 DTCS A81--Clinical and Translational Imaging Applications 2012, 2013
- Co-chair, Society of Nuclear Medicine and Molecular Imaging Optical Imaging Task Force 2012
- Member, Lynbrook Excellence in Education (LExE) Board of Directors 2010-2017
- Member, Four Elements Earth Education (4EEE) Board of Directors 2012-2018
- Session Chair, World Molecular Imaging Congress 2013
- Chair, Fellowship Grant Review, Special Emphasis Panel ZRG1 F15-P (20) L Center for Scientific Review (CSR) National Institutes of Health (NIH), DHHS 2013
- Reviewer, ZRG1 SBIB-D 57 R, PAR-13-169: Academic Industrial Partnership 2014
- Reviewer, ZCA1 TCRB-9 J1 S, Revisions Early Stage Informatics Technologies, Revisions Early Stage Informatics Technologies, Revisions Early Stage Informatics Technologies, Advanced Stage Informatics technologies 2014
- Organizer, AACR-SNMMI Joint Conference on Cancer Imaging 2015
- Reviewer, ZRG1 DTCS-A 81 S, Clinical and Translational Imaging Applications 2015
- Member, MD Anderson *Center for Advanced Imaging Multi-Investigator Imaging* (MI-2) *Research Award* Scientific Review Panel 2015
- Chair, NCI Provocative Questions 7 Review Committee ZCA1 RPRB-0 (J6) S 2015
- Reviewer, ZRG1 F15-D (20) L Fellowships: Surgical Sciences Biomedical Imaging, and Bioengineering, Center for Scientific Review, NIH 2016, 2021
- AACR Awards Committee 2017-2020
- Panel Member, NIH Advisory Panel on Review of Imaging Science Review of study section structure for imaging study sections: BMIT-A, BMIT-B, MEDI, CMIP and NOIT 2017
- Member, Program Committee, Third AACR-SNMMI Joint Conference on State-of-the-Art Molecular Imaging in Cancer Biology and Therapy 2018
- Member, NCI Experimental Therapeutics (NExT) Program Special Emphasis Panel 2011-present
- AACR Immuno-oncology Research Grants Scientific Review Committee 2020-2023
- Chair, ZRG1F15-C(07)L, Fellowships: Surgical Sciences, Biomedical Imaging and Bioengineering, Center for Scientific Review, NIH 2021
- Chair, ZDK1 GRB-K (M2) R, Characterization of Islet-derived Extracellular Vesicles for Improved Detection, Monitoring, Classification, and Treatment of Type 1 Diabetes Special Emphasis Panel 2022
- Reviewer, Foundation pour la Recherche Médicale (FRM)—a French private foundation that supports excellence in biomedical research 2023
- Reviewer, French National Research Agency (ANR), "Living Earth" panel 2023

Extramural Funding

Current Funding:
- **EAGER: Magnetothermal Control of Cell Fates and Function** 2022 – 2024
  MCB2200991 (Principal Investigator: **C.H. Contag**) NSF

- **Engineered gla-domain Proteins for targeted delivery to cancer stem cells** 2020 – 2023
  GLA1007 (Principal Investigator: **C.H. Contag**) GLAdiator Therapeutics
  The goal of this project is to evaluate novel delivery tools for targeting the cancer stem cell for therapy.
- **Large Animal Facility for Imaging and Image-guided Therapies at MSU** 2021 – 2025
  1C06OD032003-01 (Principal Investigator: A.V. Moore) NIH

Pending:

- **Engineered endosymbionts for cellular reprogramming** 2024 – 2028
  R01EB000000 (Principal Investigator: **C.H. Contag**) NIH
- **Controlled release of glycolytic reprogramming drugs from orthopedic implants** 2023 - 2025
  IIRR-01616 (Principal Investigator: **C.H. Contag**) Arthrex Foundation

Recent Past:

- **Raman Molecular Imaging for Early Detection of Colon Cancer** 2014 – 2022
  1R01 CA182043-01 (Principal Investigator: **C.H. Contag**) NIH/NCI
- **Dynamic Imaging of EMT in the Breast Cancer Microenvironment** 2013 – 2018
  1R01CA172895-01 (Principle Investigator, **C.H. Contag**) NIH/NCI
- **In vivo and Molecular Imaging Center @ Stanford** 2010 – 2015
  P50CA114747 (Principle Investigator, S.S. Gambhir)
- **Cancer Imaging Program—Cancer Center, NIH/NCI** 2009 – 2015
  3 P30 CA124435 (Principal Investigator: B. Mitchell)
- **(PQC2) High-content pathology with confocal microscope arrays** 2013 – 2017
  1R01CA180152-01 (Principle Investigator, **C.H. Contag**) NIH/NIBIB/NCI
- **HER2-targeted exosomal delivery of therapeutic mRNA for enzyme pro-drug therapy** 2013 – 2018
  1UH2TR000902-0 (Matin, Stanford University) NIH/NCI
- **Targeted therapy in type 1 diabetes** 2013 – 2018
  R24DK096465-01 (Moore, Harvard Univ.) NIH/NIDDK
- **Targeting the Breast Cancer Metastatic Niche** 2014 – 2016
  State of California 20IB-0141 (Principle Investigator, **C.H. Contag**)
- **Image guided resection of medulloblastoma** 2011 – 2015
  Center for Children's Brain Tumors at Stanford (Principal Investigator: **C.H. Contag**)
- **Adaptation of a Miniature Microscope for the Noninvasive In Vivo Detection of Rare Circulating Tumor Cells in the Vasculature** 2012 – 2014
  BioX IIP6-51 (Principal Investigator: **C.H. Contag**)
- **Mechanisms of fetal bradycardia**
  Cardiovascular Institute at Stanford (Principal Investigator: **C.H. Contag**) 2013 – 2014
- Culture methods for studying the tumor microenvironment 2011 – 2014
  ARDF (Principle Investigator, **C.H. Contag**)
- Development of Single Cell MRI Technology using Genetically-Encoded Iron-Based Reporters 2011 – 2014
  CIRM RT2-02018 (Rutt, Stanford University)
- Multimodality Imaging of GI Cancers for Diagnosis and Directed Therapy, NIH/NCI 2008 – 2014
  U54 CA136465 (Principal Investigator: **C.H. Contag**)
- Tools for tracking breast cancer progression, NIH/NCI 2011 – 2014
  Supplement to U54 CA136465 (Principle Investigator, **C.H. Contag**)
- Engineering stem cell allografts for 'operational tolerance', CIRM 2010 – 2013
  RM0101706 (Principal Investigator: **C.H. Contag**)
- Stanford Center for Military Photomedicine, DOD 2007 – 2013
  F9550-04-1-0075 (Principal Investigator: **C.H. Contag**)
- CCL5 & CCR5: a role in CD8 T cell trafficking into adipose tissue and insulin resistance 2011 – 2012
  Pediatric Research Fund at Stanford (Principal Investigator: **C.H. Contag**)
- Mechanisms of preterm birth caused by infection, March of Dimes 2011 – 2012
  Pilot project on March of Dimes Center grant (Principal Investigator: **C.H. Contag**)
- Molecular Pathogenesis of Digestive Diseases 2006 – 2012
  P30 DK056339-06 (Principle Investigator, H. Greenberg)
- Bone Marrow grafting for leukemia and lymphoma, NIAID/NIH 2002 – 2012
  P01 CA49605-14 (Principal Investigator: R. Negrin)
- Development of Probes for Fluorogenic In Vivo Imaging of Tuberculosis 2007 – 2011
  S080047 Bill & Melinda Gates Foundation ((Principle Investigator, Rao)
- Genetic engineering of the IC2 antibody for imaging of pancreatic beta cell mass 2010 – 2011
  Pediatric Research Fund at Stanford (Principal Investigator: **C.H. Contag**)
- Delivery of Biologically Active Nucleic Acid to Epidermal Cells, NIH/NIAMS 2009 – 2011
  A subcontract from Transderm Inc. (Principal Investigator: **C.H. Contag**)
- NSF Center for Biophotonics Science & Technology 2001 – 2011
  002865-SU (Principal Investigator: D. Mathews, UC Davis)
- Hematopoietic Defect due to Heme Oxygenase 1 Deficiency; NIH/NIDDK 2007 – 2011

1K01 DK071716-01; (Principle Investigator, Y-A Cao)
- Extracellular replication of Listeria, NIH/NIAID 2009 – 2011
  R01 DK070749 (Principal Investigator: **C.H. Contag**)
- Development of siRNA Delivery methodologies using In vivo Imaging Models 2009 – 2011
  1R44AR055881 (**C.H. Contag**)
- Delivery of Biologically active nucleic acids to epidermal cells 2009 – 2011
  1RC2AARR058955-02 (Kaspar and **C.H. Contag**)
- Detection of neoplasia in the esophagus, NIH/NCI 2005 – 2010
  U54 CA105296-01 (Principal Investigator: **C.H. Contag**)
- Use of dual axes confocal microscopy to visualize tumor margins in medulloblastoma 2008 – 2010
  Children's Brain Cancer Center (Principal Investigator: **C.H. Contag**)
- Multi-modality Cellular Imaging of Vascular Inflammation 2006 – 2010
  R01HL078678 (Principle Investigator, M. McConnell)
- Effect of statins on heme oxygenase-1 regulation, NIH/NICHD 2007 – 2010
  1R21 HD050351-01A2 (Principle Investigator: Stevenson)
- Nanoparticle delivery of siRNA; SPARK Internal Stanford award 2009
  (Principal Investigator: **C.H. Contag**)
- Small Animal Imaging Core Resource. Stanford University Program in Biomed. Engineering and Child Health Initiative-Lucille Packard Foundation. 2005
  (Principal Investigators: **C. H. Contag**)
- Nanoparticle Formation and Biodistribution for Optimizing Therapy
  1 R21 CA125467 (Principle Investigator: R. Zare)

Past:
- Mobilized dendritic cells for lung cancer, NIH
  P01HL57443-06 (Principal Investigator: E. Engleman)
- Regulation of heme oxygenase in neonatal animals, NIH/NICHD
  R01 HL58013 (Principal Investigators: D.K. Stevenson and **C.H. Contag**)
- Monitoring tumor progression in living animals, NIH/NCI
  R01 CA80006-01 (Principal Investigators: R.S. Negrin and **C.H. Contag**)
- Therapeutic Use of Heme Analogs: Absorption in Intestine, NHLB/NIH
  R01 HL 68703 (Principal Investigators: D.K. Stevenson and **C.H. Contag**)
- Spatiotemporal analysis of neoplastic disease. NCI/NIH
  R24 CA 92862 (Principal Investigators: **C. H. Contag**, M. Bednarski, M. Moseley)
- Therapeutic Radionuclide Tumor-Targeting Strategy for Breast Cancer; DOE
  95382 **(**Principal Investigator: B. Franc, UCSF)
- Visible Models of Neoplastic Disease, NIH/NCI
  R33 CA88303 (Principal Investigators: **C.H. Contag** and R.S. Negrin)
- Visualizing tumor progression and therapy in living animals, Leukemia Society
  6090-99 (Principal Investigators: R.S. Negrin and **C.H. Contag**)
- Oral immunization against HIV using attenuated salmonella strains as gene delivery vehicles
  (Stanford, CHI-Packard Foundation; Principal Investigator: **C. H. Contag**)
- Molecular Biophotonics, ONR
  N00014-91-C-1-0170 (Principal Investigator: **C. H. Contag**)
- Vertical transmission of HIV in Zimbabwe, NIH/NIAID
  R01 A139013 (Principal Investigator: D. Katzenstein)
- Imaging Spontaneous Breast Cancer in Mouse Models, NIH/NCI
  R21 CA87386-01A1 (Principal Investigators: **C.H. Contag** and R.S. Negrin)
- *In vivo* multimodality Imaging of Neoplastic Disease, NCI/NIH
  P20 CA86312-01 (Principal Investigators: **C. H. Contag**, M. Moseley, M Bednarski)
  R24 HD37543 (Principal Investigators: **C.H. Contag** and D.K. Stevenson)
- Visualizing insulitis: IDDM pathogenesis and therapy, NIH/NIDDK
  RO1 DK58664 (Principal Investigators **C.H. Contag** and C.G. Fathman)
- Novel Cancer Targeting Mechanism for Imaging with PE; DOD
  WH-05-1-0059 (Principal Investigator: B. Franc, UCSF)
- Gene therapy of IDDM and its complications, JDFI
  4-2001-9, JDFI Center Grant (Principal Investigator: C. G. Fathman)
- Spatiotemporal analysis of neonatal host response, NIH/NICHD-NIAID

Invited Seminars (Recent and Selected from over 600):
- **Opening Keynote,** World Molecular Imaging Congress (WMIC) 2023
- **Invited Speaker,** Optical Surgical Navigation Special interest Group 2023
  World Molecular Imaging Congress (WMIC)
- **Invited Speaker,** Synthetic Biology Special interest Group 2023

World Molecular Imaging Congress (WMIC)

- **Invited Speaker**, Imaging in 2020, Jackson, WY 2022
- **Invited Speaker and Session Chair**, Gordon Conference, Optics and Photonics in Medicine and Biology 2022
- **Invited Speaker,** 2022 Gambhir Symposium at Stanford University 2022
- **Visiting Professor,** Grand Rounds, Helen DeVos Children's Hospital 2022
- **Keynote presentation**, Samsung Biologics 10th anniversary event 2021
- **Plenary Speaker,** Korean Tissue Engineering Society 2019
- **Plenary Speaker**, ISMICT, Oslo, Norway 2019
- **Keynote Speaker,** SAOT, Erlangen, Germany 2019
- **Plenary Speaker**, BMEiCON, Chiang Mai, Thailand 2018
- **Keynote Address,** NCI CIP 20th Anniversary Symposium, Bethesda, MD 2018
- **Keynote Address**, Fifth ACM/IEEE NanoCom conference, Reykjavik, Iceland 2018
- **Plenary Speaker**, 31st Annual Conference of the IEEE Photonics Society (IPC), Reston, Virginia 2018
- **Invited Speaker, Plenary Session,** Third AACR-SNMMI Joint Conference on State-of-the-Art Molecular Imaging in Cancer Biology and Therapy 2018
- **Keynote Address**, 45th annual Pharmacology Colloquium, East Lansing Michigan 2018
- **Plenary Speaker**, Conference on lasers and Elecro-Optics (CLEO), San Jose, CA 2017
- **Invited Meet the Expert,** AACR Annual Meeting, Meet the Expert Session: **The Future of Cancer Imaging** ***"Integrated Imaging over a Range of Scales and Modalities"*** 2017
- **Invited Speaker**, SNMMI Annual meeting, Denver, CO 2017
- **Invited Speaker**, MicroScience Microscopy Conference, London, England 2017
- **Invited Speaker**, European Society for Molecular Imaging, Amsterdam, Holland 2016
- **Invited Speaker**, SU2P Photonics meeting, Edinburgh, Scotland 2016
- **Invited Speaker**, AACR Annual meeting, New Orleans, LA 2016
- **Invited Speaker**, OSA Biomed conference, Orlando, FL 2016
- **Invited Speaker**, Pediatric Societies Annual Meeting, Baltimore MD 2016
- **Invited Speaker**, Physiology Society, Warwick, UK 2016
- **Invited Speaker**, Imaging in 2020, Jackson, WY 2016
- **Invited Speaker**, Russian Societies of Physiology and Biochemistry, Sochi, Russia 2016
- **Opening Keynote Lecture**.13th Imaging Network of Ontario Symposium London, Ontario, Canada. 2015
- **Opening Keynote Lecture**. Personalizing Cancer Medicine Conference Toronto, Canada. 2015
- **Opening Keynote Lecture**. Taiwan Society of Molecular Imaging 2015
- **Opening Keynote Lecture**. Korean Society of Molecular Imaging 2015
- **Keynote Lecture**. 11th Asia Oceania Congress of Nuclear Medicine and Biology, Jeju, Korea 2015
- **Opening Keynote Lecture**. World Engineering Conference and Convention, Kyoto, Japan 2015
- AACR-SNMMI Joint Conference on Cancer Imaging San Diego, CA 2015
- **Invited Lecture**, Conference on Lasers and Electro-Optics, Photonics in Surgery Image-guided Resection of Medulloblastoma 2015
- Ernst Strüngmann Forum on Heavy Metals and Infectious Disease Frankfurt am Main, Germany 2014
- **Opening Keynote Lecture**, Seeing is Believing and Beyond, National Cancer Center Korea Point-of-care pathology with miniaturized microscopes 2014
- Medical Scholars Training Program Distinguished Lecturer UC Irvine, Irvine, CA 2014
- Medical Physics Departmental Seminar University of Toronto, Toronto, Canada. 2014
- **Invited Speaker**, American Association of Physicists in Medicine Changing the Diagnostic Paradigm: Point-of-Care Pathology 2014
- **Invited Speaker**, Society of Nuclear Medicine and Molecular Imaging Changing the Diagnostic Paradigm: Point-of-Care Pathology 2014
- Molecular Medicine Departmental Seminar Ewha University Seoul Korea 2014
- **Invited Speaker**, Grand Opening Ceremony for Cha Bio, Seoul, Korea Changing the Diagnostic Paradigm: Point-of-Care Pathology 2014
- Department of Molecular Medicine, Mayo Clinic, Rochester, MN Image-guidance in the development of a dual-biotherapy 2013
- Cambridge Healthtech Institute Second Annual Future Diagnostics conference at University of California, Irvine 2012

Point-of-care pathology with miniaturized microscopes
- Imaging in 2020 2012
  Molecular determinants of immune cell migration
- Pediatric Grand Rounds, Stanford University 2012
  Use of imaging to refine and accelerate preclinical models of human biology and disease
- ISMRM workshop on Immune Cell Trafficking, Miami Beach 2012
  Imaging immune cell fates and function
- Department of Bioengineering Case Western Reserve University 2012
  Advancing immune cell therapies through imaging
- Pittcon 2012 2012
  Miniaturized confocal microscopes for point-of-care pathology
- AACR, **Major Symposium**: Immune cell function and cancer in vivo: 2012
  Visualizing friends and foes. Optimizing Immune Cell Therapies with Optical Imaging
- Department of Bioengineering, University of Southern California 2012
  Early detection of GI cancers with miniaturized microscopes
- École Polytechnique Fédérale de Lausanne 2012
  Dual biotherapy for the treatment of cancer
- University of Massachusetts, Worchester 2012
  Use of imaging to refine and accelerate animal models of human biology and disease
- **Keynote address,** Japanese Society of Molecular Imaging 2012
  Use of imaging to refine and accelerate animal models of human biology and disease
- Korean Association of Immunologists, Seoul National University 2011
  Image-guidance to advance immunotherapies for cancer
- **Plenary Lecture**, Global Research and Development Centers, Seoul, Korea 2011
  Green Science and Technology for Health and Environment
  Imaging with molecular specificity and cellular resolution for early cancer detection
- Texas A&M Biomedical Engineering Seminar Series 2011
  Point-of-care pathology with miniaturized microscopes
- **Plenary Lecture**. International Symposium in Radiology, Seoul, Korea 2011
  Optical imaging for early detection of cancer
- 8th Annual World Congress of IBMISPS on Brain, Spinal Cord Mapping & 2011
  Image Guided Therapy. San Francisco, CA, Guided resection of medulloblastoma using a miniature confocal microscope
- **Keynote Address**. Canada/UK/US Workshop on Imaging, London, UK 2011
  Enabling the future of imaging science
- **Invited lecture**. European Congress on Clinical Microbiology and Infectious Diseases and International Congress of Chemotherapy (ECCMID/27th ICC), Milan Italy 2011
  Advances in imaging of infection
- SU2P Photonics meeting, St. Andrews, Scotland 2011
  Point-of-care microscopy: Molecular imaging with cellular resolution
- Advances in Optics for Biotechnology, Medicine and Surgery XII, Naples, Florida 2011
  Miniature microscopes for point-of-care pathology, early detection of cancer and guided resection of malignancy
- Biotechnology Training Program Symposium, Charlottesville, VA 2011
  Point-of-care microscopy for early detection and guided resection of malignancy
- AACR Annual Meeting, Orlando FL 2011
  Point-of-care Microscopy for Early Detection and Guided Resection of Malignancy
- NSF meeting on the Physics of Cancer Metastasis, Arlington, VA 2010
  Targeting the cancer stem cell for therapy
- Departmental Seminar, Bioengineering, UC Berkeley 2010
  Point-of-care microscopy: Molecular imaging with cellular resolution
- Orthopaedic Research Society, New Orleans, LA 2010
  "Imaging stem cell fate and function"
- **Keynote Address.** European Society for Molecular Imaging, Warsaw, Poland 2010
  Point-of-care microscopy: Molecular imaging with cellular resolution
- Molecular Diagnostics for Cancer Drug Development, Boston, MA 2010
  Point-of-care microscopy: can we change the current paradigm in cancer diagnosis?
- CCSIP, UC—Canada Bioimaging Workshop on Biophotonics, Vancouver, Canada 2010
  Point-of-care microscopy: Molecular imaging with cellular resolution
- **Invited Speaker**, Gordon Conference on Drug Delivery, Waterville Valley, NH 2010

Advancing drug delivery through imaging
- International Congress on Biophotonics, Quebec City, Quebec 2010
  Advancing Drug Discovery and Delivery Through In vivo Imaging
- American Transplantation Society, Orlando, FL 2010
  Imaging stem cell engraftment and hematopoietic reconstitution
- AACR" Colorectal Cancer: Biology to Therapy - Philadelphia PA 2010
  Miniaturized microscopes for early detection of GI cancers
- **Plenary Address**. Global Research and Development Centers, Seoul S. Korea 2010
  "Accelerating the discovery, development and delivery of new therapies through imaging"
- **Plenary Address**. 20th Anniversary of the Korean Society of Medical Physics 2010
  "Point-of-care Pathology: Can we change the current paradigm of cancer diagnosis
- **Keynote Address.** Innovations in Optical Imaging of Cancer. UT Southwestern 2009
  "A dual biotherapy for elimination of the last cancer cell"
- **Keynote Speaker**: Regenerative Medicine, Advancing next generation therapies 2009
  "Imaging as a window into stem cell biology"
- **Special Seminar.** 2nd International Conference on Medical Physics, Seoul, Korea 2009
  Miniaturized microscopes for early detection of cancer.
- 3rd International Symposium on Animal Molecular Imaging, Taipei, Taiwan 2009
  Refining immune cell therapies through imaging
- **Keynote Speaker**: Chicago Biomedical Consortium Sixth Annual Symposium. 2008
  "Imaging as a window into mammalian biology"
- Lyme and other tick-borne Disease: solutions through cutting edge science, 2008
  College of Physicians and Surgeons of Columbia University.
  "Imaging of infection and the host response"
- **Keynote Speaker:** Bio-inspired Design Conference, Mississippi State University 2008
  "Imaging as a window into mammalian biology"
- **Keynote Address:** International Society of Bioluminescence and Chemiluminescence 2008
  Shanghai, China
- **Distinguished Lecture**: University of California at Davis 2008
- **Keynote Address:** Biophotonics Symposium, CREOL, University of South Florida 2008
- Third AACR International Conference on Molecular Diagnostics in Cancer Therapeutic 2008
  Development: Fulfilling the Promise of Personalized Medicine.
- **Keynote address.** UCSF Cancer Center Annual Retreat 2008
  "Use of imaging to refine a dual biotherapy for cancer"
- Imaging in 2020—Imaging Theranostics, Jackson Hole WY 2007
  Session Chair: Chemistries of Photoactive Proteins
- Nobel Conference, Stockholm Sweden; Watching Life through Molecular Imaging 2007
  "Imaging Cell Fates and Function"
- **Keynote Address**, Gordon Research Conference "Cancer Models and Mechanisms", 2007
  Les Diablerets, Switzerland
- University of Pennsylvania, Cancer Center Seminar 2007
  Refining small models of cancer through Imaging
- Translation al Optical Molecular Imaging—Nano to Macro, Houston TX 2007
  Bioluminescent markers for studying cell biology in living animals
- University of Pennsylvania, Cancer Center Seminar 2006
  Optimizing cell-based therapies through Imaging
- Joslin Diabetes Center, Harvard University, Departmental Seminar 2006
  Imaging stem cell fates and function
- Siteman Cancer Center of Washington University, programmatic Seminar 2006
  The role of stem cell fusion in hematopoiesis
- Society for Molecular Imaging 2006
  Opening Plenary Lecture: Visualizing stem cell fusion
  Session Chair and State-of-the-art presentation: Visible animal models of neoplasia
- Autumn Immunology Conference (AIC), Imaging Cell Migration 2006
  Enhancing immune cell therapies through imaging
- Sidney Kimmel Cancer Center Symposium 2006
  Optimizing cell-based therapies through Imaging
- Association of American Cancer Institutes (AACI) and Cancer
  Center Administrators Forum (CAF)Association of American Cancer Institutes (AACI) 2006
  Optimizing cell-based therapies through Imaging: can we eliminate the last cancer cell?
- UCSF, Departmental Seminar Immunology 2006
  Optimizing cell-based therapies through Imaging
- Memorial Sloan Kettering Cancer Center, Departmental Seminar 2006

Optimizing cell-based Therapies through Imaging
- International Society of Bioluminescence and Chemiluminescence 2006
  In vivo bioluminescence imaging to optimize cell-based therapies
- NTROI, Workshop on Translational Optical Imaging 2005
- University of Oklahoma, Departmental Seminar, Microbiology 2005
  Imaging biological processes in vivo
- UCSF, Departmental Seminar Radiology 2005
  Imaging Stem Cell Fates and Function
- Symposium: Optical Probes For Molecular and Cellular Imaging 2005
  Accelerating and Refining Animal Models through Bioluminescence Imaging
- AACR-NCI-EORTC International Conference Molecular Targets and Cancer Therapeutics: Discovery, Biology, and Clinical Applications 2005
  Plenary Lecture: Optimizing Immune Cell Therapies through Imaging
- BioOptical Symposium, Groningen, Netherlands 2005
  From Stem Cells to Cancer, In vivo Imaging using Bioluminescence
- 3rd Workshop on Innovative Mouse Models in Leiden, Netherlands 2005
  Plenary Lecture: Molecular imaging with bioluminescence: accelerating and refining preclinical studies
- CLEO **Keynote address**: In vivo Cell Biology Using Optics 2005
- FOCIS (Federation of Immunology Societies) 2005
  Plenary address: Visualizing stem cell fates and function
- Keystone Symposium: Leukocyte Trafficking: Cellular and Molecular Mechanisms 2005
  Session Chair: In situ Visualization of Lymphocyte Migration and Activation
  Presentation: Whole Body Imaging of Lymphocyte Trafficking
- FOCIS (Federation of Immunology Societies), Montreal Canada 2004
  Major Symposium: Stem cell tracking and Monitoring
- Society for Molecular Imaging, **Plenary session** on Cell Trafficking and Immunology 2004
  Tracking stem cells in hematopoiesis
- NIAID Biodefense Workshop 2004
  Bioluminescence Imaging for Accelerating Research in Infectious Diseases
- Hwasun Optical Imaging Workshop, Chonnam National University Medical School, Korea 2004
  From Stem Cells to Cancer, In vivo Imaging using Bioluminescence
- *In vivo* Imaging Symposium, Tokyo, Japan 2004
  From Stem Cells to Cancer, In vivo Imaging using Bioluminescence
- Tsukuba University Departmental Seminar 2004
  From Stem Cells to Cancer, In vivo Imaging using Bioluminescence
- University of Texas Southwestern—Departmental Seminar, Dept. of Cell Biology 2004
  Stem cells to cancer: Imaging using bioluminescence
- Pediatric Academic Societies Annual Meeting, **State-of-the-Art presentation** 2004
  Watching hematopoietic stem cell engraftment and hematopoiesis in living animals
- University of Pennsylvania—Chance Laboratory 2004
  Advances in in vivo bioluminescence imaging
- Gordon Conference: Lasers in Biology and Medicine 2004
  Session Chair Molecular targets: from functional imaging to therapy
- International Society of Differentiation, Waikiki, Hawaii 2004
  Shifting foci of hematopoiesis
- AACR Annual meeting 2004
  Immune cell and stem cell trafficking in vivo
- Keystone Symposium: Mouse models of human cancer 2004
  Luciferase-Based Imaging of Mouse Tumor Development
- FASEB Annual meeting; American Association of Anatomists, Whole Body Assessment of Cell and Molecular Therapies using *In Vivo* Bioluminescent Imaging 2004
- Levine Symposium on Diabetes 2003
  In vivo Immune cell trafficking
- Annual meeting of the American Association of Veterinary Pathologists 2003
- The 24th Congress of the International Association for Breast Cancer Research 2003
  Imaging of cells fates and function using in vivo bioluminescent imaging
- AACR Annual Meeting 2003
  Bioluminescence Imaging for Cancer Research
- 15th Annual Mahajani Symposium in Molecular Medicine. Salk Institute 2003
  Stem cell fates and function
- European Molecular Imaging Symposium. Roscoff, France; "New in vivo imaging modalities for Molecular Biology, Cell Biology and Physiology conference" 2003

Keynote address: The promise of molecular imaging

- Stem Cell Symposium, Stem Cell Research Foundation 2003
  Assessing Cell Fates and Function In Vivo
- 14th Pezcoller Symposium: Molecular in vivo visualization of cancer cells 2003
  Rovereto, Italy.
- Engineering Conferences International, Advances in optics for biotechnology, medicine 2003
  and surgery Revealing the molecular basis of disease and response to therapy using
  in vivo bioluminescent imaging
- Duke University 2003
  Revealing the molecular basis of disease and response to therapy using
  in vivo bioluminescent imaging
- AAI: American Association of Immunology 2003
  Opening plenary: *In Vivo* Bioluminescent Imaging of Immune Cell Trafficking Patterns.
- Case Western Reserve 2003
  Revealing the molecular basis of disease and response to therapy using
  in vivo bioluminescent imaging
- Keystone symposia on optical imaging 2003
  In vivo molecular and cellular analyses using internal light emitting probes
- FOCIS: Federation of Clinical Immunology Societies 2002
  In Vivo Bioluminescent Imaging of Immune Cell Trafficking Patterns.
- Spanish National Cancer Center, CNIO Conference on Mechanisms of Invasion and Metastasis 2002
  Revealing the molecular basis of malignancy and host response using in vivo
  Bioluminescent measurements
- Jacques Monod Conference on Integrative approaches in pathogenesis 2002
  Pasteur Institute, Paris, France
  -**Symposium organizer, session chair** and speaker
  -Imaging of infection and host response *in vivo*
- Annual meeting of the Society for Molecular Imaging 2002
  - **Member of the steering committee and program committee**
  - **Plenary session chair**
  - Speaker in optical imaging session
  Revealing the molecular basis of disease and response to therapy using
  in vivo bioluminescent imaging
- Boston Children's Hospital, Leading Edge Seminar Series 2002
  Revealing the molecular basis of disease and response to therapy using
  in vivo bioluminescent imaging
- Gordon Conference: Immunobiology and Immunochemistry 2002
  Speaker and Session Chair, Imaging immune cell function *in vivo*
- UCLA Molecular Imaging Seminar Series 2002
  Revealing the molecular basis of disease and host response using *in vivo*
  bioluminescent measurements
- Molecular Imaging in Cancer: Linking Biology Function and Clinical Applications *In Vivo* 2002
  In vivo imaging of tumor cells and cells of the immune system
- NIH BECON Meeting on Biosensors 2002
- Pasteur Institute, Paris, France 2001
  Imaging of infection *in vivo*
- General Motors Cancer Research Foundation Awards Symposium 2001
  Following tumor growth and the immune response *in vivo*
- Imaging in 2020, Jackson Hole, WY 2001
  Immune cell trafficking *in vivo*
- DARPA Conference on Biophotonics, Arlington, VA 2001
- NCI Workshop on Molecular Imaging and Cancer Drug Development and Probe Discovery 2001
- International Congress on Neonatal Jaundice, Hong Kong 2001
  In Vivo transcription patterns of heme oxygenase-1
- Imaging Life: from Cells to Whole Animals, Microscopy Society of America, Long Beach, CA 2001
  Whole body imaging of gene expression and cell migration
- American Society of Gene Therapy Annual Meeting, May 30-June3, 2001
- Imaging 2020, Jackson Hole, WY Sept 30-Oct. 6, 2001
- Society of Pediatric Research National Meeting, Boston, MA 2000
  Plenary Address: Monitoring gene expression during development
- International Society for Analytical Cytology, Montpellier, France 2000
  Chair: Mini-symposium: Molecular and cellular analyses in living animals
- SPIE Annual Meeting, BiOS'99, San Jose, CA (**Conference Co-chair**) 1999

Conference Title: Molecular imaging: reporters, dyes and instrumentation
Bioluminescent reporters for molecular and cellular analyses in living mammals

- Wellman Laboratories of Photomedicine, Massachusetts General Hospital 1998
  Photoproteins as labels for *in vivo* functional imaging
- National Heart and Lung Institute; Imperial College, London 1998
  Photoproteins as labels for *in vivo* functional imaging
- Symposium on Biomedical Photonics, German Cancer Research Center, Heidelberg 1998
  Bioluminescent reporters for molecular and cellular analyses in living mammals
- Commonwealth Club of California 1998
  Discovery in the living organism
- Optical Society of America Meeting, **Symposium Chair** 1997
  Genetic engineering optical reporters into living organisms

Membership in Academic Societies

American Association for the Advancement of Science (AAAS)	1986-
American Association for Cancer Research (AACR)	2005-
American Heart Association (AHA)	2019-
Biomedical Engineering Society (BMES)	2022-
Cell and Molecular Biomedical Engineering Special Interest Group	
Society for Nuclear Medicine and Molecular Imaging (SNMMI)	2012-
Society for Molecular Imaging (SMI)—now part of World Molecular Imaging Society	1999-2011
Charter member	1999
President elect	2000-2001
President	2002-2003
Member of advisory council	2003-2009
World Molecular Imaging Society (WMIS, integration of AMI and SMI)	2011
Fellow	2012
President elect	2014-2015
President	2015-2016
American Society of Microbiology (ASM)	1989-1999, 2008-
American Society for Virology (ASV)	1989-1999
International Society for Analytical Cytology (ISAC)	2000-2002
Scientific Advisor for International Congress	
International Society of Bioluminescence and Chemiluminescence (ISBC)	1998-2000

Trainees

Current	**Current Position**
Seock-Jin Chung	Postdoc, MSU (co-advisor: Taeho Kim)
Ashley Makela	Postdoc, MSU
Evran Ural	Graduate Student, BME, MSU
Shakhlo Aminova	Graduate Student, BME, MSU (co-advisor: Aitor Aguirre)
Xuan Xie	Graduate Student, MMG, MSU (co-advisor: Michael Bachmann)
Ahmed Zarea	Graduate Student, CMB MSU
Satyajit Kulkarni	DVM/PhD candidate
Tony Tundo	Undergraduate BMB, MSU
Emily Neeb	Undergraduate, Microbiology and Molecular Genetics

Past

Jennifer Prescher, Ph.D.	Prof., University of California at Irvine
Jonathan Liu, Ph.D.	Assoc. Prof., Univ. Washington University of Washington, Seattle, WA
Mark Mackanos, Ph.D.	Principle Scientist EyeQue Corp.
Steve Thorne, Ph.D.	Assoc. Prof., University of Pittsburgh CSO, Western Oncolytics
Maneesh Batra, M.D., M.P.H.	Prof., Pediatrics, Division of Neonatology University of Washington, Seattle, WA
I. Nickolas Olomu, M.D.	Prof., Michigan State University
Thomas Wang, MD, PhD	Prof., University of Michigan
Brian Eames, Ph.D.	Prof., Univ. Saskatchewan
Wibool Piyawattanametha, Ph.D.	Prof. National Univ. Hosp. and Scientist, Federal Laboratory of Thailand
Zhen Qui	Asst. Prof. Michigan State University
Mark Sellmyer, M.D., Ph.D.	Asst. Prof., Univ. Pennsylvania
Masamitsu Kanada, Ph.D.	Asst. Prof, Michigan State University

Karine Gibbs, Ph.D.	Assoc. Prof., UC Berkeley
David Bundy, M.D.	Professor, University of South Carolina, Dept. of Pediatrics Chief Quality Officer at Medical University of South Carolina
Ade Olomu, M.D.	Prof., Michigan State University
Caitlin O'Connell-Rodwell, Ph.D	Instructor, Dept. of Otolaryngology, Stanford Univ. School Scientific consultant, author, co-founder and CEO of Utopia Scientific
Stephan Rogalla, M.D.	Asst. Professor, Stanford University
Bige Unluturk	Asst. Professor, BME, Michigan State University
Ryan Spitler, Ph.D.	Deputy Director, Precision Health and Integrative Diagnostics, Stanford
Stefan Harmsen	Asst. Professor, University of Pennsylvania
HyeJun Ra, Ph.D.	Sr. Engineering Program Manager, Apple Computers
Steve Sensarn, Ph.D.	Sr. Applied Scientist, Amazon., Palo Alto, CA
Ellis Garai, Ph.D.	Principal R&D Engineer, Medtronic, Los Angeles
Maruti Didwania	Founder, Engineer, Scientist, Stealth, San Francisco
Victoria Toomajian	Graduate Student, BME, MSU
Sophie Kusy, Ph.D.	Sr. Assoc. Editor, Peer J
Tobi Lyn Schmidt, Ph.D.	Scientist, MSI
Josephine Chen	Partner, Sequoia Capital
Markus Deutschmann	Physician, University of Zurich
Yu-An Cao, M.D., Ph.D.	Scientist, IGM Biosciences, CA
Emilio Gonzalez, Ph.D.	Scientist Canvax Biotech, Madrid, Spain
Tim Doyle, Ph.D.	Sr. Scientist, Neuroscience at Stanford University
Mike Helms, Ph.D.	Laboratory Head, Sanofi
Rajesh Shinde, Ph.D.	Senior Scientist, Aviceda, Boston
Steffi Mandl, Ph.D.	CSO PACT Pharma—Komen Fellowship
Pei-Lin Hsiung, Ph.D.	Systems Engineer, Pacific Biosciences
Henry Haeberle, Ph.D.	Applications engineer at CVI Optics, Albuquerque, New Mexico
Irfan Ali-Khan, Ph.D.	CEO, Wavrine Inc.
Stacy Burns-Guydish, Ph.D.	President, List Biological Laboratories
Laura Bronsart, DVM, Ph.D.	Lead Scientist, Upkara Inc.
Ji-Yeon Park, Ph.D.	Radiation Physicist
Patrick Eimerman, Ph.D.	Senior Director, BioPharma Partnerships at Exact Sciences, Madison, WI
Derek Moore, M.D.	Orthopaedic Surgeon, Santa Barbara, CA
Wenchuen Liang, Ph.D.	Research Associate—Stanford University
Blythe Bartos, M.D.	Internist, Kaiser Permanente, Oakland, CA
Kathy Fernando, M.D.	Senior Vice President, Head of Pfizer Ignite & Pfizer Centre One
Anthony Basile	Attorney at Casas Riley Simonian, LLP, Campbell, CA
Pamela Dietz	Adjunct Professor, Graduate Nursing Program, Univ. Indianapolis
Patricia Lee (née Kwon), M.D.	Pediatrician, Palo Alto Medical Foundation, Palo Alto, CA
Wah-Ping Luk, M.D., Ph.D.	Resident, Santa Clara Medical Center, CA
Jon A. Mathy, M.D., F.A.C.S.	Plastic Surgeon, Auckland, New Zealand
Christopher Gruber, M.D.	ER Physician, Seaside Physicians, Santa Paula, CA
Monica Hadjna-Dawson, MD	Staff Physician—Stanford University
Ryan McFarland	International affairs, health policy, environmental sustainability
Mary Brindle, M.D.	Surgery Resident, University British Columbia
Hamid Kazerouni, MD	Surgery Resident, Mayo Clinic
Masami Mizubuchi, MD	Staff Physician, Kobe University
Garrett Hefner	Postdoctoral Fellow, Columbia University
Glenn DeSandre, M.D.	Staff Physician, Pacific Medical Center
Jennifer Duda, M.D.	Pediatrician, Palo Alto, CA
Hui Zhao, Ph.D.	Research Associate, Stanford University, Dept. of Pediatrics
Esther Lee, MS	Hospitalist Stanford University, Dept. of Medicine.
Mainak Sakar	Graduate Student, Aerospace engineering
Amy Wu, MD, FACS	Head and Neck Surgeon, Scientist, Entrepreneur, New York, NY
Jayalakshmi Ravindran, M.D.	Neonatologist at UCSF Benioff Children's Hospital Oakland
Jack Perrng	Physics, Stanford University
Afraaz Irani, M.D.	Product Manager, Amazon-Alexa Health physician
Maria Fernando, Ph.D.	Scientist, Transderm Inc.
Rinki Kapoor, Ph.D.	Healthcare Strategist, Ex Bain & Company, Navigant
Jocelyn Ko, M.D.	Clinical Fellow at UCSF Geriatric Medicine Fellowship
Christian Stokes	Scientist, Emit Inc.
Adithya Balasubramanian	Medical Student, Baylor College of Medicine
Qian Wang, Ph.D.	Specialist at UC Davis Department of Biomedical Engineering

Nathan Loewke	Graduate Student, Electrical Engineering Stanford
Simone Haag	Ph.D. Graduate Student, Germany
Ehsanul Hoque Apu	Postdoc, University of Michigan
Chima Maduka	PhD awarded in 2022, Postdoc., University of Colorado, Boulder
Cody Madsen	PhD awarded in 2022, Postdoc., Lawrence Livermore National Labs
Emily Greeson	PhD awarded in 2022, Postdoc in MMG at MSU
Victoria Toomajian	PhD awarded in 2023, Postdoc at start-up in Ann Arbor
Max Kuhnert	Research associate Stanford University

Patents:

1. US Pat. 6638752; Filing date: Oct 30, 1998; Issue date: Oct 28, 2003; **Biodetectors targeted to specific ligands**. Inventors: C.H. Contag, P.R. Contag and D.A. Benaron. (1996)
2. US Pat. 6939533. Filing date: Jun 2, 2005; Issue date: Aug 14, 2007; **Non-invasive localization of a light-emitting conjugate in a mammal. Detecting and tracking pathogens in a mammal**. Inventors: C.H. Contag, P.R. Contag and D.A. Benaron.
3. US Pat. Pending. Filing date Aug. 2005. **Luciferyl peptides**. Inventors CH Contag, RR Shinde, MD Bednarski, S Guccione.
4. US Pat. 6923951. Filing date: Dec, 16, 2002; Issue date: Aug 2, 2005; **Non-invasive localization of a light-emitting conjugate in a mammal. Detecting and tracking pathogens in a mammal**. Inventors: C.H. Contag, P.R. Contag and D.A. Benaron.
5. US Pat. 6890515. Filing date: Dec, 16, 2002; Issue date: May 10, 2005; **Non-invasive localization of a light-emitting conjugate in a mammal. Detecting and tracking pathogens in a mammal**. Inventors: C.H. Contag, P.R. Contag and D.A. Benaron.
6. US Pat. 6916462. Filing date: Dec, 16, 2002; Issue date: July 12, 2005; **Non-invasive localization of a light-emitting conjugate in a mammal. Detecting and tracking pathogens in a mammal**. Inventors: C.H. Contag, P.R. Contag and D.A. Benaron.
7. US Pat. 6908605. Filing date: Dec, 16, 2002; Issue date: June 21, 2005; **Non-invasive localization of a light-emitting conjugate in a mammal. Detecting and tracking pathogens in a mammal**. Inventors: C.H. Contag, P.R. Contag and D.A. Benaron.
8. US Pat. 6649143. Filing date: Jan 19, 1999; Issue date: Nov 18, 2003; **Non-invasive localization of a light-emitting conjugate in a mammal. Detecting and tracking pathogens in a mammal**. Inventors: C.H. Contag, P.R. Contag and D.A. Benaron.
9. US Pat. 6217847. Filing date: Jan 19, 1999; Issue date: April 17, 2001; **Non-invasive localization of a light-emitting conjugate in a mammal. Detecting and tracking pathogens in a mammal**. Inventors: C.H. Contag, P.R. Contag and D.A. Benaron.
10. US Pat. 5650135. Filing date: July 1, 1994; Issue date: July 22, 1997; **Non-invasive localization of a light-emitting conjugate in a mammal. Detecting and tracking pathogens in a mammal**. Inventors: C.H. Contag, P.R. Contag and D.A. Benaron.
11. US Pat. 12469578 - Filed May 20, 2009; Issue Date: Dec., 2009. **Encapsulated nanoparticles for drug delivery**. Inventors: C.H. Contag; R.R. Shinde.
12. US Pat. Appl. No. 20110160146. Filing date: February 5, 2009. **Conjugation of small molecule to octaarginine transporters for overcoming multi-drug resistance.** P Wender, EA Dubikovskaya, SH Thorne, CH Contag
13. U.S. Pat. No. 8,530,636 Filing date: May 7, 2009. **Issued:** September 10, 2013. **Methods of regulating protein function in cells in vivo using synthetic small molecules.** TJ Wandless, LA Banaszynski, MA Sellmyer, CH Contag, SH Thorne.
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