Curriculum Vitae

Bruce Jason Tromberg, Ph.D.
National Institute of Biomedical Imaging and Bioengineering
National Institutes of Health
Building 31 Room 1C14
31 Center Drive, MSC 2281
Bethesda, MD 20892
Phone: 240-751-0442, bruce.tromberg@nih.gov
https://www.nibib.nih.gov, https://www.nibib.nih.gov/about-nibib/directors-corner
https://www.nichd.nih.gov/research/atNICHD/Investigators/tromberg

SUMMARY

Dr. Tromberg is the Director of the National Institute of Biomedical Imaging and Bioengineering (NIBIB) at the National Institutes of Health (NIH) where he oversees a portfolio of research programs focused on developing, translating, and commercializing engineering, physical science, and computational technologies in Biology and Medicine. He leads NIBIB's Rapid Acceleration of Diagnostics technology initiative (RADx Tech), established in 2020 to meet an urgent need for increasing SARS-COV-2 testing capacity & performance, and broadened in 2023 to include a wide range of over the counter (OTC) and point of care (POC) medical devices. His laboratory, the Section on Biomedical Optics (SBO) in the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), develops portable, bedside, non-contact, and wearable technologies for biomedical sensing, imaging, and therapy. Prior to joining NIH in January 2019, Dr. Tromberg was a professor of biomedical engineering and surgery at the University of California, Irvine (UCI). During his 30-year academic career, Dr. Tromberg served in multiple leadership roles, including, director of UCI's Beckman Laser Institute and Medical Clinic (BLIMC), PI of the Laser Microbeam and Medical Program (LAMMP), an NIH National Biomedical Technology Center, and co-founder of UC Irvine's Department of Biomedical Engineering. Dr. Tromberg has co-authored more than 450 publications and holds 29 patents on topics spanning from new technology development to bench-to-bedside clinical translation, validation, and commercialization of devices. Dr. Tromberg has trained >100 students and fellows, is co-founder of the Biophotonics company Modulim, Inc, and has served on numerous advisory boards in academia, government, and the private sector.

POSITIONS HELD

January 2019-present: Director, National Institute of Biomedical Imaging & Bioengineering (NIBIB), National Institutes of Health; Principal Investigator, Section on Biomedical Optics (SBO), National Institute of Child Health and Development (NCHD), NIH

July 2007-December 2018: Director, Special Campus Research Program (SRP), Beckman Laser Institute and Medical Clinic, University of California, Irvine

July 2004-Dec 2018: Co-Leader, Onco-Imaging and Biotechnology Program, Chao Family Comprehensive Cancer Center, University of California, Irvine

October 2003- December 2018: Director, Beckman Laser Institute and Medical Clinic, Chief, Beckman Division, Department of Surgery, University of California, Irvine

July 2002-December 2018: Professor, Departments of Biomedical Engineering and Surgery, University of California, Irvine

May 2002-June 2005: Vice Chair and Co-Founder, Department of Biomedical Engineering, UC Irvine

October 2000-September 2004: Associate Director and Co-Founder, Center for Biomedical Engineering, UC Irvine

July 1998-July 2002: Associate Professor, Electrical and Computer Engineering, UC Irvine.

Summer 1998: Visiting Professor, Institute for Applied Optics, Swiss Federal Institute of Technology, EPFL, Lausanne, Switzerland

April 1997-December 2018: Director and Principal Investigator, Laser Microbeam and Medical Program (LAMMP), NIH-National Biomedical Technology Resource Center, UC Irvine

July 1995-July 2002: Associate Professor, Departments of Surgery and Physiology and Biophysics, UC Irvine

January 1995-March 1997: Associate Director, Laser Microbeam and Medical Program, Beckman Laser Institute and Medical Clinic, UC Irvine

September 1994-June 2004: Founding Co-Director, Optical Biology Core and Photomedicine Program, NCI-Chao Family Comprehensive Cancer Center

September 1991-June 1995: Assistant Professor, Department of Physiology and Biophysics, UC Irvine

January 1990-June 1995: Assistant Professor, Department of Surgery, UC Irvine

EDUCATION

Post-Doctoral
March 1988-December 1989: Hewitt Foundation Postdoctoral Fellow, Photomedicine, Beckman Laser Institute and Medical Clinic, University of California, Irvine; Advisor: Michael W. Berns

Graduate
1986-1988: Department of Energy/Oak Ridge Associated Universities Predoctoral Fellow, Oak Ridge National Laboratory, Oak Ridge, Tennessee; Advisors: Michael J. Sepaniak and Tuan Vo-Dinh

March 1988: Ph.D., Chemistry, University of Tennessee, Knoxville. Dissertation: *Development of Antibody-Based Fiber Optic Sensors*

December 1983: M.S., Chemistry, University of Tennessee, Knoxville. Thesis: *Laser-Based Optical Fiber Fluoroprobes in Clinical Analysis*

Undergraduate
May 1979: B.A., Chemistry and Psychology, Vanderbilt University, Nashville, Tennessee

COMMITTEES AND COUNCILS AS NIBIB DIRECTOR

2025: Selection Committee, Special Lecture on Engineering and Society, National Academy of Engineering Annual Meeting

2025: Planning Committee, National Academies of Sciences, Engineering, and Medicine Workshop on Cancer Engineering: The Convergence of Engineering and Health to Advance Cancer Research and Care

2024-present: Co-Chair, NIH Common Fund Initiative: Precision Medicine with AI: Integrating Imaging with Multimodal Data (PRIMED-AI)

2024-present: Co-Chair, NIH Common Fund Ventures Initiative: Non-Invasive Optical Imaging Approaches for Biological Systems (NIOI)

2023-present: Co-Chair, NIH Common Fund Ventures Initiative: Oculomics

2023- present: NIH HEAL Pain Executive Committee

2023- present: NIH Common Fund Venture Space Advisory Committee and Venture Board Member

2022-present: Foundation for NIH (FNIH) Biomarkers Consortium Executive Committee

2022-2024: US-Israel White House-HHS Taskforce on Pandemic Preparedness and Innovation

2022-2024: OSTP Steering Committee for Pandemic InnovationT

2022-2024: Gates Foundation-NIBIB Maternal-Fetal Health Technologies Working Group

2022-2024: Co-Chair, NICHD, ORWH, NIBIB joint RADx Tech initiative for Maternal and Fetal Health Technologies

2022-present: NICHD-NIBIB-FNIH Pediatric Medical Devices Initiative Working Group

2022-2024: NEI-NIBIB-All of Us (AoU) Ophthalmic Imaging Diagnostics Initiative Working Group

2022-present: All of Us Brain Trust Advisory Committee

2021-2022: OSTP, Pandemic Innovation Task Force, co-lead Diagnostics

2021-2024: NSF Engineering Directorate National Advisory Committee

2021-2024: HHS KidneyX Steering Committee

2021-2022: Co-Chair, Search Committee for Director, National Center for Advancing Translational Science (NCATS)

2021-2022: Member ARPA-H/NIH Institute and Center (IC) Interface working group

2021-present: Co-chair, NIH Common Fund Initiative: Bridge to Artificial Intelligence (Bridge2AI)

2021-2024: White House-interagency partnership on Hepatitis C elimination, co-lead POC diagnostics

2020-2023: Foundation for Innovative Diagnostics (FIND) ACT-A Dx Pillar

2020-present: Chair, NIBIB Rapid Acceleration of Diagnostics Technology (RADx Tech) programs

2020-2024: Executive Committee, NIH Rapid Acceleration of Diagnostics Initiative (RADx)

2020-present: HHS-Interagency Testing Coordination Group (TCG), NIH diagnostics lead

2020-2021: Operation Warp Speed (OWS), Interagency Lead for Diagnostic Technologies

2019-2020: Member, Search Committee for National Eye Institute (NEI) Director

2019-2024: NIH Facilities Working Group for Campus Resource and Space Allocation Planning

2019-2024: NIH Lead, Gates Foundation collaboration in POC and Digital Health Technologies

2019-present: Co-Chair, NIH Common Fund, Data Science and Innovation in Africa (DSI- Africa)

2019-2023: NIH lead for US Department of Energy collaborative programs

2019-2022: Co-Chair, Scientific Data Council, National Institutes of Health

2019-2021: Physical Sciences Sub-Committee, National Science and Technology Council, OSTP

2019-present: Member, BRAIN/Blueprint Directors Council, National Institutes of Health

2019-present: Member, SPARC Initiative Directors Council, National Institutes of Health

SELECTED HONORS AND AWARDS

February 2024: Elected member, National Academy of Engineering

December 2023: Inaugural David Shiu-Wai Kam Family Lectureship in Biomedical Engineering, UT Southwestern

March 2023: 53rd Annual Aubrey O. Hampton Lecture, Mass General Hospital, Boston, MA

November 2022: Gold Medal, Academy for Radiology and Biomedical Imaging Research

October 2022: Elected member, National Academy of Medicine

January 11, 2022: Britton Chance Biomedical Optics Award, International Society for Optical Engineering (SPIE)

December 7, 2021: Elected Fellow, National Academy of Inventors

October 5, 2021: 60th Merrill Sosman Lecture, Mass General-Brigham Dept of Radiology, Harvard Medical School

November 19, 2020: Vanderbilt University Medical School Discovery Lecturer

October 28, 2020: University of Illinois School of Engineering Deans Distinguished Lecturer

April, 2020: Horace Furumoto Innovator Award, American Society for Laser Medicine and Surgery (ASLMS)

May 4, 2018: UCI Institute for Clinical and Translational Science (ICTS) Career Achievement Award

November 2017: John R. and Donna S. Hall Lecture, Vanderbilt University, School of Engineering

November 2016: Dasari Lecture, Massachusetts Institute of Technology, Boston, MA

July 2016: Honorary Professor, Research Institute of Electronics, Shizuoka University, Japan

October 2015: Elected Fellow, Optica (The Optical Society)

March 2015: Michael S. Feld Biophotonics Award, Optical Society of America (OSA)

May 2013: Cameron Lecture, Department of Medical Physics, University of Wisconsin, Madison, WI

September 2012: Department of Health and Human Services (DHHS) Appointment, National Advisory Council, National Institute of Biomedical Imaging and Bioengineering (NIBIB), National Institutes of Health (NIH)

December 2011: Sackler Fellow, Department of Biomedical Engineering, School of Engineering, Tel Aviv University, Israel

May 2011: UC Irvine Institute for Clinical Translational Science Distinguished Faculty Mentor Award

July 2009: Director's Award, International Society for Optical Engineering (SPIE)

July 2009: Elected Board Member, International Society for Optical Engineering (SPIE)

April 2008: McIntire Lecture, Rice University Department of Biomedical Engineering

2006: Elected Fellow, International Society for Optical Engineering (SPIE)

October 2006: Founders Series Lecture, Vanderbilt University Institute of Imaging Science

March 2006: Elected Fellow, American Institute for Medical and Biological Engineers (AIMBE)

May 2005: Research Associates Athalie Clarke Award for Outstanding Health Science Researcher, UC Irvine

April 2005: Sigma Xi Honor Society

September 2004: Joint NSF-Egypt National Research Center, Egypt-American Workshop on Lasers in Chemistry, Materials, and Biology, Cairo, Egypt

July 2004: U.S. Chair, Gordon Research Conference, Lasers in Biology and Medicine

July 2003: Elected Board Member, International Society for Optical Engineering (SPIE)

April 2003: Joint NSF-Humboldt Foundation lecture, German-American NAE Frontiers on Engineering, Ludwigsberg, Germany

May 2001: OE Magazine Technology Innovator Award

January 2001: Beckman Foundation Grants Advisory Council

November 2000: Coherent-Biophotonics "Young Investigator in Biophotonics" Award

April 2000: Avon Foundation Breast Cancer Research Scholar

September 1999: Cornelius Hopper Innovation Award, California Breast Cancer Research Symposium

July 1999: Editor-in-Chief, Journal of Biomedical Optics

July 1997: Co-chair, Biannual meeting, The Engineering Foundation, *Advances in Optical Technology for Medicine and Surgery,* Snowbird, Utah

May 1996: Rank Prize Funds Lecture, Diagnostic and Therapeutic Applications of Tissue Optical Properties, Symposium on Photodynamic Therapy, Grasmere, England

January 1994: National Institutes of Health, NIGMS, FIRST Award (5 years)

August 1992: Whitaker Foundation Young Investigator Award (3 years)

March 1988: Hewitt Foundation Postdoctoral Fellowship, Beckman Laser Institute, UC Irvine

1988: Co-recipient of Martin Marietta Energy Systems Outstanding Publication Award, Oak Ridge National Laboratory

1988: National Research Council Postdoctoral Fellowship at the U.S. Naval Research Laboratory, Washington, D.C. (not accepted)

1987: Research and Development top 100 technological innovations in 1987 (R&D-100 award)

1986-1988: Department of Energy-Oak Ridge Associated Universities Pre-Doctoral Fellowship at Oak Ridge National Laboratory.

PROFESSIONAL SOCIETIES

Int Soc for Optical Engineering (SPIE), Optica (formerly OSA), American Society for Laser Medicine and Surgery (ASLMS), American Institute of Medical and Biological Engineers (AIMBE), Academy for Radiology and Biomed Imaging Research, American Association for Physicists in Medicine (AAPM)

SERVICE ACTIVITIES

Extensive Editorial, Journal, Grant/Program Review, Conference Organization, University, and Community Service;

Member of ~41 Major National/International Advisory Committees and Boards 1997-2018
Examples:

2018: Scientific Advisory Board, NSF Engineering Research Center (ERC), Precise Advanced Technologies and Health Systems for Underserved Populations (PATHS-UP), Texas A&M University, UCLA, FIU, and Rice

December 2017-June 2018: National Institutes of Health Council of Councils (CoC), Advisory to the Office of Director

2017-2018: External Advisory Board, University of Illinois at Urbana-Champaign Cancer Center

2017-2018: External Advisory Board, Vanderbilt University, Department of Biomedical Engineering

2016-2018: External Advisory Board, NSF Partnership for Research and Education in Materials (PREM), Hampton University, Hampton, VA

2015-2018: Dean's Advisory Council, Chapman University Schmid College of Science and Technology

2014-2016: Chair, NIBIB Advisory Council Task Force on Strategic Funding

2010-2016: American College of Radiology Imaging Network (ACRIN), Multi-Center Clinical Trial: *Diffuse Optical Imaging in Breast Cancer* (ACRIN 6691) Committee and Study Chair

2007-2018: External Advisory Board, Cornell University, Department of Biomedical Engineering

2005-2018: Hewitt Foundation for Medical Research, Board of Directors

2005-2018: Scientific Advisory Board and co-Founder, Modulim, Inc.

2000-2008: Scientific Advisory Board, Xenogen/Caliper Corporation

MAJOR EXTERNAL NETWORKS AND CONSORTIA ESTABLISHED

2003-2008: Established Network for Translational Research in Optical Imaging for advancing diffuse optical spectroscopy and imaging and multi-modality imaging (e.g. optics + MRI, ultrasound, and X-ray) in breast cancer. This NCI-supported U54 program brought multiple stakeholders and laboratories together from academics (UC Irvine, Dartmouth, University of Pennsylvania, MGH, and UC San Francisco) and industry (Siemens, GE, Phillips, ART).

2010: Established American College of Radiology Imaging Network (ACRIN)-6691 national multi- center trial of Diffuse Optical Spectroscopic Imaging (DOSI) technology in Breast Cancer (**NCI-ACRIN 6691)**. Participants included UC Irvine, UC San Francisco, Dartmouth, University of Pennsylvania, Massachusetts General Hospital, MD Anderson Cancer Center, and Boston University.

2013: Established Beckman Laser Institute-Korea Consortium with Korean PI (P. Chung) Dankook Medical Laser Center, Dankook University, Lutronic Medical Laser Corporation, and the Korean Ministry of Education, Science and Technology. This 6-year program supported collaborative research and exchange in Biophotonics between BLI, Dankook, and Korean partner institutions.

2015: Established Biophotonics research training and collaboration between Shizuoka University Research Institute of Electronics (RIE), Hamamatsu School of Medicine, Hamamatsu Graduate Institute, and

Hamamatsu Photonics, Inc. This program involved faculty research exchange visits with UCI and regular journal club meetings in Japan designed to promote interdisciplinary collaborations and new technology development in Optics and Photonics in Biology and Medicine. A new combined Engineering and Medicine academic training program was established between Hamamatsu School of Medicine and Shizuoka University in 2018.

2016: Established Pathways to Biophotonics and Biomedical Engineering (PBBE), a partnership between BLI/UCI and three historically black colleges and universities (HBCU), Hampton University, Albany State University, and Clark Atlanta, funded by the University of California Office of the President (2016-2019). This program enrolled 10 undergraduate science and technology scholars each summer for a two-month research and graduate school prep immersion program at the BLI and selected laboratories across the UCI campus. Up to 3 faculty from participating institutions also visited UCI to establish continuing research and academic collaborations.

CONTRACTS AND GRANTS

Principal Investigator: *Continuous research support from ~38 peer-reviewed grants/contracts (>$40M) from multiple federal agencies, state government, industry, and foundations as academic PI between 1992-2018.*

Recent examples
National Institutes of Health/NIBIB (P41EB015890): *A Laser Microbeam and Medicine Biotechnology Resource*, 04/15/13-03/31/19, $5,870,984 (Total Cost), The Laser Microbeam and Medical Program (LAMMP) was a National Biomedical Technology Center dedicated to the development, application, and dissemination of optical technologies in biology and medicine.

National Institutes of Health/NCI (1R01CA142989): *Developing DOSI Technology for Monitoring Response to Breast Cancer Chemotherapy,* 01/01/14-6/30/19, $2,960,248 (Total Cost), Diffuse optical spectroscopic imaging was developed for clinical translational studies to monitor and predict pre-surgical neoadjuvant chemotherapy response early in treatment.

National Institutes of Health/NCI (R01CA195466): *Quantitative multiphoton microscopy for non-invasive diagnosis of melanoma,* 03/01/16-02/28/19, $722,288 (Total Cost). Quantitative in vivo multiphoton microscopy (MPM) was developed for label-free detection and diagnosis of pigmented lesions suspected of melanoma in a small-scale clinical translational study.

Co-Investigator: *Continuous support and participation in ~25 peer-reviewed sponsored research projects as academic Co-PI/Co-I between 1991-2018.*

Recent Examples:
DOD-AFOSR (FA9550-10-1-0538) M. Berns (PI), *Military Photomedicine Program,* 04/01/17-03/31/20, $4,451,867 (Total Cost) This center grant for the Beckman Laser Institute involved development of optical diagnostic technologies for trauma and critical care monitoring.
Role: Co-Investigator and Project Leader

NIH-NCI (P30CA62203) R. Van Etten (PI), *University of California, Irvine Cancer Center Support Grant,* 02/01/16-01/31/21, $12,433,000 (Total Cost) This center grant supported the research and clinical programs of the UC Irvine Chao Family Comprehensive Cancer Center. Role: Onco-imaging core and Biotechnology program co-leader.

NIH-NCRR/NCATS (UL1RR031985) D. Cooper (PI) *Institute for Clinical and Translational Science*, 07/01/10-06/30/15, $16,832,963 (Total Cost), This center grant supported clinical translational research at UC Irvine. Role: Leader of the Translational Technology Core program.

***Mentor**: Continuous support and participation in ~27 peer-reviewed sponsored graduate and postdoctoral training grants as primary academic mentor between 1993-2018.*

Recent Examples

NIH/NHLBI 1F30HL132481 Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral MD/PhD or Other Dual-Doctoral Degree Fellowship (Parent F30) Award: *Quantitative Optical Metabolic Imaging of Peripheral Arterial Disease,*06/01/16-05/31/21, $34,920 (annual), $191,252 (total award), Trainee: Michael Ghijsen

NIH/ICTS TL1 Post-Doctoral Training Fellowship Award: *Clinically translatable multimodal optical imaging platform for quantitative assessment of cerebral hemodynamic response to cardiac arrest and resuscitation,* 01/25/16-01/14/18, $60,542 (annual), Trainee: Robert Wilson

Army Materiel Command HQ DOD-CDMRP, W81XWH-13-1-0001 Postdoctoral Fellowship Award: *Development of a Quantitative Tissue Optical Index of Breast Density for Prediction of Hormone Therapy Response,* 12/01/12-06/30/16, $399,000, Trainee: Thomas O'Sullivan

HUMAN SUBJECT PROTOCOLS

Lead or co-investigator on a total of 20 IRB-approved human subject protocols at UCI (1995-2018) and NIH (2019-present) to develop and evaluate translational biophotonics technologies.

Recent Examples: Section on Biomedical Optics (SBO), NIH

1. Development of a Wearable Point of Care Monitoring Device for Pediatric Obstructive Sleep Apnea (000224 / NICHD / Tromberg / Open – Recruiting)

2. Speckle Plethysmography Pulse Transit Time as a Marker of Blood Pressure Changes (000849 / NICHD / Tromberg / Open – Recruiting)

3. Evaluation of the safety, tolerability, pharmacokinetics, and pharmacodynamics of long-term mitapivat dosing in subjects with stable sickle cell disease: An extension of a Phase I pilot study of mitapivat (000049 / NHLBI / Thein / Open – Recruiting)

TEACHING

Multiple UCI Undergraduate and Graduate courses 1993-2018: Photomedicine, Engineering Medical Optics, Senior Design, Critical Thinking in Biophotonics, co-listed in Biomedical Engineering, BioSci, Physiology and Biophysics

Other Teaching Activities

>20 National/International biophotonics short courses, workshops, summer schools, including: Irvine, CA; Chicago, IL; Los Angeles, CA; Boston, MA, Ven, Sweden; Ivory Coast, Africa; Sao Paulo, Brazil; Puebla, Mexico; The Burren, Ireland; Hamamatsu, Japan; Cheonan, South Korea

73 Graduate Student Trainees a) Primary or Co-Advisor: 26 PhD, 5 MD/PhD, 4 MS; b) Committee Member: 38 PhD *(Departments primarily BME + Physics, Physiology and Biophysics, Pharmacology, Neuroscience, ECE, ChemEng, MechEng; Degrees mainly from UCI, also on committees of students from NTNU (Trondheim, Norway), Univ of Lund, Sweden; Linköping University, Sweden; Hebrew University, University of Amsterdam, Dartmouth, Boston University, Tufts)*

***47 Postdoctoral Trainees** a*) Primary or Co-Advisor: 36 PhD, 8 MD at UCI + 3 PhD at NIH

INTELLECTUAL PROPERTY

29 Patents Issued, Examples:

1) Method and Apparatus for performing quantitative analysis and imaging surfaces and subsurfaces of turbid media using spatially structured illumination, US Patent: 6,958,815: 10/25/05, F. Bevilacqua, et al.

2) Quantitative broadband absorption and scattering spectroscopy in turbid media by combined frequency-domain and steady-state methodologies, US Patent: 7,428,434: 09/23/08, A.Berger, et al.

3) Method and apparatus for spatially modulated fluorescence imaging and tomography, US Patent: 7,729,750: 06/01/10, A. Durkin, et al.

4) Apparatus and method for wide field functional imaging (wifi) using integrated structured illumination and laser speckle imaging, US Patent: 8,509,879: 08/13/13, A. Durkin, et al.

5) Method for extraction of spatial frequency information for quantitative tissue imaging US Patent 10,438,346, October 8, 2019, K. Nadeau, et al.

6) Imaging platform based on nonlinear optical microscopy for rapid scanning large areas of tissue, US Patent 10,595,770: March 24, 2020, M. Balu , et al.

7) Non-invasive hemodynamic assessment via interrogation of biological tissue using a coherent light source, US Patent 10,813,597, October 27, 2020, T. Rice, et al.

8) Optical Biopsy applicators for treatment planning, monitoring, and image-guided therapy United States Patent 11,517,194: December 6, 2022, Z. Chen, et al.

9) Systems and methods for a connected computing resource and event/activity identification information infrastructure using near existential or existential biometric identification of humans, US Patent 12,111,902: October 8, 2024, V. Shear, et al.

10) Real-time methods to enable precision-guided CPR to improve neurological outcome and predict brain damage after ischemic injury and reperfusion, US Patent 12,310,916, May 27, 2025, R. Wilson, et al.

PUBLICATIONS: Google Scholar H-index = 102, Citations 36,997 (10/2025)

306 Peer-Reviewed Journals, 158 Proceedings, 23 Book Chapters, 8 Invited Editorials

Highly Cited Publications from UC Irvine lab:

Haskell RC, Svaasand LO, Tsay T, Feng T, McAdams MS, Tromberg BJ. Boundary conditions for the diffusion equation in radiative transfer. J Opt Soc Am A. 1994; 11(10):2727-41.

Zoumi A, Yeh A, Tromberg BJ. Imaging cells and extracellular matrix in vivo using second- harmonic generation and two-photon excited fluorescence. Proc Natl Acad Sci. 2002; 99(17):11014-19. PMCID: PMC123202.

Tromberg BJ, Shah N, Lanning R, Cerussi A, Espinoza J, Pham T, Svaasand L, Butler J. Non- invasive in vivo characterization of breast tumors using photon migration spectroscopy. Neoplasia. 2000; 2(1-2):26-40. PMCID: PMC1531865

Bevilacqua F, Piguet D, Marquet P, Gross JD, Tromberg BJ, Depeursinge C. In vivo local determination of tissue optical properties: applications to human brain. Appl Opt. 1999; 38(22):4939-50

Pan ZH, Healey G, Prasad M, Tromberg B. Face recognition in hyperspectral images. IEEE Trans Pattern Anal Mach Intell. 2003; 25(12):1552-60

Raub CB, Suresh V, Krasieva T, Lyubovitsky J, Mih JD, Putnam AJ, Tromberg BJ, George SC. Noninvasive assessment of collagen gel microstructure and mechanics using multiphoton microscopy. Biophys J. 2007; 92(6): 2212-22. DOI: 10.1529/biophysj.106.097998. PMCID: PMC1861799.

Cuccia D, Bevilacqua F, Durkin AJ, Tromberg BJ. Modulated imaging: quantitative analysis and tomography of turbid media in the spatial frequency domain. Opt Lett. 2005; 30(11):1354-56. DOI: 10.1001/archfac.i.6.3.180.

Recent Representative Publications from NIH:

Tromberg, Bruce, et al., Rapid Scaling Up of Covid-19 Diagnostic Testing in the United States — The NIH RADx Initiative, New England Journal of Medicine 2020; 383:1071-1077, DOI: 10.1056/NEJMsr2022263

Collins, F., Adam, S., Colvis, C., Desrosiers, E., Draghia-Akli, R., Fauci, A., et al. 2023, The NIH-led research response to COVID-19. Science, 379(6631), 441-444, DOI: 10.1126/science.adf5167

Gilliland, C.T. et al. Accelerating Diagnostic Innovation for Pandemic Control. In: Sorenson, R.A. (eds) Principles and Practice of Emergency Research Response. Springer International, 2024; 245-271, https://doi.org/10.1007/978-3-031-48408-7_13

Gopalan, B., Quang, T et al, (2024) "Incorporating Point-Of-Care Technologies to Assess Treatment Response in Sickle Cell Disease," Blood Vessels, Thrombosis & Hemostasis, 1 (2), 100009Sc

SCIENCE COMMUNICATION

21 interviews for articles/video as UC Irvine faculty on Biophotonics technologies, e.g.
Aaron Rowe, "Lights and Lasers Invade the Clinic". Volume 90 Issue 1. January 2, 2012. pp. 25-*27. Chemical and Engineering News.* *http://cen.acs.org/articles/90/i1/Lights-Lasers-Invade- Clinic.html*

~132 interviews for articles/video as NIBIB director on Biomedical Technologies, >125 on COVID diagnostics, NIBIB's Rapid Acceleration of Diagnostic Technologies (RADx Tech) initiative, at home and point of care testing, e.g. CNN, WSJ, NYT, Politico, 360 Dx, C&E News, NPR, Washington Post, Scientific American, GenomeWeb, CBS, etc.

INVITED LECTURES

Seminars/Colloquia, Briefings, and Talks at Professional Meetings:
270 as UC Irvine faculty 1989-2018; 139 as NIBIB director 2019-2025, *recent presentations:*

1) National Academies of Sciences, Engineering, and Medicine Workshop on Cancer Engineering, Washington, DC, May 20–21, 2025

2) AIMBE/NIBIB Congressional Briefing and Technology Showcase, NIH campus, July 18, 2025

3) AIMBE Capitol Hill Staff Briefing, New Approach Methodologies (NAMs), September 13, 2025

4) NHLBI-NIBIB joint workshop on Coronary Artery Diagnostics, Natcher Auditorium, September 17, 2025

5) SPIE Photonics Industry Summit, Keynote lecture, Reagan Center, Washington, DC, September 18, 2025,

6) NCI Transformative Microsystems for Cancer Diagnosis, Treatment Monitoring, and Clinical Integration Workshop, Keynote Lecture, September 25, 2025