CURRICULUM VITAE

GARRY P. NOLAN, Ph.D.

EDUCATION

UNDERGRADUATE SCHOOL

1979-1983 **Cornell University**
B.S., Biology, specialization in Genetics
Research: Rhizobium/Legume Microbial Genetics, Advisor: Professor Aladar Szalay

GRADUATE SCHOOL

1983-1989 **Scientific Advisor: Professor Leonard Herzenberg Ph.D.,**

Department of Genetics, Stanford University

- ▪ **Research: Immunogenetics, Individual Cell Gene Expression**
- ▪ **Thesis:** *Individual cell gene regulation studies and in situ detection of transcriptionally-active chromatin using fluorescence-activated cell sorting with a viable cell fluorogenic assay*

1989-1990 **Continuing Post-Graduate Research:**
Epigenetics of Mammalian Gene Expression;
Whole Animal Cell Sorting.

POSTDOCTORAL WORK

1990-1993 **Scientific Advisor: Professor David Baltimore**

Postdoctoral Fellow
- ▪ **NIH Fellowship Program**
- ▪ **Leukemia Society Special Fellow**

Research conducted at:
- ▪ **Whitehead Institute for Biomedical Research (MIT)**
- ▪ **Rockefeller University**

Research:
- ▪ **The NF-κB/IκB proteins (cloning and characterization of p65/RelA).**
- ▪ **Development of 293T based retroviral packaging and delivery systems**

FACULTY POSITIONS

2011-present Rachford and Carlota A. Harris Professor
Department of Pathology, Stanford University School of Medicine

2009-present Professor (Tenure)
Department of Microbiology and Immunology, Stanford University School of Medicine

1999-2009 Associate Professor (Tenure)
Department of Molecular Pharmacology, Stanford University School of Medicine

1995- 1999 Assistant Professor, Joint Appointment
Department of Microbiology and Immunology, Stanford University School of Medicine

1993-1999 Assistant Professor
Department of Molecular Pharmacology, Stanford University School of Medicine

Dr. Nolan is the Rachford and Carlota A. Harris Professor in the Department of Pathology at Stanford University School of Medicine. He trained with Leonard Herzenberg (for his Ph.D.) and Nobelist Dr. David Baltimore (for postdoctoral work for the first cloning/characterization of NF- B p65/RelA and the development of rapid retroviral production systems). He has published over 330 research papers, is the holder of 50 US patents, and has been honored as one of the top 25 inventors at Stanford University.

Dr. Nolan is the first recipient of the Teal Innovator Award (2012) from the Department of Defense (a $3.3 million grant for advanced studies in ovarian cancer), the first recipient of an FDA BAAA to an academic institution ($3 million for "Bio-agent protection" grant from the FDA for a "Cross-Species Immune System Reference"), received the award for "Outstanding Research Achievement in 2011" from the Nature Publishing Group for his development of CyTOF applications in the immune system, Elected as a Fellows of the American Institute for Medical and Biological Engineering, and is the recipient of the Ernest Cotlove Award from the Academy of Clinical Laboratory Physicians & Scientists.

Dr. Nolan is an outspoken proponent of translating public & private investment in basic research to serve the public welfare. Dr. Nolan was the founder of Rigel Inc. (NASDAQ: RIGL), and Nodality, Inc., a diagnostics development company and serves on the Boards of Directors of several companies, as well as consults for other biotechnology companies. DVS Sciences, on which he is Chair of the Scientific Advisory Board, was recently sold ([link](#)) underscoring the considerable interest in the technology in academic and clinical venues. He was the co-Founder of BINA, a sequence analysis company sold to Roche, and is the co-Founder of Apprise, Akoya, and IonPath—all companies in the single cell analysis or pathology imaging arena. The latter 3 companies are either venture funded or recently acquired.

Dr. Nolan's areas of research include hematopoiesis, cancer and leukemia, autoimmunity and inflammation, and computational approaches for network and systems immunology. His most recent efforts are focused on a single cell analysis advance using a mass spectrometry-flow cytometry hybrid device, the so-call "CyTOF". The approach uses an advanced ion plasma source to determine the levels of tagged reagents bound to cells—enabling a vast increase in the number of parameters that can be measured per cell. Another recent innovation is termed molecular ion beam imaging (MIBI) a system that also uses mass tags that will enable sub-light imaging (50 nm resolution) of tissue sections as well as the CODEX system enabling 50 or more parameters per image. Dr. Nolan's efforts are to enable a deeper understanding not only of normal immune function, trauma, and other inflammatory events but also detailed substructures of leukemias and solid cancers—which will enable wholly new understandings that will enable better management of disease and clinical outcomes.

HONORS AND FELLOWSHIPS

National Science Foundation Fellowship. Organization and Function of the Eukaryotic Genome. Spetsai, Greece. September 1988.

Awarded American Cancer Society Fellowship (declined).

National Institutes of Health Fellowship: June 1990-June 1992.

Leukemia Society Special Fellow: July 1992-June 1995.

Leukemia Society Scholar Award: July 1995-June 2000.

Hume Faculty Scholar: 1993-1998

Board of Trustees, Leukemia Society of America, Northern California: 1995-1998.

1996 Burroughs Wellcome Fund New Investigator Award: July 1996 - June 2000.

Stanford University: Howard Hughes Medical Institute Junior Faculty Scholar Award. May 1997 - April 1998.

Leukemia and Lymphoma Society: Stohlman Scholar. January 2000 – December 2000.

Nature Publishing Group "Outstanding Research Achievement for 2011" for Mass Cytometry and CyTOF.

Department of Defense Teal Innovator Award, 2012.

Elected as a Fellow of the American Institute for Medical and Biological Engineering, 2014 (induction in 2015).

Cotlove Award, Academy of Clinical Laboratory Physicians & Scientists (2015).

International Society for Laboratory Hematology Award (2021)

University of Bern - Hans Sigrist Prize (2021)

Keio University Medical Science Prize. (2022)

M.D. Anderson Award (2022)

NIH BOARDS

Co-Chair, trans-NIH Roadmap Initiative on Cellular Signatures.

National Heart, Lung, and Blood Institute Board of External Experts.

NCI-Frederick Advisory Committee.

NATIONAL SOCIETIES

American Association for the Advancement of Science

Society of Developmental Biology

American Society for Microbiology

American Society for Gene Therapy

American Association of Immunologists

EDITORIAL BOARDS

Chemistry and Biology (1997-1999)

Gene Therapy & Molecular Biology

Genes to Cells

Molecular Therapy (American Cancer Society)

Molecular Systems Biology

Open Network Biology

TEACHING

1983	Teaching Assistant: "Medical Genetics", Stanford University School of Medicine
1988	Instructor/Lecturer: EMBO Course "Flow Cytometry and Sorting in Molecular Biology", Cologne, Germany
1989	Instructor/Lecturer: International Becton Dickinson Immunocytometry Series. Applications of Flow Cytometry to Molecular Biology
1993-1998	Instructor/Lecturer: Medical Pharmacology, Advanced Immunology, Stanford University School of Medicine
1994	Instructor/Course Director: Advanced Immunology, Stanford University School of Medicine
1994-1996	Lecturer: Antimicrobiology and Antiviral Therapy, Stanford University School of Medicine
1996	Lecturer: Virology, Stanford University School of Medicine
1998	Instructor/Course Director: Gene Therapy, Stanford University School of Medicine
2000	Instructor/Course Director: Gene Therapy, Stanford University School of Medicine
2001	Instructor/Course Director: Gene Therapy, Stanford University School of Medicine
2002	Instructor/Course Director: Stem Cells & Gene Therapy, Stanford University
2003	Instructor/Course Director: Stem Cells & Gene Therapy, Stanford University

2006	Instructor/Course Director: NIH Sponsored Phospho-Flow signaling course
2007	Instructor/Course Director: NIH Sponsored Phospho-Flow signaling course
2008	Instructor/Course Director: NIH Sponsored Phospho-Flow signaling course
2009	Instructor/Course Director: NIH Sponsored Phospho-Flow signaling course
2010	Instructor/Course Director: NIH Sponsored Phospho-Flow signaling / Immune Monitoring course
2011	Instructor/Course Director: NIH Sponsored Phospho-Flow signaling / Immune Monitoring course
2012	Instructor/Course Director: NIH Sponsored Phospho-Flow signaling / Immune Monitoring course

INVITED SPEAKER (SELECTED LIST)

1988	University of Koln, EMBO Flow Cytometry Course, Koln
1988	Institute Pasteur, Unite de Biologie Moleculaire du Development, Paris
1988	Karolinska Institute, Department of Tumour Biology, Stockholm
1989	Becton Dickinson Immunocytometry Systems, San Francisco
1989	7th International Congress of Immunology, Workshop, Berlin
1989	Genentech, Division of Molecular Biology, South San Francisco
1990	Genentech, Flow Cytometry Meeting, South San Francisco
1991	RIKEN Frontier Research Program, Tsukuba, Japan
1991	Tokyo University, Institute of Medicine, Japan
1991	Osaka University, Department of Molecular Biology, Japan
1992	Kyoto University, Japan
1993	Systemix, Palo Alto, CA
1993	DNAX, Palo Alto, CA
1994	Tularik, Inc., South San Francisco
1994	Leukemia Society Mtg., Dublin, Ireland
1995	Roche, Inc., Palo Alto, CA
1995	University of Michigan, Ann Arbor, MI
1995	Pfizer, Inc., Groton, CT
1996	Chiron
1996	Applied Immune Science
1996	UC Irvine
1996	Cornell Medical Center
1996	Columbia Medical Center
1996	MIT
1996	Harvard School of Public Health
1996	UCSF Grand Rounds
1996	The Burnham Institute, La Jolla, CA
1997	Amgen Institute, Toronto, Ontario. Canada
1997	Harvard University, Dept. of Cell Biology

1997	MIT, Dept. of Biology and Whitehead Institute
1998	Amgen Institute, Thousand Oaks, CA
1998	Amgen Institute, Toronto, Ontario, CA
1998	Genentech, South San Francisco, CA
1998	UCSF, Immunology Program, CA
1998	University of Michigan, HHMI, Ann Arbor, MI
1998	Merck & Co., Inc. West Point, PA
1999	Amgen Institute, Toronto, Ontario, Canada
1999	Novartis Pharmaceuticals, New Jersey
1999	Yale University
1999	University of Rochester, New York
1999	University of Pennsylvania
1999	University of California, San Diego
2000	Weizmann Institute, Visiting Scholar Program, Academic Year 2000
2000	Duke University, North Carolina
2000	University of Texas Southwestern, Texas
2000	Cold Spring Harbor Laboratory, New York
2001	New York Academy of Sciences, New York
2002	University of California, Berkeley
2002	Cold Spring Harbor Laboratory, New York
2002	American Biological Safety Association, San Francisco
2003	ICOS Corporation, Bothell, WA
2003	Fox Chase Cancer Center, Philadelphia, PA
2003	EMBO Course, Deutsches Rheuma-Forschungszentrum Berlin (DRFZ), Germany
2003	Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT
2003	BD Biosciences, Denmark
2004	University of California, Berkeley
2004	Johnson and Johnson, New Brunswick, NJ
2004	University of Virginia, Charlottesville, VA
2004	UCSD, San Diego, CA
2004	Amgen, Thousand Oaks, CA
2005	University of Miami, Miami, FL
2005	University of Washington, Seattle, WA
2005	Genentech, South San Francisco, CA
2005	University of Toronto, Toronto, Canada
2005	MIT University, Cambridge, MA
2005	Harvard University, Cambridge, MA
2005	Albert Einstein, New York, NY

2005	Bristol Myers Squibb, NJ
2005	Case Western Reserve, OH. "The Greenfield Lecture"
2005	Agilent, CA
2005	Genome Canada, Montreal
2005	Williams College, MA "Distinguished Speaker"
2006	Saban Research Institute, USC, CA
2006	Scripps, San Diego, CA
2006	University of New Mexico, Albuquerque, NM
2006	UCLA, Los Angeles, CA
2007	GlaxoSmithKline, New York
2007	Seminars at Penn AFCRI, Philadelphia, PA
2007	MD Anderson, Houston, TX
2007	Memorial Sloan Kettering, New York
2007	FASEB, San Francisco
2007	Leukemia and Lymphoma Society, Anaheim. CA
2007	Columbia University, New York
2007	NIH Immunology Interest Group, Bethesda, MD
2007	Massachusetts General Hospital, Boston, MA
2007	NIH, Cancer Stem Cell Workshop, Bethesda, MD
2007	Targegen, San Diego, CA
2007	Emory University, Atlanta, GA
2008	MD Anderson, Houston, TX
2008	Georgia Tech Integrative BioSystems Institute, Atlanta, GA
2008	Eastern Cooperative Oncology Group, Ft. Lauderdale, FL
2009	Donald Wassenberg Memorial Lecture on Genetic Disease Research, San Diego CA
2009	ETH Zurich, Biosystems Science and Engineering, Basel, Switzerland
2010	UCLA, Los Angeles, CA
2010	Genentech, South San Francisco, CA
2010	Affymetrix, Santa Clara, CA
2011	Gilead, Foster City, CA
2011	St. Jude Children's Research Hospital, Memphis, TN
2011	University of Virginia, Charlottesville, VA
2011	Vancouver BC Cancer Agency, Vancouver, Canada
2011	21st Annual Conference of the German Society For Cytometry, Bonn
2011	ETH, Zurich, Switzerland
2012	Lawrence Berkeley National Laboratory, Berkeley, CA
2012	Memorial Sloan Kettering Cancer Center, New York, NY
2012	Northwestern University Physical Science of Cancer, Evanston, IL
2012	University of California, San Diego, CA

2012	AstraZeneca, Waltham, MA
2012	Novo Nordisk, Copenhagen, Denmark
2012	Max Planck Institute, Munich, Germany
2012	Miltenyi Biotec GmBH, Gladbach, Germany
2013	The Scripps Research Institute, Florida
2013	Seattle Genetics, Seattle, WA
2013	Cell Signaling Technology, Danvers, MA
2013	Pfizer Inc., Groton, CT
2013	Thermo Fisher Scientific, Waltham, MA
2013	Merck Research Labs, Boston, MA
2013	Washington University, St. Louis, MO
2013	Novartis, Basel, Switzerland
2013	Karolinska Institute, Stockholm, Sweden
2013	Department of Microbiology & Immunology, Columbia University, New York, NY
2013	Vanderbilt University, Nashville, TN
2014	Harvard Medical School, Boston Children's Hospital, Boston, MA
2014	Harvard Medical School, Mass General Hospital, Boston, MA
2014	University of Minnesota, Minneapolis, MN
2015	NIH Immunology Interest Group Seminar, Bethesda, MD
2015	Institute for Cellular and Molecular Biology at the University of Texas at Austin, TX
2015	Distinguished Lecture Series, Fox Chase Cancer Center, Philadelphia, PA
2015	Juno Therapeutics, Seattle, WA

INVITED SYMPOSIA SPEAKER (SELECTED LIST)

08/1995	Gordon Conference, Medicinal Chemistry, New Hampshire
08/1995	Gallo Lab Meeting, NIH, Bethesda, MD
09/1995	Symposia of the Society of Developmental Biology, San Diego, CA
10/1995	Transcription Meeting, Ireland
10/1995	Gene Therapy Course, Italy
10/1995	Frontiers in Gene Therapy, Vanderbilt University, Nashville, TN
04/1997	Keystone Symposia, Molecular and Cellular Biology of Gene Therapy
04/1997	EMBO Meeting: Viral Vectors in Basic Biology, Heidelberg
04/1997	NATO Advanced Study Institute on Gene Therapy. Spetsai, Greece
10/1997	The Twelfth Rinshoken International Conference, Tokyo, Japan
01/1998	Keystone Symposia, Molecular and Cellular Biology of Gene Therapy
03/1998	NIH Policy Meeting on Lentiviral Vectors, Bethesda, MD
03/1998	Keystone Symposia, HIV Pathogenesis and Treatment
04/1998	IBC Genomics and Proteomics Conference, La Jolla, Session Chair
05/1998	The American Society of Gene Therapy (Inaugural Meeting), Seattle
06/1998	Protein Genomics, CHI Conference, Session Chair, Boston

07/1998	Int'l Centre for Genetic Engineering and Biotechnology, Lecture Course, Udine, Italy
10/1998	Int'l Symposia on Protein Interaction Technologies, San Francisco
11/1998	Sixth Meeting of the European Working Group on Human Gene Transfer and Therapy, Israel
01/1999	Keystone Symposia, Molecular and Cellular Biology of Gene Therapy
02/1999	American Academy of Allergy, Asthma and Immunology, Orlando, FL
06/1999	The American Society of Gene Therapy, 2nd Annual Meeting, Washington, DC
07/1999	NIH, National Heart, Lung and Blood Institute Workshop
08/1999	Turku BioCity Symposium, Turku, Finland
01/2000	Keystone Symposia, Gene Therapy: The Next Millennium
04/2000	Cambridge Health Institute 2nd Annual Protein Discovery Technologies
05/2000	amfAR/TAG conference
05/2000	American Society for Gene Therapy 3rd Annual Meeting, Denver, CO
08/2000	IBC 5th International Conference Biomolecular Diversity, Waltham, MA
10/2000	Leukemia & Lymphoma Society Stohlman Scholar Symposia, Indianapolis, IN
01/2001	AMSMIC Annual Conference
05/2001	American Society for Gene Therapy 4th Annual Meeting, Seattle, WA
08/2001	Gene Therapy & Molecular Biology International Conference 2001, Corfu, Greece
10/2002	American Biological Safety Association 45th Biological Safety Conference, San Francisco, CA
11/2002	The Leukemia & Lymphoma Society's N. California Div. Scientific Symposium, Oakland, CA
12/2002	IBC's Cell-Based Assays & Screening, Philadelphia, PA
02/2003	Leukemia & Lymphoma Soc., Miami, FL
03/2003	Keystone Symposia, Molecular Targets for Cancer Therapy, Banff, Canada
03/2003	IBC, Protein Discovery and Engineering, San Francisco, CA
05/2003	FOCIS 3rd Annual Meeting, Paris, France
06/2003	IBC's 2nd Cell Based Assay and Screening Symposium, San Francisco, CA
09/2003	6th Conference on Protein Expression in Animal Cells, Mont-Tremblant, Canada
11/2003	AACR-NCI-EORTC International Conference, Boston, MA
02/2004	GRC Peptides Chemistry and Biology, Ventura, CA
03/2004	AACR 95th Annual Meeting, Orlando, FL
06/2004	CHI Beyond Genome: Proteomics, San Francisco, CA
07/2004	FOCIS 4th Annual & 12th International Congress of Immunology Meeting, Montreal, Canada
09/2004	13th Conference of the International Society of Differentiation, Honolulu, HI
10/2004	NIAID/NIH - Twinbrook Seminar Series, Rockville, MD
12/2004	University of Helsinki, Helsinki, Finland
01/2005	NIH, Standard in Proteomics workshop, Bethesda, MD
02/2005	Keystone Symposia, Banff, Canada
03/2005	IBC USA Conferences, ScreenTech & TargetTalk conference, San Diego, CA
03/2005	Novartis Pharma, Basel, Switzerland
03/2005	Jahnsenn, Brusells, Austria

03/2005	Lilly Systems Biology Pte. Ltd, Singapore
05/2005	BCCR 6th Conference on Cancer Research 2005, Bergen, Norway
06/2005	Serono Conference, Philadelphia, PA
10/2005	University of Chicago, Proteomics Symposia, IL
10/2005	Stem Cells and Hematopoietic Tumors, Germany
11/2005	Shanghai, China, Systems Biology
12/2005	Opening Speaker, ASCB Plenary talk, San Francisco, CA
02/2006	Keystone, Vancouver, Signaling Networks
02/2006	Targeted Therapies in Leukemia, Portugal
02/2006	Keystone, Santa Fe, Cancer and Kinases
02/2006	Cambridge Health, Plenary, Molecular Diagnostics, San Francisco
02/2006	Keynote Speaker, Royal Society of Pathology, Sydney
05/2006	Opening Speaker, International Society of Analytic Cytometry, ISAC, Quebec
11/2006	Nature Chemical Biology Symposium
12/2006	ASH, Orlando, FL
03/2007	Cooperative USA/Japan Cancer, Hawaii
04/2007	AACR, Philadelphia, PA
06/2007	EHA, Vienna
02/2008	NIH Nanotechnology Workshop, Bethesda, MD
03/2008	Frontiers of Cancer Nanotechnology, Atlanta, GA
05/2008	ICBP 2nd Data Integration Workshop, San Francisco
05/2008	EU-NCI (USA) Conference, Genval, Belgium
05/2008	CNIO, Madrid
07/2008	Breast Cancer Congress, Hawaii
09/2008	NCI Nanotechnology Alliance Investigators Meeting, Chicago
09/2008	MMHCC/NIH Symposium, Boston
09/2008	AACR Int'l Conf. on Molecular Diagnostics in Cancer Therapeutic Development, Philadelphia
01/2009	"Omics meets cell Biology" Keystone. Symposia Plenary Speaker.
02/2009	Keynote Speaker, Cancer Profiling and Pathways, Moscone Center, San Francisco.
05/2010	ISAC, Emergent Technologies and Engineering Innovations Showcase, Seattle
07/2010	Allen Institute Workshop on Reverse Engineering Cell Networks, Seattle
08/2010	14th International Congress of Immunology, Kobe, Japan
10/2010	ITI Symposium on New Technologies in Immune Phenotyping, Stanford
11/2010	Keynote Speaker, Flow Informatics and Computational Cytometry, Seattle, WA
12/2010	Uppsala Universitet, Sweden
04/2011	La Jolla Institute for Allergy and Immunology, La Jolla, CA
04/2011	AACR 102nd Annual Meeting, Orlando, FL
05/2011	Stanford Immunology Seminar, Stanford, CA
06/2011	World Pharma Congress, Philadelphia, PA

06/2011	45th Joint (US – Japan) Working Conference on Immunology, Stanford, CA
06/2011	Internal Medicine Grand Rounds, Stanford, CA
10/2011	Broad, Single Cell Approaches to Host Immunity and Microbes, Cambridge, MA
10/2011	MSKCC, "Systems Biology of Diversity in Cancer" Symposium, New York, NY
10/2011	EMBL, Structure and Dynamics of Protein Networks, Heidelberg, Germany
10/2011	1st International SystemsX.ch Conference on Systems Biology, Basel, Switzerland
01/2012	Lawrence Berkeley National Laboratory, Berkeley, CA
02/2012	Keystone Symposia - Technological Innovation
03/2012	19th Conference on Retroviruses and Opportunistic Infections, Seattle, WA
03/2012	Keystone Symposia Regulation of Lymphocyte Signaling 2012
03/2012	U.S. Human Proteome Organization (US HUPO), San Francisco, CA
03/2012	Northwestern University Physical Sciences Oncology Center, Evanston, IL
03/2012	BioMedicine in 4D Conference, Portland, OR
04/2012	NIH Common Fund Single Cell Analysis Workshop, Bethesda, MD
04/2012	NYU School of Medicine - Honors Program Lecture Series, New York, NY
04/2012	Center for Cancer Systems Biology, Stanford, CA
05/2012	Integrative Network Biology 2012, Snekkersten, Denmark
05/2012	Max Planck Institute, Munich, Germany
06/2012	ISAC, CYTO 2012, Leipzig, Germany
07/2012	European Proteomics Association, Glasgow, Scotland
08/2012	Clinical Biomarkers & New Frontiers in Cancer Summit, San Francisco, CA
09/2012	European Congress of Immunology 2012, Glasgow, Scotland
09/2012	From the Laboratory to the Clinic, Trinity College, Oxford, England
10/2012	Society for Immunotherapy of Cancer, Bethesda, MD
11/2012	World Genome Data Analysis Summit, San Francisco, CA
01/2013	Society for Laboratory Automation and Screening, Orlando, FL
01/2013	CellTech 2013, San Diego, CA
02/2013	Personalized Medicine World Congress, Mountain View, CA
03/2013	Affinity Proteomics, Alpbach, Austria
03/2013	DRFZ 9th Spring School, Ettal, Germany
03/2013	Max Planck Institute, Berlin, Germany
03/2013	"LINCS" Data Forum, Harvard, Cambridge, MA
04/2013	Frederick National Laboratory for Cancer Research, Frederick, MD
05/2013	International Society for Laboratory Hematology, Toronto, Canada
07/2013	Molecular Mechanisms of Lymphocyte Function, FASEB Conference, Colorado
07/2013	Physical Biology of Stem Cells, Cambridge Stem Cell Institute, Cambridge, UK
09/2013	Mass Cytometry and Cell Cycle, Mexico City, Mexico (by WebEx)
09/2013	Nuclear Reprogramming and the Cancer Genome, Nature & Ludwig Institute, Oxford, U
10/2013	Multiparameter Mass Cytometry (MMC) and analysis tools, INSERM, Paris, France

10/2013	ACR/ARHP Annual Meeting, San Diego, CA
11/2013	8th Cell Based Assay & Screening Technologies Conference, San Francisco, CA
12/2013	Inaugural NCI Current Topics in Cancer Systems Biology Meeting, Nashville, TN
01/2014	Next-generation synthetic lethal screens for KRAS cancers, NCI, Frederick, MD
02/2014	Molecular Medicine Tri-Conference, San Francisco, CA
02/2014	New Technologies Applicable to Study of T-cell lymphomas, San Diego, CA
02/2014	Single Cell Symposia, University of Pennsylvania, Philadelphia, PA
03/2014	American Association of Cancer Researchers (AACR), San Diego, CA
03/2014	Keynote, Translational Research and Applied Medicine Program, Stanford, CA
05/2014	Cotlove Award Lecture, Academy of Clinical Laboratory, San Francisco, CA
05/2014	Keynote Speaker, TRAM Symposia and Retreat, Stanford, CA
06/2014	Keynote, MCMi Regulatory Science Symposium, Silver Spring, MD
06/2014	Fluidigm Symposium, Tokyo, Japan
06/2014	Dana Farber Cancer Center, Boston, MA
06/2014	Nature Conference - Genomic Technologies & Biomaterials, San Diego, CA
09/2014	The Immune System and Cancer, Banbury Center of Cold Spring Harbor Laboratory, NY
09/2014	Translating Imaging and Other Novel Approaches, Trinity College, Oxford, UK
10/2014	Science Day at MedImmune, Mountain View, CA
10/2014	"Intra-Patient Tumor Heterogeneities: Stanford Cancer institute
10/2014	Bill and Melinda Gates Foundation - 2014 Grand Challenges Meeting, Seattle, WA
11/2014	International Society for Computational Biology, San Diego
12/2014	Department of Defense OCRP Programmatic Review, Baltimore, MD
01/2015	Google Stand Up to Cancer (SU2C), Mountain View, CA
01/2015	Stanford Medicine Leadership Retreat, Sausalito, CA
02/2015	AACR: Translation of the Cancer Genome, , San Francisco, CA
03/2015	American Institute for Medical and Biological Engineering, Washington, DC
04/2015	Institute for Cellular & Molecular Biology, University of Texas, Austin, TX
05/2015	Immunology Forum Seminar, Johns Hopkins School of Medicine, Baltimore, MD
05/2015	Interrogating Complex Biological Systems Symposium, Baltimore, MD
06/2015	14th Annual Koch Institute Cancer Research Symposium, MIT, Cambridge, MA
06/2015	Cold Spring Harbor Labs "Single Cell Analysis Course", Cold Spring Harbor, NY
06/2015	Plenary Speaker, FOCIS 2015, San Diego, CA
07/2015	SU2C - Google[x] Technology and Analysis Satellite Meeting, Boston, MA
07/2015	Protein Society 29th Annual Symposium, Barcelona, Spain
09/2015	Tisch Cancer Institute "Frontiers in Oncology" Lecture, New York, NY
09/2015	Second Edition Systems Biology of Infection Symposium, Zurich, Switzerland
09/2015	University of California San Francisco Human Immunology, San Francisco, CA
09/2015	Seminar, Baylor, TX
09/2015	Sanger Institute, Cambridge, UK

09/2015	Joint CRI-CIMT-EATI-AACR Meeting, New York, NY
10/2015	Frontiers in Medicine, Stanford, CA
10/2015	DFCI-Oncology, Boston, MA
10/2015	Parker Institute for Cancer Immunotherapy, New York, NY
10/2015	Sino-US Symposium, Stanford, CA
10/2015	Fluidgm Talk, Berkley, CA
01/2016	Personalized Medicine World Conference 2016, Mountain View, CA
02/2016	Big Data to Human Immune Responses, Irvine CA
04/2016	Realize the Practical Applications of RNA-Seq, San Francisco, CA
05/2016	Harvard Annual Pathology Retreat, Boston, MA
05/2016	The American Association of Immunologists, Seattle, WA
05/2016	Gladstone, San Francisco, CA
05/2016	Actelion Pharmaceuticals Ltd, Allschwil, Switzerland
06/2016	Changing Views in Cancer, Charité, Berlin
06/2016	TxSACT, Houston, TX
07/2016	GRC, Hong Kong, China
07/2016	SATU Sympoisum, Taiwan, R.O.C.
07/2016	Institute of Molecular Biology Academia Sinica, Sinica, Taipei
09/2016	EarthRise at IONS, Petaluma, CA
09/2016	Stanford Immunology Scientific Conference, Stanford, CA
09/2016	AMGEN, San Francisco, CA
09/2016	Animal Model Development Workshop, Bethesda, MA
09/2016	MedImmune, Mountain View, CA
09/2016	Nature Conference, Seattle, WA
10/2016	Cell Symposia, Berkley, CA
10/2016	Human Cells, London, England
10/2016	AACR, Boston, MA
10/2016	University of Pennsylvania, Philadelphia, PA
10/2016	Parker Institute Retreat, Middleburg, VA
11/2016	UCSF Pathology Department, San Francisco, CA
12/2016	17th Annual PI Meeting, Bethesda, MD
01/2017	Genome Sciences Seminar UW, Seattle, WA
01/2017	Mass Spectrometry: Applications to the Clinical Laboratory –MSACL, Palm Springs, CA
02/2017	Advances in Genome Biology and Technology – AGBT, Ft. Lauderdale, FL
02/2017	Immune Mediated Inflammatory Diseases – Wellcome, London, England
03/2017	La Jolla Institute for Allergy and Immunology, La Jolla, CA
03/2017	Wayne State School of Medicine, Detroit, MI
03/2017	Keystone, Vancouver, BC
03/2017	Association of Bimolecular Recourse Facilities - ABRF, San Diego, CA

04/2017	AACR Annual meeting, Washington, DC
04/2017	ISB Symposium, Seattle, WA
04/2017	UT Southwestern, Dallas, TX
04/2017	MD Anderson, Houston, TX
04/2017	PICI Institute, Santa Barbara, CA
04/2017	RNA Seq 2017, San Francisco, CA
05/2017	National Jewish Health, Denver, CO
05/2017	Memorial Sloan Kettering, New York, NY
05/2017	ASGCT 20th Annual meeting, Washington, DC
05/2017	Filovirus workshop, Rockville, MD
05/2017	Keystone 2017, Stockholm, Sweden
05/2017	Human Cell Atlas, Stockholm, Sweden
06/2017	FOCIS 2017, Chicago, IL
06/2017	Pezcoller Symposium, Trento, IT
06/2017	FDA Science Board Silver Springs, MD
07/2017	FASEB Snowmass Village, CO
09/2017	UCSF Immunology Seminar, San Francisco, CA
09/2017	Genetech, South San Francisco, CA
10/2017	AACR Meeting, Boson MA
09/2017	NHLBI-2017 Biomedicine Lecture Series, Washington, DC
10/2017	KI/MIT Immune Engineering Symposium, Boston, MA
11/2017	International Symposium of the Princess Takamatsu Cancer Research Fund, Tokyo, Japan
12/2017	ASCB Meeting, Philadelphia, PA
12/2017	CCHI Annual Meeting, Rockville, MD
01/2018	CZI Investigator Meeting, San Francisco, CA
02/2018	Cancer UK UCSF, San Francisco, CA
03/2018	ITI Human Immune Monitoring Technology and Bioinformatics Conference, Stanford, CA
04/2018	Systems Immunology Kickoff Meeting
04/2018	Special Circuits and Epigenomics Seminar at the Board Institute, Cambridge, MA
04/2018	AACR Annual Meeting, Chicago, IL
05/2018	Spring Research Festival, Frederick, MD
07/2018	Grand Challenge Cancer Research, London, United Kingdom
07/2018	Curious Future Insight, Frankfurt, Germany
07/2018	Flowcytometry 2018, Edinburgh, Scotland
07/2018	Distinguished Speaker at the CRUK, Glasgow, Scotland
07/2018	Wellcome Genome, Hinxton, United Kingdom
07/2018	Barbraham Institute Lecture, Cambridge, United Kingdom
09/2018	DoD Ovarian Cancer Academy, Seattle, WA
09/2018	Keynote Speaker at Cell Therapies and Bioengineering, San Francisco

10/2018	Single Cell Biology Symposium, Seattle WA
10/2018	IDS 16th International Congress, London, UK
11/2018	Space Symposium, Boston
12/2018	Single Cell Symposium, Paris
01/2019	Cancer UK Meeting, London United Kingdom
01/2019	Broad Klarman Cell Observatory Yearly Symposia.
02/2019	7th Annual Klarman Cell Observatory Retreat, Cambridge, MA
03/2019	Medimmune Laboratory, Rockville, MD
03/2019	Systems Immunology U19, Rockville, MD
04/2019	Medimmune Laboratory of Pathology, Bethesda, MA
05/2019	AAI Immunology – NIAID Symposium, San Diego, CA
06/2019	Lecture Invitation to Albert Einstein College, New York, NY
06/2019	President's Research Seminar Series, New York, NY
06/2019	HTAN F2F Meeting, Cambridge, MA
08/2019	CRUK STORMing Cancer, Montreal, Canada
08/2019	HIV Workshop, Bethesda, MD
09/2019	DANA – FARBER, Boston, MA
09/2019	ThinkLab, Celsius Therapeutics, Boston, MA
09/2019	Celsius Single Cell Genomics Symposium, Boston, MA
09/2019	Wyss Institute Symposium, Boston, MA
10/2019	Keynote Speaker at Stanford University
10/2019	NICI Symposium, Bethesda, MD
11/2019	Princess Takamatsu Symposium, Tokyo, Japan
01/2020	Keynote symposia Denver, Colorado
02/2020	CRUK Summit London United Kingdom
03/2020	NBCC Artemis Project Meeting Calistoga, CA
04/2020	AACR Annual Meeting _ San Diego, CA _Virtual
05/2020	Frontiers in Cancer Immunotherapy Meeting - Virtual
05/2020	HTAN F2F Meeting – Virtual
06/2020	HTAN Lab workshop - Virtual
07/2020	AACR COVID-19 And Cancer Virtual
08/2020	NCI Workshop - Virtual
08/2020	AACR Meeting – Virtual
09/2020	Think Lab Meeting – Virtual
10/2020	Single Cell Omics Conference Beijing – Virtual
11/2020	Samuel Waxman Cancer Research Gala – Virtual
11/2020	British Society for Immunology Conference - Virtual
01/2021	AACR Artificial Intelligence Conference - Virtual
02/2021	TAMS Plenary Seminar- Virtual

03/2021	CRUK Summit- Virtual
04/2021	ICG Seminar - virtual
04/2021	AACR Annual Meeting - Virtual
04/2021	HMS Seminar- Virtual
04/2021	JHMS Lecture - Virtual
04/2021	UC Chicago Seminar - Virtual
04/2021	Live GenomeWeb Webinar – Virtual
05/2021	ISLH – Presidential Symposium – Virtual
05/2021	Translational Research Seminar – Virtual
06/2021	Medical Discovery Institute San Diego – Invitation to Virtual Seminar
06/2021	Invitation to speak at FOCIS 2021 – Virtual
09/2021	CRUK City of London Centre - Cancer Evolution Symposium Virtual
09/2021	GRACE LECTURE @ EPFL- Invitation from Douglas HANAHAN -Switzerland
11/2021	Invitation to Present: National Academies Immune System Workshop Virtual
12/2021	Symposium Speaker Hans Sigrist Prize– University of Bern Virtual
01/2022	Invited speaker for UCSF Symposium Virtual
02/2022	AKOYA BIOSCIENCES - Discovering the Rules of Cancer via Tissue Schematics
03/2022	AKOYA BIOSCIENCES - The Politics of Cellular Neighborhoods
03/2022	John Mendelsohn Visiting Professor, MD Anderson Cancer Center – Virtual
03/2022	Annual GECCO meeting-Virtual
04/2022	Invited speaker for Gladstone-UCSF Institute of Genomic Immunology Seminar
04/2022	SITC 2022 Speaker Invitation: The Tumor Microenvironment- San Diego CA
04/2022	PICI Retreat_ Healdsburg, CA Virtual
04/2022	Keynote Speaker - The Convergence of AI and Biology workshop – Virtual
05/2022	Keynote Speaker - Frontiers in Cancer Immunotherapy, NYAS
05/2022	Akoya Webinar- virtual
05/2022	PCA Multiplex Microscopy Symposium – Virtual
05/2022	NIH 2021-2022 Immunology Seminar
06/2022	AGBT 2022 General Meeting - Orlando, Florida
06/2022	Invited Speaker to Emerging Systems Medicine – Stockholm – Virtual
06/2022	CRUK STORMing – Cancer Grand Challenges Summit - Washington D.C.,
06/2022	Invited Speaker - FOCIS 2022 San Francisco CA
07/2022	Invited Speaker – 2022 immunoengineering GRC – Ventura California
08/2022	Invited Speaker – University of Hong Kong – virtual
09/2022	Distinguished speaker Seminar at Genentech San Francisco, California
09/2022	Keynote Speaker – 10th Year Anniversary for SB12 Boston
09/2022	Invited Speaker – Pfizer Seminar
10/2022	Distinguished Lecture Series Roswell Park Buffalo, NY
11/2022	The CRCL 5th International Cancer Symposium,Lyon France

11/2022	CGC Challenge Setting Workshop - San Francisco, CA
11/2022	Speaker Invitation for RNAscope Spatial Biology Symposium at Stanford, CA
03/2023	CRUK Summit, London
03/2023	Keynote Speaker- Analytical, life Science & Diagnostics Association, MP, CA
03/2023	ITI Annual Human Immune Monitoring Technology Conference at Stanford, CA
04/2023	UAB 35th Bertram M Marx Lecture Birmingham Alabama
04/2023	Parker Institute for Cancer Immunotherapy 2023 Spring Retreat, Hawaii
05/2023	SITC Workshop, Boston
05/2023	CSB Science Circle
05/2023	ReMS Talk Stanford University
06/2023	Keynote Lecture - German Society of Pathology Annual Meeting 2023 Leipzig
06/2023	Keynote Speaker - TRAM Symposium and Retreat, Stanford University
07/2023	Speaker at FASEB2023

PUBLICATIONS

1. Lee IT, Nakayama T, Wu C-T, Goltsev Y, Jiang S, Gall PA, Liao C-K, Shih L-C, Schürch CM, McIlwain DR, Chu P, Borchard NA, Zarabanda D, Dholakia SS, Yang A, Kim D, Kanie T, Lin C-D, Tsai M-H, Phillips KM, Kim R, Hwang PH, **Nolan GP**, Nayak J V, Jackson PK. Robust ACE2 protein expression localizes to the motile cilia of the respiratory tract epithelia and is not increased by ACE inhibitors or angiotensin receptor blockers. *medRxiv Prepr Serv Heal Sci*. Published online May 12, 2020. doi:10.1101/2020.05.08.20092866

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split-pool synthesis (Communications biology (2020) 3 1 (213)). *Commun Biol*. 2020;3(1):279. doi:10.1038/s42003-020-1019-9

7. O'Huallachain M, Bava FA, Shen M, Dallett C, Paladugu S, Samusik N, Yu S, Hussein R, Hillman GR, Higgins S, Lou M, Trejo A, Qin L, Tai YC, Kinoshita SM, Jager A, Lashkari D, Goltsev Y, Ozturk S, **Nolan GP**. Ultra-high throughput single-cell analysis of proteins and RNAs by split-pool synthesis. *Commun Biol*. 2020;3(1). doi:10.1038/s42003-020-0896-2

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33. Multiplexed imaging of tissues using mass tags and secondary ion mass spectrometry. Sean C. Bendall, **Garry P. Nolan**, Robert M. Angelo, Patent number: 10041949. Aug 7, 2018

34. Single cell analysis using secondary ion mass spectrometry. **Garry P. Nolan**, Sean C. Bendall, Robert M. Angelo, US Patent number: 10114004. Oct 30, 2018

35. Methods of prognosis and diagnosis of ovarian cancer. Jonathan Berek, Wendy Fantl, Veronica Gonzalez, **Garry P. Nolan**, Nikolay Samusik Patent number: 10267802. Apr 23, 2019

36. Spanning-tree progression analysis of density-normalized events Wendy J. Fantl, David B. Rosen, Alessandra Cesano, Santosh K. Putta, **Garry P. Nolan**, Aileen Cohen, Erik Evensen US Patent number: 10289802. May 14, 2019

37. Highly-multiplexed fluorescent imaging. **Garry P. Nolan**, Nikolay Samusik, Julia Kennedy-Darling, Yury Goltsev, US Patent number: 10370698. Aug 6, 2019

38. Detection of target nucleic acids in a cellular sample. **Garry P. Nolan**, Yury Goltsev, Quan Nguyen, Yunqing Ma, Chunfai Lai Patent number: 10689687. June 23, 2020

39. Compressed sensing for simultaneous measurement of multiple different biological molecule types in a sample Karen Sachs, Mohammed N. AlQuraishi, Solomon Itani , **Garry P. Nolan**, Sean C. Bendall, Tyler J. Burns Patent number: 10832795 Date of Patent: Nov 10, 2020

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42. Methods of identifying multiple epitopes in cells. Carolina Dallett, **Garry P. Nolan**, Nikolay Samusik.US Patent Number: 10995362. May 4, 2021.

43. Highly multiplexed fluorescent imaging. **Garry P. Nolan**, Nikolay Samusik, Julia Kennedy-Darling, Yury Goltsev. US Patent Number: 11168350. November 9, 2021.

44. Increasing dynamic range for identifying multiple epitopes in cells. **Garry P. Nolan.** US Patent Number

11214794. January 4, 2022.

45. On-slide staining by primer extension. Nikolay Samusik, **Garry P. Nolan**, Yury Goltsev.US Patent Number 11299770. April 12, 2022.

46. Methods of identifying multiple epitopes in cells. **Garry P. Nolan**. US Patent Number: 11566278. January 31, 2023.

47. Methods of identifying multiple epitopes in cells. **Garry P. Nolan.** US Patent Number: 11560585. January 24, 2023.

48. On-slide staining by primer extension. Nikolay Samusik, **Garry P. Nolan**, Yury Goltsev, David Robert McIlwain. US Patent Number 11634753. April 25, 2023.

49. Kit for split-pool barcoding target molecules that are in or on cells or cell organelles. **Garry P. Nolan**. US Patent number: 11634752. April 25, 2023.

50. Methods of identifying multiple epitopes in cells. **Garry P. Nolan.** US Patent Number 11667956. June 6, 2023.

RESEARCH
<u>ACTIVE</u>

Title: **Influenza responses and repertoire in vaccination, infection and tonsil organoids**
Major Goals: We are developing CODEX and MIBI for imaging in solid tissues for understanding the 2D and 3D arrangement of immune tissues during pathogen driven immune reactions and vaccination. An understanding of how contextual changes in immune cell positioning, and activation states, will drive greater understanding of the cell-cell interactions required for successful immune responses.
Status of Support: Active
Project Number: U19AI057229
Name of PD/ PI: Mark Davis (Garry Nolan Co-PI)
Source of Support: National Institutes of Health
Primary Place of Performance: Stanford University
Project/Proposal Start and End Date: 04/2019 – 03/2024
Total Award Amount: $13,073,574 (Nolan's amount: $1,528,513)
Person Months (Calendar) per budget period.

Year	Person Months
1. 2024	1.2 calendar

Title: **Systems Approach to Immunity and Inflammation**
Major Goals: To create and standardize Ab and single cell expression of mRNA panels to cover all major surface markers and intracellular signaling in immune subsets relevant for the biology being interrogated. In addition, analyze high parameter datasets and provision of results through CytoBank. Continue algorithmic of SPADE and related approaches towards the creation of an "immune systems reference map" with associated correlative immune maps.
Status of Support: Active
Project Number: U19AI100627
Name of PD/ PI: Richard Ulevitch (Garry Nolan Co-PI)
Source of Support: Scripps Research Institute/National Institutes of Health
Primary Place of Performance: Stanford University
Project/Proposal Start and End Date: 09/2017 – 08/2023
Total Award Amount: $4,932,027
Person Months (Calendar) per budget period

Year	Person Months
1. 2023	0.84 calendar

Title: **The Lung PCA: A Multi-Dimensional Atlas of Pulmonary Premalignancy**
Major Goals: The goal of this project is the creation of a lung pre-tumor cell atlas with CODEX and MIBI. Both 2D and 3D cellular architectures of cellularity (and subcellular) will be created in the course of this project. We will analyze up to 20 tumor slices by CODEX or MIBI with 40 antibodies each, and undertake analysis of the resulting data by providing cellular neighborhoods and pattern distributions across the studied cancer subtypes.
Status of Support: Active
Project Number: U2CCA233238
Name of PD/ PI: Avrum E. Spira (contact) (CoI Garry Nolan)
Source of Support: Boston University/National Institutes of Health
Primary Place of Performance: Stanford University
Project/Proposal Start and End Date: 09/2018 – 08/2024
Total Award Amount: $701,277
Person Months (Calendar) per budget period

Year	Person Months
1. 2024	0.12 calendar

Title: **The Cellular Geography of Therapeutic Resistance in Cancer**
Major Goals: The lab will perform spatial analysis on a subset of samples from three different tumor atlases, including breast, melanoma and lung. We will analyze the associated data and communicate those results with Drs. Shalek and Rosenblatt-Rozen
Status of Support: Active
Project Number: U2CCA233195
Name of PD/ PI: Bruce Johnson (Garry Nolan: Co-PI)
Source of Support: Dana-Farber Cancer Institute/National Institutes of Health
Primary Place of Performance: Stanford University
Project/Proposal Start and End Date: 09/2018 – 08/2023
Total Award Amount: $786,075
Person Months (Calendar) per budget period

Year	Person Months
1. 2023	0.60 calendar

Title: **STrOmal ReprograMing (STORMing) of Epithelial Cells: Providing New Directions to Prevent and Revert Chronic Inflammation-Associated Cancers**
Major Goals: Bayesian clustering algorithm that simultaneously segments, assigns molecules to cells and identifies cell types and their canonical spatial neighborhoods. Multiview clustering approach integrating all 3 datatypes, map cell-cell interactions and hos these interactions influence cell state and deposit all algorithms on GitHub
Status of Support: Active
Project Number: C27165/A29073
Name of PD/ PI: Garry Nolan
Source of Support: Cancer Research UK (CRUK)
Primary Place of Performance: Stanford University
Project/Proposal Start and End Date: 01/2019 – 04/2024
Total Award Amount: $2,684,343
Person Months (Calendar) per budget period

Year	Person Months
1. 2024	0.12 calendar

Title: **Pancreatic Cancer Development: Genetic and Immune Regulation**

Major Goals: We seek to discover, apply, and translate science about pancreatic cancer (PDAC), with the ultimate goal of improving care for patients with this disease. To address fundamental, persistent questions about the biology of PDAC, we have assembled a superb, interactive team of productive collaborators to lead our Projects and Research Cores that will identify genetic, immune cell, and cancer-associated fibroblasts based interactions and pathways that regulate the inception and progression of PDAC. Advances from studies proposed here could broadly impact pancreas cancer biology and drive translational efforts in PDAC.

Status of Support: Active

Project Number: P01CA244114

Name of PD/ PI: Seung Kim (Garry Nolan: Other Senior/Key)

Source of Support: National Institutes of Health

Primary Place of Performance: Stanford University

Project/Proposal Start and End Date: 08/2021 – 07/2026

Total Award Amount: $10,210,791 (Nolan's amount: $13,000)

Person Months (Calendar) per budget period

Year	Person Months
1. 2024	0.12 calendar
2. 2025	0.12 calendar
3. 2026	0.12 calendar

Title: **Pathology and Pathogenesis of Coronavirus Infections in Animal Models**

Major Goals: We propose to profile pathology and pathogenesis of multiple CoV infections (COVID-19, SARS, MERS) in NHP challenge models in support of MCM development under the Animal Rule and to compare biomarkers of disease and immune correlates of protection in animal model species and community-acquired infections in humans to help inform future regulatory decisions.

Status of Support: Active

Project Number: 75F40120C00176

Name of PD/ PI: Garry Nolan

Source of Support: Food and Drug Administration

Primary Place of Performance: Stanford University

Project/Proposal Start and End Date: 09/2020 – 12/2025

Total Award Amount: $2,750,500 (Nolan's amount: $2,730,500)

Person Months (Calendar) per budget period

Year	Person Months
1. 2024	0.36 calendar
2. 2025	0.36 calendar

Title: **Center for Immune Technology**

Major Goals: We will develop new technologies as necessary. The goal of the Center is to develop diagnostics, new targets for drug therapy, and computational approaches that enable deep multi-omic evaluation of immune   pathologies, with particular emphasis on cancer.

Status of Support: Active

Project Number: 209477

Name of PD/ PI: Garry Nolan

Source of Support: Hope Realized Medical Foundation

Primary Place of Performance: Stanford University

Project/Proposal Start and End Date: 09/2020 – 10/2023

Total Award Amount: $3,000,000 (Nolan's amount: $2,700,000)

Person Months (Calendar) per budget period

Year	Person Months
1. 2023	0.12 calendar

Title: **Systems analysis of mechanisms driving response to immunotherapy in clear cell cancers**
Major Goals: This study will use systems biology approaches to (i) elucidate and compare the cell types and their transcriptional states present in ccOC and ccRCC; (ii) characterize the spatial architecture of these cells within tumors using the CODEX (CODetection by indEXing) single cell proteomic imaging platform; and (iii) model and validate cell-cell interactions in the spatial tumor microenvironment that drive clear cell cancer response to immunotherapy through extensions of causal signaling inference algorithms to incorporate spatial context, and to optimize experimental validations in mouse models that maximize the information gain about interaction networks.
Status of Support: Active
Project Number: U01CA264611
Name of PD/PI: Gentles, Andrew
Role: Co-Investigator
Source of Support: National Institutes of Health
Primary Place of Performance: Stanford University
Project/Proposal Start and End Date: 09/2022 – 08/2027
Total Award Amount (including Indirect Costs): $2,600,257 (Nolan's amount: $780,700)
Person Months (Calendar/Academic/Summer) per budget period.

Year	Person Months
1. 2023	0.96 calendar
2. 2024	0.96 calendar
3. 2025	0.96 calendar
4. 2026	0.96 calendar
5. 2027	0.96 calendar

Title: **Development of outpatient antiviral cocktails against SARS-CoV-2 and other potential pandemic RNA viruses.**
Major Goals: The overall platform and objective of the Stanford AViDD Center, "SyneRx," is to develop outpatient antiviral cocktails against SARS-CoV-2 and other potential pandemic RNA viruses. The goal of each of our 7 Projects is to develop towards the clinic a novel direct-acting antiviral (DAA) with a distinct mechanism of action, so that they can be used alone and in combination with other agents—providing additive, and ideally synergistic antiviral activity.
Status of Support: Pending
Project Number: 1 U19 AI171421-01
Name of PD/PI: Glenn, Jeffrey
Role: Co-Investigator, Core 2
Source of Support: National Institutes of Health
Primary Place of Performance: Stanford University
Project/Proposal Start and End Date: 05/2022 – 04/2025
Total Award Amount (including Indirect Costs): $115,512,181 (Nolan's amount: $20,360)
Person Months (Calendar/Academic/Summer) per budget period.

Year	Person Months
1. 2024	0.12 calendar
2. 2025	0.12 calendar

Project Title: **Stanford Tissue Mapping Center – HubMAP**
Major Goals: Build three-dimensional multi-modal (snRNA, snATAC, CODEX, multiplex FISH)

spatial maps that will give the greater scientific community insights into the molecular underpinnings of normal bowel function.
Status of Support: Active
Project Number: U54HG012723
Name of PD/PI: Michael Snyder
Role: Co-Investigator
Source of Support: National Institutes of Health
Primary Place of Performance: Stanford University, Palo Alto
Project Period: 9/2022-6/2026
Total Award Amount: $7,146,092 (Nolan's amount: $996,976)
Person Months (Calendar) per budget period

Year	Person Months
1. 2024	1.20 calendar
2.2025	1.20 calendar
3.2026	1.20 calendar

Project Title: **High-dimensional Immunofluorescence Atlas of Tissue Architecture and Microbiome in Pediatric Fibro-stenosing Crohn's Disease**
Major Goals: Aim 1: Identify spectral features associated with Crohn's-dependent inflammation for guided analysis of areas of interest and to help enable future diagnostics; Aim 2: Identify enriched and depleted cell types using scRNA-seq; Aim 3: Identify architectural and microbial differences between pediatric fibrostenosing CD and healthy gut.
Status of Support: Active
Project Number: 270533
Name of PD/PI: Stephan Rogalla
Role: Co-PI
Source of Support: Stanford Maternal and Child Health Research Institute
Primary Place of Performance: Stanford University, Palo Alto
Project Period: 7/2022-6/2024
Total Award Amount: $200,000 (Nolan's amount: $5,244)
Person Months (Calendar) per budget period

Year	Person Months
1. 2024	0.12 calendar

Title: **Role of the microenvironment in ovarian cancer metastasis**
Major Goals: The Nolan lab will perform multi-parameter CODEX imaging on tumor samples prepared in Dr Fuh's lab at UCSF. The ovarian tumors to be analyzed will be produced by the Fuh Lab and will be generated through genetic models or patient derived xenografts. This are the ovarian tumor types that will be analyzed by CODEX in the Nolan Lab. For each tumor, 2 to 3 replicates will be imaged and when possible tumor sites far apart within the same tumor.
Status of Support: Active
Project Number: R01CA234553
Name of PD/PI: Garry Nolan
Source of Support: University of California, San Francisco/National Institutes of Health
Primary Place of Performance: Stanford University
Project/Proposal Start and End Date: 09/2022 - 08/2024
Total Award Amount (including Indirect Costs): $179,894
Person Months (Calendar/Academic/Summer) per budget period.

Year	Person Months
1. 2023	0.60 calendar

Year	Person Months
2. 2024	0.60 calendar

PENDING

NONE

IN-KIND

Summary of In-Kind Contribution: Post-doctoral fellow, Dr. John Hickey, who conducts research activities in the Nolan lab. Stipend and fellowship allowance supported by American Cancer Society.
Status of Support: Active
Primary Place of Performance: Stanford University
Project/Proposal Start and End Date: 09/2020 – 08/2023
Person Months (Calendar) per budget period

Year	Person Months
1. 2023	NA

Estimated Dollar Value of In-Kind Information: $175,500

Overlap:
NONE