Curriculum vitae

Date Prepared: April 13, 2023

Name: Lindsay G. Cowell

Office Address: UT Southwestern Medical Center
5323 Harry Hines Blvd. (G09.220E)
Dallas, TX 75390-9066

Work Phone: 214-648-2289

Work E-Mail: Lindsay.Cowell@UTSouthwestern.edu

Education

Year	Degree (Honors)	Field of Study (Thesis advisor for PhDs)	Institution
May 1992	B.A.	Education	University of North Carolina at Chapel Hill
Dec 1995	M.S.	Biomathematics	North Carolina State University
Aug 2000	Ph.D.	Biomathematics (Thomas B. Kepler, Ph.D.)	North Carolina State University

Postdoctoral Training

Year(s)	Titles	Specialty/Discipline (Lab PI for postdoc research)	Institution
2001-2002	Postdoctoral Fellow	Bioinformatics & Genome Technology (Garnett Kelsoe, D.Sc.)	Duke University
2000-2003	Postdoctoral Fellow	Immunology (Garnett Kelsoe, D.Sc.)	Duke University

Current Licensure and Certification

Licensure

N/A

Board and Other Certification

N/A

Honors and Awards

Year	Name of Honor/Award	Awarding Organization
1993-1996	Sea Grant Fellowship	North Carolina State University
1996-1997	Fulbright Grantee, Berlin, Germany	Fulbright Program
1996-2000	Graduate Assistance in Areas of National Need (GAANN) Fellowship Program	North Carolina State University
1997	Lucas Research Award in Biomathematics (M.S. Research)	North Carolina State University
1997	North Carolina State Nominee, Master's Thesis Award in the Life Sciences	Conference of Southern Graduate Schools
1998	Free Communication Award	10th International Congress of Immunology, New Delhi
2001	Lucas Research Award in Biomathematics (Ph.D. Research)	North Carolina State University
2001-2002	Bioinformatics and Genome Technology Fellow	Duke University
2002	Bernard Amos Postdoctoral Fellow Research Award	Duke University
2002	NIH Fundamental Immunology Training Grant	Duke University
2003-2015	Burroughs Wellcome Fund Career Award	Duke University
2016	Selected Participant, Leadership Emerging in Academic Departments (LEAD) Program	UT Southwestern Office of Faculty Diversity & Development
2016	Selected Participant, SOAR Intensive R Grant Writers Workshop	UT Southwestern Office of Faculty Diversity & Development

Faculty Academic Appointments

Year(s)	Academic Title	Department	Academic Institution
2003-2010	Assistant Professor	Department of Biostatistics and Bioinformatics	Duke University (promotion review was set for 2012/2013 academic year)
2010-2014	Assistant Professor	Department of Clinical Sciences, Biomedical Informatics Division	UT Southwestern Medical Center
2014-**present**	Associate Professor	O'Donnell School of Public Health, formerly the Department of Population and Data Sciences, Biomedical Informatics Division	UT Southwestern Medical Center *Name changed from Clinical Sciences
2019-**present**	Associate Professor	Department of Immunology	UT Southwestern Medical Center

Appointments at Hospitals/Affiliated Institutions

Past			
Year(s)	Position Title	Department/Division	Institution
2003-2010	Assistant Professor	Department of Biostatistics and Bioinformatics	Duke University[1]
2010-2014	Assistant Professor	Department of Population and Data Sciences, Biomedical Informatics Division	UT Southwestern Medical Center
Current			
Year(s)	Position Title	Department/Division	Institution
2014-**present**	Associate Professor	O'Donnell School of Public Health, formerly Department of Population and Data Sciences, Biomedical Informatics Division	UT Southwestern Medical Center
2019-**present**	Associate Professor	Department of Immunology	UT Southwestern Medical Center

Other Professional Positions

Year(s)	Position Title	Institution
2009-2014	Scientific Advisory Board Member, Pathogen Portal, NIAID Bioinformatics Resource Center	Virginia Bioinformatics Institute at Virginia Tech University

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[1] Promotion review was set for 2011/2012 academic year.

2009-2014	Scientific Advisory Board Member, Pathosystems Resource Integration Center (PATRIC), NIAID Bioinformatics Resource Center	Virginia Bioinformatics Institute at Virginia Tech University
2012-2013	Scientific Advisor, Outreach Component of the Immunology Data Analysis Portal (ImmPort), NIAID Research Resource	J Craig Venter Institute
2016-2017	HIV Toolbox Steering Committee	University of Nevada Las Vegas
2020-**present**	Scientific Advisory Board Member, Immune Epitope Database	La Jolla Institute for Allergy and Immunology

Major Administrative/Leadership Positions

Year(s)	Position Title	Institution
2003-2005	Organizer	Duke Center for Bioinformatics and Computational Biology Seminar
2007-**present**	Consortium Lead	Infectious Disease Ontology Consortium
2011	Organizer	UTSW Department of Clinical Sciences, Division of Biomedical Informatics Collaborative Research Retreat
2015-2020	Co-Lead, AIRR Common Repository Working Group	Adaptive Immune-Receptor Repertoire Community
2019-2020	Community Chair-Elect, AIRR Common Repository Working Group	Adaptive Immune-Receptor Repertoire Community
2021-2022	Community Chair, AIRR Common Repository Working Group	Adaptive Immune-Receptor Repertoire Community
2022-**present**	Past-Chair, AIRR Common Repository Working Group	Adaptive Immune-Receptor Repertoire Community

Committee Service (*Member, unless noted otherwise*)

Year(s)	Name of Committee	Institution/Organization
Duke University		
2004-2007	Computational Biology and Bioinformatics Graduate Program Admissions Committee	Duke University
2005-2007	Computational Biology and Bioinformatics Graduate Program Student Advisory Committee	Duke University

2005-2006	Computational Biology and Bioinformatics Graduate Program Curriculum Committee	Duke University
2006	Department of Biostatistics and Bioinformatics Curriculum Committee	Duke University
2008-2010	Basic Science Faculty Steering Committee	Duke University
2009-2010	Department of Biostatistics and Bioinformatics Website Development Committee	Duke University
UTSW		
2012-2018	Faculty Senate; Alternate Representative for the Department of Clinical Sciences	UT Southwestern School of Medicine
2014-2015	Department of Bioinformatics Chair Search Committee	UT Southwestern Medical Center
2015	Clinical and Translational Research Scholar Program Selection Committee	UT Southwestern Center for Translational Medicine
2015-**present**	Information Security and Privacy Steering Committee (faculty representative)	UT Southwestern Medical Center
2018-2020	Immunology Program Representative on the Graduate School of Biomedical Sciences Admissions Committee	UT Southwestern Medical Center
State/Regional		
2011-2015	Research Cyber Infrastructure Faculty Outreach Workgroup, UT Southwestern Representative	The University of Texas System
National/International		
2010-2013	CTSA Informatics Key Function Committee, Omics Data Standards Workgroup, UT Southwestern Representative	Clinical and Translational Science Awards Network
2011-2014	Program Committee Member for Bio-Ontologies	International Society for Computational Biology
2011-2014	Program Committee Member	International Conference on Biomedical Ontology
2013	Program Committee Member, International Workshop on Vaccine and Drug Ontology Studies	International Conference on Biomedical Ontology
2013-2014	CTSA Biomedical Informatics Training Workgroup, UT Southwestern Representative	Clinical and Translational Science Awards Network
2014-2018	CTSA Accrual to Clinical Trials Data Harmonization Working Group, UT Southwestern Representative	Clinical and Translational Science Awards Network
2014-2017	Executive committee member	Adaptive Immune-Receptor Repertoire Community

2015-**present**	Member, AIRR Minimum Standards Working Group	Adaptive Immune-Receptor Repertoire Community
2015-**present**	Lead, AIRR Common Repository Working Group	Adaptive Immune Receptor Repertoire Community
2017	Program committee member, International Oncology Ontology Workshop	International Conference on Biological Ontology
2017	Program committee member, CELLS2017	International Workshop on Cells in Experimental Life Science
2016-2018	Member of the Organizing Committee, AIRR Community Meeting	Adaptive Immune-Receptor Repertoire Community
2019-**present**	Member, AIRR Diagnostics Working Group	Adaptive Immune-Receptor Repertoire Community
2020	Invited Chair for Special Community COVID Session	Adaptive Immune-Receptor Repertoire Community
	World Vaccine Congress	
	ImmPort Conference	
	COVAXEN	
2022	Conference on Knowledge Engineering and Ontology Development (KEOD)	Malta
2023	Conference on Knowledge Engineering and Ontology Development (KEOD)	Rome, Italy
	(Cancer Immunology (CIMM) Working Group	American Association for Cancer Research

Professional Societies

Dates	Society Name, member
1992-**present**	American Association of Immunologists
2005-2022	American Medical Informatics Association
2013-2014	International Society for Computational Biology
2019-**present**	The Antibody Society
	American Association for Respiratory Care
	American Association for Cancer Research
	Fellowships

Grant Review Activities

Year(s)	Name of Review Committee	Organization
2012	Vienna Science and Technology Fund	Privatstiftung zur Verwaltung von Anteilsrechten
2012-2013	NIH Biodata Management and Analysis Study Section – Cycle 2	NIH Center for Scientific Review
2013	Israel Science Foundation	Israel Science & Technology Foundation
2015	Mentored Career Development Award in Biomedical Big Data Science for Clinicians and Doctorally Prepared Scientists (K01)	NIH Center for Scientific Review
2015	Skills Development Fellowships (MR/N015460/1)	United Kingdom Medical Research Council
2016	NIH Support Awards for Scientific Conferences (R13 and U13)	National Institute of General Medical Sciences
2017	Big Data to Knowledge Grant Review Committee (U01 Research Project – Cooperative Agreements)	NIH Center for Scientific Review
2017	Greater Plains Collaborative Inter-Institutional Pilot Program	Patient-Centered Outcomes Research Institute (PCORI)
2018	Annual Competition	U.S.-Israel Binational Science Foundation
2018	NCI Program Project P01 Special Emphasis Panel	National Cancer Institute
2018	NIAID Resource-Related Projects (R24)	National Institute of Allergy and Infectious Diseases
2018	Rational Pharmacotherapy	Dutch Organisation for Health Research and Development (ZonMw)
2019	NCI U54 Special Emphasis Panel – Immuno-engineering to Improve Immunotherapy	National Cancer Institute
2019	NIAID SBIR Topic 69	National Institute of Allergy and Infectious Diseases
2019	Biotechnology and Biological Sciences Research Council	UK Research and Innovation
2020 (invited but declined)	NLM R01 Special Emphasis Panel – Computational Approaches to Curation at Scale	National Library of Medicine
2020	NIAID Resource-Related Projects R24	National Institute of Allergy and Infectious Diseases

2020	Wellcome Sir Henry Wellcome Postdoctoral Fellowships	Wellcome Trust
2021	NCI R01/R21 Provocative Question Review Panel – "What mechanisms explain sex differences in cancer incidence, lesion location, or response to therapy?"	National Cancer Institute
2021	Wellcome Sir Henry Dale Fellowships	Wellcome Trust

Editorial Activities

Year(s)	Journal Name
Editor/Associate Editor	
2021	Guest Editor eLife
Editorial Board	
Ad Hoc Reviewer	
2008	BMC Immunology
2009	BMC Genomics
2009	International Journal of Immunopathology and Pharmacology
2009-2010	Journal of Biomedical Informatics
2010-2019	PLOS ONE (Public Library of Science)
2011-2013	Bio-Ontologies
2011-2013	International Conference on Biomedical Ontology
2012	African Journal of Biotechnology
2012; 2018	Nucleic Acids Research
2012-2019	BMC Bioinformatics
2013	Immunogenetics
2013	Journal of Biomedical Semantics
2013	Journal of Clinical Bioinformatics
2013	Vaccine and Drug Ontology Studies
2013-2018	Journal of Immunology
2013-2018; 2020	PLOS (Computational Biology)
2014;2017	Molecular Immunology

2014-2017	Bioinformatics
2016-2017	Genome Biology and Evolution
2018	Genome Medicine
2018-2019	Scientific Data
2019	Cancer Immunology, Immunotherapy
2019	Cancer Research
2019	F1000
2019	Nature Biotechnology
2019	Immunology
2019	European Journal of Immunology
2019-2020	Nature
2019	Database
2020	Journal of Biological Chemistry
2020	The Lancet Digital Health
2020	PLOS Genetics
2020	Cell Systems
2020	Nature Communications
2020-2021	eLife, including as guest editor
2021	PNAS
2021	iScience
	Women in Science
2022-2023	Knowledge Engineering and Ontology Development (KEOD)

Grant Support

<u>Present</u>

Grantor	NIH/ NCATS
Title	*UT Southwestern Center for Translational Medicine-UL1*
Role	Co-Investigator
Annual amount and dates	$4,924,286 direct costs May 01 2022 – Apr 30 2023
Total award and dates	$30,487,795 direct costs May 26 2021 – Mar 31 2026

Grantor	University of Iowa; Prime: PCORI
Title	*Comparative Effectiveness Research for Neuroendocrine Tumors*
Role	Site PI
Annual amount and dates	$40,784 direct costs Jul 01 2021 – Jun 30 2022
Total award and dates	$122,350 direct costs Jul 01 2021 – Jul 31 2025

Grantor	NIH/NINDS
Title	*Immunology of advancing disease among minorities with Multiple Sclerosis*
Role	Collaborator
Annual amount and dates	$449,720 direct costs Jun 01 2022 – May 31 2022
Total award and dates	$2,387,960 direct costs Jul 01 2021 – Jun 30 2026

Grantor	The Task Force for Global Health; Prime: CDC
Title	*COVID-19 Electronic Health Data Initiative*
Role	Site PI
Annual amount and dates	$47,401 direct costs Aug 01 2021 – Jul 31 2022
Total award and dates	$94, 802 direct costs Oct 01 2020 – Jul 31 2022

Grantor	University of Kansas Medical Center
Title	SCH: INT: Collaborative Research: Privacy Preserving Federated Transfer Learning for Early Acute Kidney Injury Risk Prediction
Role	Site PI
Annual amount and dates	$2,140 direct costs Oct 01 2022 – Sep 30 2023
Total award and dates	$2,143 direct costs Oct 01 2020 – Sep 30 2024

Grantor	NIH/NIAID
Title	Adaptive Immune Receptor Repertoire (AIRR) Community Meeting 2021
Role	PI
Annual amount and dates	$10,000 direct costs Nov 22 2021 – Oct 31 2022
Total award and dates	$10,000 direct costs Nov 22 2021 – Oct 31 2022

Grantor	University of Missouri (Prime: PCORI)
Title	Optimizing Infrastructure for Conducting Patient-Centered Outcomes Research: PCORnet, The National Patient-Centered Clinical Research Network -- Phase 3
Role	Site PI
Annual amount and dates	$111,000 direct costs Jan 01 2021 – Dec 31 2022
Total award and dates	$143,000 direct costs Jan 01 2022 – Dec 31 2024

Grantor	Cornell University (Prime NIH/ NHLBI)
Title	Researching COVID to Enhance Recovery (RECOVER) Initiative
Role	Site PI
Annual amount and dates	$180,000 direct costs Oct 01 2021 – Nov 02 2022
Total award and dates	$180,000 direct costs Oct 01 2021 – Nov 02 2022

Past

Grantor	NIH-National Inst Of Neuro Disord & Strk
Title	*Contribution of plasmablasts in the conversion of transverse myelitis to multiple sclerosis*
Role	Co-Investigator
Annual amount and dates	$300,007 direct costs Apr 01 2021 – Mar 31 2022
Total award and dates	$1,875,735 direct costs Apr 01 2018 – Mar 31 2022

Grantor	NIH-National Inst of Neuro Disord & Strk
Title	*Immune Profile Investigations of Alzheimer's Disease*
Role	Co-Investigator
Annual amount and dates	$125,000 direct costs Jul 01 2020 – Jun 30 2021
Total award and dates	$275,000 direct costs Jul 01 2018 – Jun 30 2021

Grantor	Bar-Ilan University
Title	*iReceptor Plus*
Role	Principal Investigator
Annual amount and dates	$192,734 direct costs Dec 1 2020 – Nov 30 2022
Total award and dates	$638,429 direct costs Dec 1 2018 – Nov 30 2022

Grantor	Texas Alzheimer's Research & Care Cnsrtm
Title	*Immune profile investigations of Alzheimer's Disease*
Role	Faculty
Annual amount and dates	$98,437 direct costs Aug 22 2020 – Aug 31 2021
Total award and dates	$196,874 direct costs Aug 22 2018 – Aug 31 2021

Grantor	University of Kansas Medical Center
Title	*Advancement of PCORnet Infrastructure: Clinical Research Network*
Role	Principal Investigator
Total amount and dates	$157,329 direct costs Apr 1 2020 – Feb 28 2021

Grantor	NIH-National Center for Advcng Trnsltnl
Title	*UTSW Center for Translational Medicine UL1*
Role	Co-Investigator
Total amount and dates	$7,246,800 direct costs Sep 23 2013 – Apr 30 2020

Grantor	Burroughs Wellcome Fund
Title	*A Novel Statistical Approach to Deducing the Function of*
Role	Principal Investigator
Total amount and dates	$55,381.39 direct costs Sep 01 2010 – Jun 26 2017

Grantor	Duke University
Title	*Modeling Immunity for Biodefense*
Role	Principal Investigator
Total amount and dates	$122,720 direct costs Sep 30 2010 – Jun 26 2017

Grantor	NIH-National Inst of Allrgy Infect Dis
Title	*RepServer: Antigen Receptor Repertoire Analysis Pipeline*
Role	Principal Investigator
Total amount and dates	$2,246,539 direct costs Apr 1 2012 – Jun 26 2018

Grantor	University of Kansas Medical Center
Title	*Burden of Imaging in Renal Cysts - (GPC): Phase II PCORI Supplemental Project*
Role	Principal Investigator
Total amount and dates	$2,857 direct costs Sep 1 2017 – Aug 31 2018

Grantor	University of Kansas Medical Center
Title	*Greater Plains Collaborative Clinical Data Research Network Phase I*
Role	Principal Investigator
Total amount and dates	$346,770 direct costs Mar 6 2014 – Jun 26 2017

Grantor	University of Kansas Medical Center
Title	*Greater Plains Collaborative Clinical Data Research Network Phase II*
Role	Principal Investigator
Total amount and dates	$226,397 direct costs Oct 1 2015 – Dec 31 2018

Grantor	Simon Fraser University
Title	*Immune receptor repertoire data commons for personalized immunotherapy*
Role	Principal Investigator
Total amount and dates	$125,000 direct costs Apr 1 2017 – Dec 31 2018

Grantor	University of Kansas Medical Center
Title	*GPC/PCRF – PCORnet 2.0*
Role	Principal Investigator
Total amount and dates	$188,674 direct costs Nov 1 2018 – Mar 31 2020

Grantor	NIH-National Inst of Allrgy Infect Dis
Title	*Immune System Biological Networks: A Case Study in Improved Data Integratoin and Analysis*
Role	Principal Investigator
Total amount and dates	$1,083,700 Sep 22/2008 – Aug 31/2012

Clinical Trials Activities

Present	*Grantor:*
	Title of Project:
	Role (Principal Investigator, Co-Investigator):

Past	*Grantor:*
	Title of Project:
	Role (Principal Investigator, Co-Investigator):

Teaching Activities

Year(s)	Activity
Medical and graduate school didactic and small group teaching	
UTSW GRADUATE SCHOOL OF BIOMEDICAL SCIENCES	
2011 Spring; 2013-2015 Spring	BSCI 5096 Special Topics: Analysis of High Content/High Complexity Data Sets • Co-Organizer and Lecturer
Spring 2011	BSCI 5096-02 Introduction to Applied Bioinformatics (Program in Immunology) • Co-Developer and Lecturer
2013 Fall	BSCI 5152-01 Graduate School of Biomedical Sciences Basic Science Core Course Introduction to Statistics) • Co-Developer and Lecturer • Teaching focused on statistics in the biomedical sciences • Inspired by lectures created and given for the Immunology Graduate Program (see Small Group Teaching section)

2014 Spring; 2015–2016 Fall; 2019–2020 Spring	<u>BSCI 5106-01</u> Graduate School of Biomedical Sciences Core Course (Introduction to Statistics and Bioinformatics section) • Lecturer • Course teaching included several problem sessions
2014-2017, Fall; 2019-2022, Spring	<u>BSCI 5106-01</u> Graduate School of Biomedical Sciences Core Course (Introduction to Statistics and Bioinformatics section) • Course Director • Course series ensures Biomedical Science grad students are exposed to basic statistical and bioinformatics concepts in core curriculum
2016 Spring	<u>IMM 5305</u> Cell & Molecular Immunology Discussion Panel • Panel Member
2018 Spring	<u>BSCI 5197</u> Responsible Conduct of Research Discussion Panel • Small Group Discussion Lead
UTSW CLINICAL SCHOLARS TRAINING PROGRAM	
2013 Spring; 2014-2015 Fall	<u>CTM 5105</u> Ethics in Clinical Science • Lecturer • Teaching focused on Authorship and Data Ownership
2013-2017 Fall	<u>CTM 5115</u> Clinical Research from Proposal to Implementation – Data Mining and the Clinical Research Data Warehouse • Lecturer
UTSW SMALL GROUP TEACHING	
2012 – 2013 Fall	*Introduction to Statistics* (Immunology Graduate Program)
2019 Spring	*Clinical Immunology* (Immunology Graduate Program) • Big Data in Immunology Module

2015-2023 Year-Round	Immunology Graduate Training Program Works-in-Progress Evaluator
2018-2019	Computational and Systems Biology Track Works-in-Progress Evaluator
2011; 2013	Medical Student Training: Fundamentals of Immunology, Medical Immunology Conferences • T cell Immunity, Tuberculosis. May 17, 2011 • Humoral Immunity, B cell Immunodeficiency, Peanut Allergy, Poison Ivy. May 19, 2011 • Enteric Infections, Typhoid Fever. May 14, 2013 • Vaccination, Tetanus Toxoid. May 20, 2013
2012	Course code *Genomics,* Department of Pediatrics, Internal Medicine Division • Genomics Tools for Interpretation of Polymorphisms and Mutations. April 5, 2012[2]

NIAID-FUNDED SUMMER SCHOOLS ON COMPUTATIONAL IMMUNOLOGY[3]

2007 Summer	Biomedical Ontologies Section, The Second Annual Summer School in Computational Immunology Hosted by the Program in Microbiology and Immunology, University of Pittsburgh
2008 Summer	Biomedical Ontologies Section, The Third Annual Summer School in Computational Immunology hosted by the Program for Research on Immune Modeling and Experimentation, Yale School of Medicine,
2010 Summer	Half-Day Biomedical Ontologies Session, Summer School in Quantitative Systems Immunology hosted by the Duke University Center for Computational Immunology at the University of Texas at San Antonio Developed and taught this session.

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[2] Invited instructional seminar.
[3] The NIAID program in Modeling Immunity for Biodefense funds four centers with the goal of developing mathematical models of immunity to infection and vaccination. The centers are a collaborative effort between immunologists, microbiologists, bioinformaticians, and modelers. The program supports an annual, week-long summer school to introduce experimental immunologists to modeling and bioinformatics.

2013 Summer	Half-Day Biomedical Ontologies Session, Summer School in Quantitative Systems Immunology
	Hosted by the Center for Computational Immunology at Boston University
	Co-developed and co-taught this session with Barry Smith

COLUMBIA UNIVERSITY, DEPARTMENT OF BIOMEDICAL INFORMATICS

Fall 2013	G4003 Topics in Biomedical Informatics (symbolic methods) Core Course
	• Co-Developer by invitation
	• Created basis for teaching and student projects
	• Led to substantial course revisions

Dissertation committees

2006-2010	Committee Member
	• Elena Edelman (Ph.D. in Computational Biology at Duke)
	• Ana Paula de Sales (Ph.D. in Computational Biology at Duke)
	• Supriya Munsha (Ph.D. in Computational Biology at Duke)
	• Ken Yokoyama (Ph.D. in Computational Biology at Duke)
2011-2013	Committee Member
	• Jeremy Semeiks (Ph.D. in Molecular Biophysics at UTSW)
2013-2017	Committee Chair
	• William Rounds (Ph.D. in Immunology at UTSW)
	• Jaquelin Rivas (Ph.D. in Immunology at UTSW)
2020	Committee Member
	• Kristoffer Niss (Ph.D. in Bioinformatics at University of Copenhagen)

Qualifying examination committees

2006-2010	• Elena Edelman (Ph.D. in Computational Biology at Duke)
	• Ana Paula de Sales (Ph.D. in Computational Biology at Duke)
	• Supriya Munsha (Ph.D. in Computational Biology at Duke)
	• Ken Yokoyama (Ph.D. in Computational Biology at Duke)

2013	• Jaquelin Rivas (Ph.D. in Immunology at UTSW)
2019	• Mingrui Zhu (Ph.D. in Cancer Biology at UTSW)
2020	• Ryan Huang (Ph.D. in Immunology at UTSW)
2021	• Devon Jeltema (Ph.D. in Immunology at UTSW)
2021	• James Zhu (Ph.D. in Cancer Biology at UTSW)

Committees concerned with medical and graduate student education

2013-2014	CTSA Education and Career Development Key Function Committee • UTSW representative for the Biomedical Informatics Training Competencies and Curriculum Workgroup

Graduate student rotations

2019	• Andrew Cox, Graduate School of Biological Sciences, UTSW
2022	• Nathanial Murray, SMU/UTSW Collaborative Program in Biostatistics, UTSW

Medical student rotations

2013	• Bethany Richards (UT Southwestern Medical School, 1st year medical student, M.D. with Distinction in Global Health degree program)

Graduate student trainees

DUKE UNIVERSITY

2007-2010	• Thesis Advisor o Nicole Johnson (Ph.D. in Computational Biology)

UT SOUTHWESTERN MEDICAL CENTER

2010-2013	• Ann Ligocki (Program in Immunology) o Mentor in Statistics and Bioinformatics
2010-2017	• William Rounds (Program in Immunology) o Mentor in Statistics and Bioinformatics
2013-2017	• Jaquelin Rivas (Program in Immunology) o Mentor in Statistics and Bioinformatics
2019	• Andrew Cox (Computational and System Biology) o Mentor

Postgraduate medical education (graduate & continuing medical education)	
2014-2018	• Dr. Julie Mirpuri (K08 grant award, "Impact of maternal high fat diet on the gut microbiota and Th17 axis in offspring.") o Mentor in Bioinformatics
2012-2015	• Min Soo Kim, M.S.
2013-2015	• Edward Salinas, M.S.

Postdoctoral trainees	
DUKE UNIVERSITY	
2006-2010	Changqing Li, Ph.D.
2008-2010	Anna Maria Masci, Ph.D.
2009-2010	Sandra Denize-Jouglard, Ph.D.
UT SOUTHWESTERN MEDICAL CENTER	
2010-2015	Mikhail Levin, Ph.D.
2011-2012	Waclaw Kusnierczyk, Ph.D.
2014-2015	Stephen Bush, Ph.D.
2015-2018	Inimary Toby, Ph.D.
2015-**present**	Scott Christley, Ph.D.
2016-2017	William Rounds, Ph.D.
2016-2019	Jared Ostmeyer, Ph.D. • Recipient, 2016-2018 UT Southwestern CPRIT Training Grant slot • Recipient, 2017 Translational Pilot Program Grant UT Southwestern Center for Translational Medicine

Junior Faculty trainees	
2017-2019	Dr. Caitlin Murphy, Associate Professor, School of Public Health, UTHealth Houston
2019-**present**	Dr. Amy Hughes, O'Donnell School of Public Health, UTSW
2020-**present**	Dr. Yulun Liu, Assistant Professor, O'Donnell School of Public Health, UTSW

Invited Lectures

Year(s)	Title	Location
International		
2004	*Probability Models of Mouse Recombination Signals (RS) that Recognize RS and Predict Recombination Efficiency*; Immunology Models, Cell Signaling and Immune Dynamics, Mathematical Biosciences Institute, Ohio State University	Columbus, OH

2006	*Using ontologies to SNP away at the clinical problem of Staphylococcus aureus*; Toward Genomics Knowledge Representation for Clinical Trials Workshop at the 2006 American Medical Informatics Association Symposium	Washington, DC
2007	*Immunology Ontology (IO): An Ontological Representation of Complex Immunological Pathways*, The NIAID Symposium on Immune Ontology at the American Association of Immunologists Annual Meeting	Miami, FL
2007	*Ontology of V(D)J Recombination*, Sequence Ontology Immunology Workshop, University of Utah	Salt Lake City, UT
2008	*Infectious Disease Ontology;* The First Open Biological Ontologies Foundry Workshop, European Bioinformatics Institute	Hinxton, UK
2008	*Invited Chair of the T Cell Development Session*, American Association of Immunologists Annual Meeting	San Diego, CA
2008	*The Relative Roles of RS Efficiency and Genomic Location in Development of the TCR β Repertoire*; American Association of Immunologists Annual Meeting	San Diego, CA
2008	*Using Ontologies to Represent Immunological Networks, Workshop on Ontologies of Cellular Networks*; National Center for Biomedical Ontology	Bethesda, MD
2009	*Infectious Disease Ontology*, Infectious Disease Data Standards Workshop, Wolfson College	Oxford, England
2009	*Infectious Disease Ontology*; International Conference on Biomedical Ontology	Buffalo, NY
2009	*Infectious Disease Ontology*; National Center for Biomedical Ontology Webinar Series	(*web seminar*)
2010	*Infectious Disease Ontology;* The Second Open Biological Ontologies Foundry Workshop, European Bioinformatics Institute	Hinxton, UK
2011	*Connecting Ontologies for the Representation of Biological Pathways*; International Conference on Biomedical Ontology.	Buffalo, NY
2011	*Infectious Disease Ontology*; International Conference on Biomedical Ontology.	Buffalo, NY

2012	*Constructing a Network of Infectious Diseases: Faceted Browsing of Staphylococcus aureus isolate data*; Biocuration 2012.	Washington, DC
2012	*Infectious Disease Ontology*; Immunology Ontologies and Their Applications in Processing Clinical Data, National Center for Biomedical Ontology.	Buffalo, NY
2013	*The Role of Names in the (Dis)unification of Biology;* Hosts, Microbes, and Interesting Times, Burroughs Wellcome Fund	Calgary, AB, Canada
2014	*Platforms for sharing and analyzing NGS data*; Antibody & T-Cell Receptor Data Integration Workshop Working Session, Simon Fraser University (session head)	Vancouver, BC
2014	*VDJServer and Ontology-based Data Sharing;* Human Immunology Project Consortium Meeting	Bethesda, MA
2014	*VDJServer, an immune repertoire data management and analysis portal;* Interdisciplinary Research in the Mathematical and Computational Sciences Centre at Simon Fraser University	Vancouver, BC (webinar)
2014	*VDJServer, an immune repertoire data management and analysis portal;* IBC Antibody Engineering & Therapeutics Meeting	Huntington Beach, CA
2015	*Infectious Disease Ontology;* Human Immunology Project Consortium Meeting	Bethesda, MA
2015	*Antigen Receptor Repertoire Data Management and Analysis;* Analysis, Management and Sharing of Antigen Receptor Repertoire Sequence Data Working Session (session head)	Vancouver, BC
2019	*Statistical Classifiers for Identifying Phenotype-Associated Biophysicochemical Motifs in AIRR,* AIRR Community Annual Meeting	Genoa, Italy
2019	*Infectious Disease Ontology*, Think Tank Meeting on the Development of a Codification System for Animal Health Data and its Integration into WAHIS+	Paris, France
2019	*Statistical Classifiers for Identifying Phenotype-Associated Biophysicochemical Motifs in AIRR,* Stochasticity and Control in the Dynamics and Diversity of Immune Repertoires	Haifa, Israel

2020	*Can TCR specificities be predicted?* IMMREP20 – Dynamics of Immune Repertoires: Exploration and Translation, Max Planck Institute for the Physics of Complex Systems (invited, but the event was canceled due to COVID-19)	Dresden, Germany
2021	*Biophysicochemical Motifs in T Cell Receptor Antigen Binding Regions as Potential Biomarkers of Cancer,* AIRR Community Symposium at FOCiS 2021 (Federation of Clinical Immunology Societies)	Virtual due to COVID-19
2021	*Machine Learning on Adaptive Immune Receptor Repertoires for the Discovery of Disease Biomarkers and Predictors of Outcome,* Big Data in Immunology Symposium at FOCiS 2021 (Federation of Clinical Immunology Societies)	Virtual due to COVID-19
2022	*VDJServer Community Data Portal* IMMREP22 – Dynamics of Immune Repertoires: Exploration and Translation, Max Planck Institute for the Physics of Complex Systems (virtual due to COVID-19)	Dresden, Germany
2023	*Intelligent Antibody Discovery,* 22nd Annual Peptalk	San Diego, CA
National		
2003	*Identification of functional cryptic recombination signals in the mouse genome by statistical modeling*; National Institute of Environmental Health Sciences Workshop on Computational Systems Biology	Research Triangle Park, NC
2006	*An Ontological Representation of Phenotypes for Cells of the Immune System*; The Phenotype and Trait Ontology Workshop, organized by the National Center for Biomedical Ontology	Palo Alto, CA
2006	*An Ontology and Reasoning Platform for Studying the Innate Immune Response*; Workshop on Immunology Ontologies hosted by the National Institute of Allergy and Infectious Disease	Bethesda, MD
2007	*An Ontological Representation of Complex Immunological Networks: Computing with Biological Knowledge*; Bioinformatics Summit sponsored by The National Institute of Allergy and Infectious Disease	Gaithersburg, MD

2007	*From the Top Down: The Foundation of Biomedical Ontology*; The Second Biodefense Immune Modeling Summer School, hosted by NIAID	Pittsburgh, PA
2007	*The Infectious Disease Ontology and its Relationship to the Protein Ontology*; The First Protein Ontology Meeting, Georgetown University	Washington, DC
2008	*An Improved Method for the Ontological Representation of Cell Types*; National Institute of Allergy and Infectious Disease Cell Ontology Meeting	Bethesda, MD
2008	*Biomedical Ontology as a Foundation for Data Integration and Computable Representations of Immune Responses*; Program for Research on Immune Modeling and Experimentation (PRIME) Symposium, 3rd Annual Summer School in Computational Immunology, Yale School of Medicine	New Haven, CT
2008	*Biomedical Ontology for Infectious Disease*; Bioinformatics Summit sponsored by The National Institute of Allergy and Infectious Disease	Gaithersburg, MD
2009	*Biomedical Ontology as a Foundation for Data Integration and Computable Representations of Biological Information*; EuPathDB Meeting, University of Pennsylvania	Philadelphia, PA
2011	*An Introduction to Biomedical Ontology (with some examples from immunology);* Quantitative Systems Immunology Summer School (organized by the DAIT Modeling Immunity for Biodefense Centers.)	San Antonio, TX
2011	*Infectious Disease Ontology;* NIAID Bioinformatics Resource Centers Annual Meeting.	Dallas, TX
2012	*NLP-Based Mapping of Textbook Pathology to the Ontology for General Medical Science (OGMS)*; Clinical and Translational Science Ontology Workshop.	Baltimore, MD

2013	*An Introduction to Biomedical Ontology (with some examples from immunology)*; Quantitative Systems Immunology Summer School (organized by the DAIT Modeling Immunity for Biodefense Centers)	Boston, MA
2013	*VDJServer and Ontology-based Data Sharing;* ImmPort Ontology Conference.	Palo Alto, CA
2014	*Immunology Ontologies and the VDJ Repertoire;* ImmPort Science Meeting	Webinar
2017	*The Present State of the Infectious Disease Ontology*. Sixth Annual Workshop of the Clinical and Translational Science Ontology Group—Microbiology for the CTSA: Ontological Approaches.	Ann Arbor, MI,
2019	*Invited Panel Participant,* Defining an Ontological Framework for a Brain Cell Type Taxonomy: Single-Cell-omics and Data-Driven Nomenclature, Allen Institute	Seattle, Washington
2019	*VDJServer: a cloud-based analysis portal and data commons for immune repertoire sequences;* Texas Advanced Computing Center Symposium for Texas Researchers	Austin, TX

Regional/Local

2003	*Hunting for genomic fossils: prospective identification of functional cryptic recombination signals in the mouse genome by statistical modeling*; Bioinformatics Seminar, Department of Statistics, North Carolina State University	Raleigh, NC
2006	*An Ontology and Reasoning Platform for Studying the Innate Immune Response*; Structural Informatics Group, University of Washington	Seattle, WA
2006	*Ontology in the Fight Against Bugs: the Future of Vaccine Design*; Public Lectures Showcase Series in Ontology, Bioinformatics, and the Life Sciences, National Center for Ontological Research	Buffalo, NY
2008	*Probability Models of Nucleotide Correlations in DNA Binding Motifs;* Georgia Institute of Technology Department of Mathematics Seminar	Atlanta, GA

2009	*Improving Clinical Care by Computing with Structured Information*; UT Southwestern Medical Center, Department of Clinical Sciences Seminar Series	Dallas, TX
2010	*The Infectious Disease Ontology as a Foundation for the Integration, Analysis, and Interpretation of Infectious Disease Data*; Virginia Bioinformatics Institute.	Blacksburg, VA
2012	*Infectious Disease Ontology*; Problems in Ontology Graduate Seminar, National Center for Ontological Research, University at Buffalo.	Buffalo, NY
2013	*VDJServer and Ontology-based Data Sharing*; ImmPort Data Submission Workshop at Rho Federal Systems Division.	Raleigh, NC
2015	*Informatics Systems for Secondary Use of Clinical Data at UT Southwestern;* UT Southwestern Medical Center, Faculty Assembly for the School of Health Professions	Dallas, TX
2015	*VDJServer, an immune repertoire data management and analysis portal*, Adaptive Biotechnologies	Seattle, WA
2016	*Secondary Use of Clinical Data for Research,* UT Southwestern Effective Teacher Series	Dallas, TX
2018	*Identifying Tumor-associated T cell Receptors for Cancer Diagnosis and Treatment,* Hamon Center for Therapeutic Oncology Research, UT Southwestern Medical Center	Dallas, TX
2018	*Identifying Tumor-associated T cell Receptors for Cancer Diagnosis and Treatment,* Duke University Medical Center, Department of Immunology	Durham, NC
2018	*Identifying Tumor-associated T cell Receptors,* RCC SPORE Conference, UT Southwestern Medical Center	Dallas, TX

Technological and Other Scientific Innovations

Biochemical motif in CDR3 of antibody sequences diagnoses patients with relapsing-remitting multiple sclerosis
UTSD #3176, filed May 12, 2017

Methods for reconstituting t cell selection and uses thereof
UTSD #3851, filed March 15, 2021

Service to the Community

Year(s)	Role	Organization or institution
May include a brief, one-sentence description of each role if needed (optional)		
2005-2010	The George H. Hitchings New Investigator Award in Health Research Selection Committee The Gertrude B. Elion Mentored Medical Student Research Award Selection Committee	Triangle Community Foundation (Duke University Representative)
2017	Fostering Innovative Translational Research Panel: Cancer Prevention and Treatment Delivery in our Community (Panel Member)	Southwestern Academy of Teachers (UTSW)

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Peer-Reviewed Publications *(List in chronological order with complete pagination. Authors should be listed in the same order as they appear in the published article.)*

Original Research Articles

1.	**L. G. Cowell**, L. B. Crowder, and T. B. Kepler, "Density-Dependent Prenatal Androgen Exposure as an Endogenous Mechanism for the Generation of Cycles in Small Mammal Populations," *Journal of Theoretical Biology,* 190 (1998), 93-106.
2.	**L. G. Cowell**, T. B. Kepler, M. Janitz, R. Lauster, and N. A. Mitchison, "The Distribution of Variation in Regulatory Gene Segments, as Present in MHC Class II Promoters," *Genome Research,* 8 (1998), 124-34.
3.	S. L. Diamond, L. B. Crowder, and **L. G. Cowell**, "Catch and Bycatch: The Qualitative Effects of Fisheries on Population Vital Rates of Atlantic Croaker," *Transactions of the American Fisheries Society,* 128 (1999), 1085-105.

4.	**L. G. Cowell**, H. J. Kim, T. Humaljoki, C. Berek, and T. B. Kepler, "Enhanced Evolvability in Immunoglobulin V Genes under Somatic Hypermutation," *Journal of Molecular Evolution,* 49 (1999), 23-26.
5.	**L. G**. Cowell, and T. B. Kepler, "The Nucleotide-Replacement Spectrum under Somatic Hypermutation Exhibits Microsequence Dependence That Is Strand-Symmetric and Distinct from That under Germline Mutation," *Journal of Immunology,* 164 (2000), 1971-76.
6.	S. L. Diamond, **L. G. Cowell**, and L. B. Crowder, "Population Effects of Shrimp Trawl Bycatch on Atlantic Croaker," *Canadian Journal of Fisheries and Aquatic Sciences,* 57 (2000), 2010-21.
7.	M. Oprea, **L. G. Cowell**, and T. B. Kepler, "The Targeting of Somatic Hypermutation Closely Resembles That of Meiotic Mutation," *Journal of Immunology,* 166 (2001), 892-99.
8.	**L. G. Cowell**, M. Davila, T. B. Kepler, and G. Kelsoe, "Identification and Utilization of Arbitrary Correlations in Models of Recombination Signal Sequences," *Genome Biology,* 3 (2002), RESEARCH0072.
9.	H. E. Liang, L. Y. Hsu, D. Cado, **L. G. Cowell**, G. Kelsoe, and M. S. Schlissel, "The "Dispensable" Portion of RAG2 Is Necessary for Efficient V-to-DJ Rearrangement During B and T Cell Development," *Immunity,* 17 (2002), 639-51.
10.	**L. G. Cowell**, M. Davila, K. Y. Yang, T. B. Kepler, and G. Kelsoe, "Prospective Estimation of Recombination Signal Efficiency and Identification of Functional Cryptic Signals in the Genome by Statistical Modeling," *Journal of Experimental Medicine,* 197 (2003), 207-20.
11.	A.I. Lee, S. D. Fugmann, **L. G. Cowell**, L. M. Ptaszek, G. Kelsoe, and D. G. Schatz, "A Functional Analysis of the Spacer of V(D)J Recombination Signal Sequences," *Plos Biology,* 1 (2003), 56-69.
12.	**L. G. Cowell**, M. Davila, D. Ramsden, and G. Kelsoe, "Computational Tools for Understanding Sequence Variability in Recombination Signals," *Immunological Reviews,* 200 (2004), 57-69.
13.	S. A. Fadel, **L. G. Cowell**, S. Cao, D. A. Ozaki, T. B. Kepler, D. A. Steeber, and M. Sarzotti, "Neonate-Primed CD8+ Memory Cells Rival Adult-Primed Memory Cells in Antigen-Driven Expansion and Anti-Viral Protection," *International Immunology,* 18 (2006), 249-57.
14.	J. M. Murray, J. P. O"Neill, T. Messier, J. Rivers, V. E. Walker, B. McGonagle, L. Trombley, **L. G. Cowell**, G. Kelsoe, F. McBlane, and B. A. Finette, "V(D)J Recombinase-Mediated Processing of Coding Junctions at Cryptic Recombination Signal Sequences in Peripheral T Cells During Human Development," *Journal of Immunology,* 177 (2006), 5393-404.

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16.	C. Touvrey, **L. G. Cowell**, A. E. Lieberman, P. N. Marche, E. Jouvin-Marche, and S. M. Candeias, "Reassignment of the Murine 3' TRDD1 Recombination Signal Sequence," *Immunogenetics,* 58 (2006), 895-903.
17.	J. M. Volpe, **L. G. Cowell**, and T. B. Kepler, "SoDA: Implementation of a 3d Alignment Algorithm for Inference of Antigen Receptor Recombinations," *Bioinformatics,* 22 (2006), 438-44.
18.	M. Davila, F. Liu, **L. G. Cowell**, A. E. Lieberman, E. Heikamp, A. Patel, and G. Kelsoe, "Multiple, Conserved Cryptic Recombination Signals in VH Gene Segments: Detection of Cleavage Products Only in Pro B Cells," *The Journal of Experimental Medicine,* 204 (2007), 3195-208.
19.	A.E. Lieberman, M. Kuraoka, M. Davila, G. Kelsoe, and **L. G. Cowell**, "Conserved Cryptic Recombination Signals in Vκ Gene Segments Are Cleaved in Small Pre-B Cells," *BMC Immunology,* 10 (2009), 37.
20.	A.M. Masci, C. N. Arighi, A. D. Diehl, A. E. Lieberman, C. Mungall, R. H. Scheuermann, B. Smith, and **L. G. Cowell**, "An Improved Ontological Representation of Dendritic Cells as a Paradigm for All Cell Types," *BMC Bioinformatics,* 10 (2009), 70.
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23.	D. Diehl, A. D. Augustine, J. A. Blake, **L. G. Cowell**, E. S. Gold, T. A. Gondre-Lewis, A. M. Masci, T. F. Meehan, P. A. Morel, A. Nijnik, B. Peters, B. Pulendran, R. H. Scheuermann, Q. A. Yao, M. S. Zand, and C. J. Mungall, "Hematopoietic Cell Types: Prototype for a Revised Cell Ontology," *Journal of Biomedical Informatics,* 44 (2011), 75-9.
24.	Goldfain, B. Smith, and **L. G. Cowell**, "Towards an Ontological Representation of Resistance: The Case of MRSA," *Journal of Biomedical Informatics,* 44 (2011), 35-41.

25.	T. F. Meehan, A. M. Masci, A. Abdulla, **L. G. Cowell**, J. A. Blake, C. J. Mungall, and A. D. Diehl, "Logical Development of the Cell Ontology," *BMC Bioinformatics,* 12 (2011), 6.
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29.	S. Lozano-Fuentes, A. Bandyopadhyay, **L. G. Cowell**, A. Goldfain, and L. Eisen, "Ontology for Vector Surveillance and Management," *Journal of Medical Entomology*, 50 (2013), 1-14.
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[5] Currently published in Clinical Lung Cancer, not on PubMed as of March 30, 2023.

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