

Infection Research Initiative Projects Funded in 2018 and 2019

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KEY


 Understanding CF Microorganisms

 Improving Detection and Diagnosis










 Optimizing Current Treatments

 The Future of CF Infection

 Evaluating Long-Term Antimicrobial Use

 Developing New Treatments

Pseudomonas 2019

Area of Focus	Project Title	Principal Investigator	Institution
	A framework for evaluation of P. aeruginosa CF infection models	Marvin Whiteley	Georgia Tech Research Corporation
	Bacterial aggregate formation and tolerance in the CF lung	Sophie Elizabeth Darch	University of South Florida
	Combination drug screen to tackle difficult-to-treat CF lung infections	Rabindra Tirouvanziam	Emory University
	Competition for Zinc in CF Lung Disease	Deborah A. Hogan	Trustees of Dartmouth College
	Development of Gene-Silencing Therapeutics for Pseudomonas aeruginosa	David E. Greenberg	The University of Texas Southwestern Medical Center
	Effective and evolutionarily robust antibiotic-adjuvant therapies	Sam Brown	Georgia Tech Research Corporation
	Functionality of CdrA in Pseudomonas aeruginosa biofilms	Courtney Reichhardt	University of Washington
	Genetically unstable antibiotic resistance in Pseudomonas aeruginosa	Colin C. Manoil	University of Washington
	Identifying Collateral Sensitivity Networks and Associated Genetic Markers	Todd Steck	The University of North Carolina at Charlotte

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●	Improving the success of Pseudomonas aeruginosa eradication therapy in CF	Valerie Waters	The Hospital for Sick Children
●	Inactivation of PDE4B Protects From P. Aeruginosa-Induced Lung Injury	Lina Abou Saleh	University of South Alabama
●	Novel Photochemical Nitric Oxide Gas Generator for Killing Biofilm Bacteria	Umadevi Sajjan	Temple University of the Commonwealth System of Higher Education
●	P. aeruginosa siRNA-59370 inhibits the antiviral response of HBEC	Rebecca Clogston	Trustees of Dartmouth College
●	Pharmacokinetics of Polymyxin B in Adult Patients with Cystic Fibrosis	Shijing Jia	The Regents of the University of Michigan
●	Population-level MLST to identify bacterial strains in CF infections	Pradeep K Singh	University of Washington
●	QS drives Pseudomonas aggregation and tobramycin failure in CF sputum	Matthew C. Wolfgang	The University of North Carolina at Chapel Hill
●	Quorum sensing antiactivators in cystic fibrosis isolates of P. aeruginosa	Tami Sadusky	University of Washington
●	Quorum sensing in Pseudomonas aeruginosa chronic CF infections	Kyle Lowe Asfahl	University of Washington
●	Role of membrane microdomains in cystic fibrosis	John W Hanrahan	McGill University
●	Study of P. aeruginosa diversity in CF lung infections using target capture	Snehal Joshi	University of Washington
●	Suppressors of mucA essentiality in Pseudomonas Aeruginosa	Boo Shan Tseng	Board of Regents Nevada System of Higher Education
●	The impact of transcription associated mutagenesis on antibiotic resistance	Houra Merrikh	Vanderbilt University
●	Understanding pathogen metabolism for combating tobramycin tolerance	Melanie Spero	California Institute of Technology

Pseudomonas 2018

Area of Focus	Project Title	Principal Investigator	Institution
●	Development of a multivalent acellular vaccine against P. aeruginosa	Mareitte Barbier	West Virginia University
●	Improving P. aeruginosa detection in non-expectorators via breath testing	Jane Hill	Dartmouth College
●	Mapping Orkambi impact on pathogen trajectories in patients	Jennifer Bartell	Danmarks Tekniske Universitet

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○	A novel B-ENaC mouse model of cystic fibrosis lung infection	Robert Ernst	University of Maryland, Baltimore
○	Azithromycin-tobramycin antagonism in <i>Pseudomonas aeruginosa</i>	Colin Manoil	University of Washington
○	Can <i>Pseudomonas aeruginosa</i> 's evolutionary path be reversed?	Soeren Molin	Danmarks Tekniske Universitet
○	Investigation of a Critical Signaling Pathway in <i>Pseudomonas aeruginosa</i>	Michael Gebhardt	Boston Children's Hospital
○	Macrolide activity in CF	Pradeep Singh	University of Washington
○	Mechanistically Disentangling the Infected, Inflamed Lung in CF	Lael Yonker	Massachusetts General Hospital
○	Microbial adaptation of PA lipid A structure in CF airway disease progress	Robert Ernst	University of Maryland, Baltimore
○	Novel Host-Pathogen Interactions in the Airway Epithelium	Lina Saleh	University of South Alabama
○	<i>P. aeruginosa</i> induced mitochondrial dysfunction in cystic fibrosis epithelium	Ruxana Sadikot	Emory University
○	Pharmacology of CFTR bicarbonate transport in Cystic Fibrosis	Reddy Madireddi	University of California, San Diego
○	<i>Pseudomonas aeruginosa</i> dynamics in the cystic fibrosis lung	Stephen Diggle	Georgia Tech
○	<i>Pseudomonas aeruginosa</i> adaptation to Cystic Fibrosis chronic lung infection	Wendy Chavez	University of Liverpool
○	Regulation of EF - Tu lysine trimethylation by <i>P. aeruginosa</i> EftM	Debayan Dey	Emory University
○	Regulation of <i>P. aeruginosa</i> virulence by sRNAs during CF lung infections	Giulia Oliva	Harvard Medical School
○	The impact of <i>P. aeruginosa</i> population dynamics on pulmonary exacerbations	Sheyda Azimi	Georgia Tech

NTM 2019

Area of Focus	Project Title	Principal Investigator	Institution
○	Bedaquiline for <i>M. abscessus</i> lung infection (BDQ)	Amalia Magaret	Seattle Children's Hospital
○	Characterizing the DosR Virulence Regulon in <i>Mycobacterium abscessus</i>	George Anthony Walters-Marrah	University of Central Florida Research Foundation
○	Clinical Response to <i>Mycobacterium Avium</i> Complex in Cystic Fibrosis	Derek Low	Regents of the University of Colorado

Infection Research Initiative Projects Funded in 2018 and 2019

●	Controlling the switch between environmental & virulence programs of NTM	Jonathan Budzik	The Regents of the University of California, San Francisco
●	Ecological Epidemiology of Nontuberculous Mycobacterial Infections	Ettie Lipner	National Jewish Health
●	Finding the Optimal Regimen for Mycobacterium Abscessus Treatment (FORMAT)	Claire Wainwright	The University of Queensland
●	Genetic Basis of an Environmental Survival Phenotype for M. abscessus	Jerry A Nick	National Jewish Health
●	In-host Adaptation of Nontuberculous Mycobacteria in Cystic Fibrosis	Paul Planet	The Children's Hospital of Philadelphia
●	In-host Adaptation of Nontuberculous Mycobacteria in Cystic Fibrosis	Jennifer Bouso	The Children's Hospital of Philadelphia
●	Links in Transmission of Nontuberculous Mycobacteria in Patients with CF	Jane Gross	National Jewish Health
●	Mechanisms of immune evasion by Mycobacterium abscessus	Ken Malcolm	National Jewish Health
●	Novel therapeutic strategies to combat resistance in M. abscessus	Robert Bonomo	Case Western Reserve University
●	NTM infection in cystic fibrosis: acquisition and transmission	Scott Cameron Bell	The Council of the Queensland Institute of Medical Research
●	Pathogenesis of Mycobacterium abscessus Reinfection	Diane Ordway	Colorado State University, Cashier's Office
●	Repurposing beta-lactams to treat M. abscessus complex strains	Barry Kreiswirth	HMH Hospitals Corporation
●	Structure of NTM Cell Wall and Interaction with Antibiotics	Jasna Brcic	Board of Trustees of the Leland Stanford Junior University
●	Therapeutic potential of a repurposed drug inhibiting NTM biofilm formation	Mary Jackson	Colorado State University, Cashier's Office
●	Vitamin D deficiency and risk of NTM pulmonary infection in cystic fibrosis	Yuqing Sun	The Johns Hopkins University

NTM 2018

Area of Focus	Project Title	Principal Investigator	Institution
●	A drug discovery platform for nontuberculous mycobacteria	Tanya Parish	Infectious Disease Research Institute



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●	Development of preclinical 'persister' assays for NTM drug discovery	Thomas Dick	State University of New Jersey, Rutgers
●	Discovery of therapeutics to treat non-tuberculous mycobacterial infections	Jeffrey North	Creighton University
●	Gallium-NTM: A Phase 1b, Multi-center, Randomized, Placebo-Controlled Study of IV Gallium Nitrate in Patients with CF (Gallium NTM)	Christopher Goss	Seattle Children's Hospital
●	Nitric Oxide for the Treatment of Non-Tuberculous Mycobacteria	Patrick Flume	Medical University of South Carolina
●	Cross-platform Comparison of Novel Markers of NTM in the CF Airway	Jerry Nick	National Jewish Medical and Research Center
●	Macrophage responses to Mycobacterium abscessus infection in CF	Luanne Hall-Stoodley	The Ohio State University
●	Mechanisms of Intrinsic Drug Resistance in Mycobacterium Abscessus	Pallavi Ghosh	Health Research, Inc./ New York State Department of Health
●	Molecular triggers of persistent M. avium infections in cystic fibrosis	Nancy Woychik	State University of New Jersey, Rutgers
●	Mycobacterium abscessus biofilms	Mary Jackson	Colorado State University
●	Non-tuberculous mycobacteria infection in CF: a new path for therapy	Rabindra Tirouvanziam	Emory University
●	Role of GM-CSF in impaired macrophage clearance of Mycobacterium abscessus	Yinduo Ji	University of Minnesota
●	Subverting antibiotic tolerance mechanisms in Mycobacterium abscessus	Cara Boutte	University of Texas at Arlington
●	Understanding WhiB7-mediated multidrug resistance in M. abscessus	Kyle Rohde	University of Central Florida
●	Xenophagy and clearance of nontuberculous mycobacteria in CF macrophages	Luanne Hall-Stoodley	The Ohio State University

S. aureus/MRSA 2019

Area of Focus	Project Title	Principal Investigator	Institution
●	Investigating host-pathogen interactions during MRSA infection	Keenan Lacey	New York University

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S. aureus/MRSA 2018

Area of Focus	Project Title	Principal Investigator	Institution
●	STAR-ter Staph. Aureus Resistance - Treat Early and Repeat	Marianne Muhlebach	University of North Carolina at Chapel Hill
●	Respiration-dependent lysis and biofilm modulation in Staphylococcus aureus	Jeff Boyd	State University of New Jersey, Rutgers
●	S. aureus adaptation to the CF lung	Alice Prince	Columbia University
●	Selection and Persistence of Small Colony Variant S. aureus in the CF Lung	Daniel Wolter	University of Washington
●	Staphylococcus aureus in Cystic Fibrosis Chronic Rhinosinusitis	Tori Valachovic	University of Pittsburgh

Multiple Organisms 2019

Area of Focus	Project Title	Principal Investigator	Institution
●	A new Trojan horse strategy to combat lung infections in Cystic Fibrosis	Andrea Battistoni	University of Rome Tor Vergata
●	Assessing effectiveness of CF Infection Prevention and Control Guidelines	Marianne Muhlebach	The University of North Carolina at Chapel Hill
●	Bacterial gene profiling to antibiotic resistance at pulmonary exacerbation	Milene Saavedra	National Jewish Health
●	COMBATCF	Stephen Stick	The University of Western Australia
●	COMBATCF Ancillary Studies	Stephen Stick	The University of Western Australia
●	Development of a polymicrobial CF infection microbiome model	Sam Brown	Georgia Tech Research Corporation
●	Drug, Dose, and Duration-Modifying Antibiotic Regimens to Manage Resistance	Kristofer Wollein-Waldetoft	Georgia Tech Research Corporation
●	Genetic Markers for Susceptibility or Resistance to Ototoxicity	Angela Garinis	Oregon Health & Science University
●	Host and bacterial mechanisms in recovering FEV1 after exacerbations	Milene Saavedra	National Jewish Health

Infection Research Initiative Projects Funded in 2018 and 2019

○	Influence of viral co-infection on bacteria in the CF respiratory tract	Catherine Armbruster	University of Pittsburgh
○	Mechanisms of Staphylococcus aureus and Pseudomonas aeruginosa Co-existence	Joanna B. Goldberg	Emory University
●	Microbial Biomarkers of Pulmonary Exacerbations in Cystic Fibrosis	Zemanick, Edith Towler	Regents of the University of Colorado
○	Modulating interspecies interactions in cystic fibrosis respiratory disease	Dominique Limoli	The University of Iowa
○	Peptide Chemistry for the Development of Novel Antimicrobial Agents	John Albin	The General Hospital Corporation
●	PROMISE-OB-18	Lucas R Hoffman	University of Washington
●	PROMISE-OB-18	Pradeep K. Singh	University of Washington
●	PROMISE-OB-18	David Nichols	Seattle Children's Hospital
○	Re-acquisition of pre-transplant microbiota and lung allograft dysfunction	Bryan Coburn	University Health Network
○	Standardizing treatment of pulmonary exacerbations in pediatrics (STOP-PEDS)	Don Sanders	Indiana University
○	Sub-therapeutic β -lactam Pharmacokinetics Impact the CF Airway Microbiome	Andrea Hahn	Children's Research Institute
○	Use of Antipseudomonal Antibiotics in Pediatric Pulmonary Exacerbations	Amalia Magaret	Seattle Children's Hospital

Multiple Organisms 2018

Area of Focus	Project Title	Principal Investigator	Institution
○	Duel Antimicrobial / Mucolytic Therapeutic for CF	Mark Schoenfisch	University of North Carolina at Chapel Hill
○	Selenocyanate as a novel antimicrobial therapy against CF pathogens	Brian Day	National Jewish Health
●	Predictive Biomarkers for Antibiotic Associated Nephrotoxicity in CF	Pavan Bhatraju	University of Washington
○	Early epidemiology and succession of CF airway microbiota	Jonathan Harris	University of Colorado at Denver

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○	Interbacterial interactions as a driver of evolution during cystic fibrosis	Moraes Marcos de	University of Washington
○	Modulating interspecies interactions in cystic fibrosis respiratory disease	Dominique Limoli	The University of Iowa
○	Monitoring Risk-Adjusted Incidence Rates of MRSA and P. aeruginosa	William Stoudemire	University of North Carolina at Chapel Hill
○	Opportunistic infections in cystic fibrosis	William Swords	The University of Alabama at Birmingham
○	Polymicrobial interactions in the CF respiratory tract	Jennifer Bomberger	University of Pittsburgh
○	Pseudo aeruginosa and Staph aureus Proteases and Toxins in CF exacerbations	John Spurzem	University of Mississippi Medical Center

Burkholderia cepacia 2019

Area of Focus	Project Title	Principal Investigator	Institution
○	Burkholderia cenocepacia inhibition of Staphylococcus aureus biofilms	Deborah R. Yoder-Himes	University of Louisville
○	Burkholderia infection in CFTR macrophages: actin remodeling & inflammation	Miguel A. Valvano	The Queen's University Belfast
○	CDI-mediated toxin delivery in the CF pathogen Burkholderia dolosa	Jessica Beauchamp	University of North Carolina at Chapel Hill
○	Prevalence and mechanisms of heteroresistance in B. cepacia complex	Joann C. Franco	Emory University
●	Reevaluating antibiotic susceptibility testing methods for Burkholderia	Peter Allan Jorth	Cedars-Sinai Medical Center

Burkholderia cepacia 2018

Area of Focus	Project Title	Principal Investigator	Institution
○	Antibiotic discovery for Burkholderia cepacia complex	Silvia Cardona	The University of Manitoba



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●	Burkholderia cenocepacia inhibition of Staphylococcus aureus biofilms	Deborah R. Yoder-Himes	University of Louisville
●	T6SS-mediated interbacterial competition by Burkholderia cenocepacia	Peggy Cotter	University of North Carolina at Chapel Hill

Viral 2019

Area of Focus	Project Title	Principal Investigator	Institution
●	Exacerbations of influenza secondary infections in cystic fibrosis.	Kevin Harrod	The University of Alabama at Birmingham
●	Effect of bacterial short RNAs on viral infection and the CF immune system	Victoria Holden	Dartmouth College
●	Impact of Respiratory Viruses on Bacterial Communities in Cystic Fibrosis	Megan Kiedrowski	University of Pittsburgh

Viral 2018

Area of Focus	Project Title	Principal Investigator	Institution
●	Can Virus Infection Trigger CF Airway Disease in CFTR-null Rabbits?	Raymond Pickles	University of North Carolina at Chapel Hill
●	Effect of bacterial short RNAs on viral infection and the CF immune system	Victoria Holden	Dartmouth College
●	Impact of Respiratory Viruses on Bacterial Communities in Cystic Fibrosis	Megan Kiedrowski	University of Pittsburgh

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Bacteriophage/Phage Therapy 2019

Area of Focus	Project Title	Principal Investigator	Institution
●	Bacteriophage therapy for relief of Mycobacterium abscessus infection in CF	Graham Hatfull	University of Pittsburgh
●	Evolving antibiotic susceptibility from multi-drug resistant pathogens	Hans Wildschutte	Bowling Green State University
●	Investigating Bacteriophages to Treat Cystic Fibrosis Lung Infections	Jonathan Louis Koff	Yale University
●	Using phages to target virulence of MDR P. aeruginosa lung infections	Paul Turner	Yale University

Bacteriophage/Phage Therapy 2018

Area of Focus	Project Title	Principal Investigator	Institution
●	Center for Innovative Phage Applications and Therapeutics (IPATH)	Steffanie Strathdee	University of California, San Diego


Fungal 2019

Area of Focus	Project Title	Principal Investigator	Institution
●	CFTR Modulators Impact Aspergillosis Disease Progression	Robert Cramer	Trustees of Dartmouth College



Infection Research Initiative Projects Funded in 2018 and 2019

Other 2019

Area of Focus	Project Title	Principal Investigator	Institution
	Optimizing the therapy of CF patients with <i>Stenotrophomonas maltophilia</i>	Eric Wenzler	Board of Trustees of the University of Illinois