CURRICULUM VITAE (June 2024)

Andreas G. S e y f a n g, Ph.D.
Professor

Department of Molecular Medicine, MDC 7
Morsani College of Medicine
University of South Florida
12901 Bruce B. Downs Blvd.
Tampa, FL 33612

Phone: 813.974.2332
Mobile: 813.388.0308
E-mail: seyfang@usf.edu
https://www.LinkedIn.com/pub/andreas-seyfang/1b/964/bb1
https://www.ResearchGate.net/profile/Andreas_Seyfang
http://ExpertNet.org/index.cfm?fuseaction=experts.details&id=112246

Academic Appointments

Professor
(assigned effort: *70% Teaching*, *20% Research, 10% Service*)

Primary Appointment:
USF Morsani COLLEGE OF MEDICINE
• **Department of Molecular Medicine**; July 2005 – present

Joint Appointments:
USF Morsani COLLEGE OF MEDICINE
• **Department of Neurosurgery** –
Center of Excellence for Aging & Brain Repair; 2005 – present
• **Department of Internal Medicine** –
Division of Infectious Diseases and International Medicine; 2006 – present
• **School of Physical Therapy & Rehabilitation Sciences**; 2014 – present

USF COLLEGE OF PUBLIC HEALTH
• **Department of Global Health**; 2006 – present

Academic and Scholarly Affiliations

• Senator, **USF Faculty Senate**; 2007 – 2013 (two terms)
• Member, **USF Signature Interdisciplinary Program in Allergy, Immunology & Infectious Disease (SIPAIID)**; 2006 – present
• Member, **USF Signature Interdisciplinary Program in Neuroscience (SIPIN)**; 2006 – present
• Member, **H. Lee Moffitt Cancer Center & Research Institute** – Molecular Oncology; 2006 – present
• Member, **Florida Center of Excellence for Drug Discovery and Innovation (CDDI)**; 2007 – 2018
• Member, **USF Center for Global Health and Infectious Disease Research (GHIDR)**; 2018 – present
• Member/Mentor; USF College of Medicine **Scholarly Concentration in International Medicine**; 2007 – present

Index

1. ACADEMIC EDUCATION

1983 **B.Sc.** in **Biology**, **University of Tübingen** (Tübingen, Germany)

1984 – 1985 **Duke University** (Durham, NC),
exchange student in Zoology, Medical Parasitology
Research project with Dr. Andrew E. BALBER (Department of **Microbiology & Immunology**, Duke University Medical Center)

06/85 – 09/85 **Duke University Marine Laboratory** (Beaufort, NC),
Marine Ecology summer student

1989 **M.Sc.** in **Parasitology/Zoology**, **University of Tübingen**
(Minors: **Microbiology**, **Physiology**; **Egyptology**),

Master's thesis with Dr. Michael DUSZENKO:
"**Degradation, Recycling and Shedding of the Variant Surface Glycoproteins in *Trypanosoma brucei*.**" (1 first-author paper, 1 second-author book chapter)

1991 9-week Summer Course "**Biology of Parasitism: Modern Approaches**" at the Marine Biological Laboratory (Woods Hole, MA)

1993 **Ph.D.** in **Biochemistry** with *magna cum laude*, **University of Tübingen**

Doctoral thesis with Dr. Michael DUSZENKO (Department of Biochemistry):
"**Isolation and Characterization of the Glucose Transporter from *Trypanosoma brucei.***" (2 first-author papers, 1 second-author paper, 1 co-author review paper)

1993 – 1995 **Postdoctoral Research Fellow** with Dr. Théo BALTZ,
Department of **Molecular Parasitology/CNRS**,
Université de Bordeaux (Bordeaux, France)

1995 – 1999 **Postdoctoral Research Fellow** with Dr. Scott M. LANDFEAR,
Department of **Molecular Microbiology & Immunology**,
Oregon Health Sciences University (Portland, OR)

2003 2-day NSF-MID workshop "**Instructional Change in Chemistry**" at Emory University (Atlanta, GA); NSF *Multi-Initiative Dissemination Project* workshop series

2012 5-day course "**Essential Skills in Medical Education**" offered jointly by the *International Association for Medical Science Educators* (IAMSE) and the *Association for Medical Education in Europe* (AMEE) in Portland, OR

2018 1-semester **USF Online Instructor Certification course** (OIC F2018, completion of "*USF Certified Online Educator*"), Fall semester

2. ACADEMIC POSITIONS HELD

1983 – 1984 *Teaching assistant* in **Biomathematics** with Dr. Peter HADELER (Department of Biomathematics, University of Tübingen, Germany) for the courses "*Mathematics for Biologists, I and II*"

1984 – 1985 *Research assistant* in **Microbiology** with Dr. Andrew BALBER, Department of Microbiology & Immunology, Duke University Medical Center (Durham, NC)

1987 – 1993 *Teaching assistant* in **Biochemistry** with Dr. Dieter MECKE, University of Tübingen for the Medical School course "*Biochemistry for Medical Students*" (including wet lab)

1993 – 1995 *Postdoctoral Research Fellow* with Dr. Théo BALTZ, Department of **Molecular Parasitology**, Université de Bordeaux (Bordeaux, France)

1995 – 1999 *Postdoctoral Research Fellow* with Dr. Scott LANDFEAR, Department of **Molecular Microbiology & Immunology**, Oregon Health Sciences University (Portland, OR)

1999 – 2005 *Assistant Professor* in the Department of **Biochemistry & Molecular Biology**, School of Medicine, and the Department of **Oral Biology & Maxillofacial Pathology**, School of Dentistry, Medical College of Georgia (Augusta, GA)

2000 – 2005 *Graduate Faculty* in the **School of Graduate Studies**, Medical College of Georgia

2004 – 2005 *Research Biochemist* in the Division of **Infectious Diseases**/Research (24), Augusta Veterans Affairs Medical Center (Augusta, GA)

2005 – 2013 *Assistant Professor* in the **Department of Molecular Medicine**, *Morsani College of Medicine*, University of South Florida (Tampa, FL)

2013 – 2020 *Associate Professor* in the **Department of Molecular Medicine**, *Morsani College of Medicine*, University of South Florida (Tampa, FL)

2020 – present *Professor* in the **Department of Molecular Medicine**, *Morsani College of Medicine*, University of South Florida (Tampa, FL)

Joint Appointments:

2005 – present *Assistant/Associate/Full Professor* in the Department of **Neurosurgery- Center of Excellence for Aging & Brain Repair**

2006 – present *Assistant/Associate/Full Professor* in the Department of **Internal Medicine- Division of Infectious Diseases & International Medicine**

2006 – present *Assistant/Associate/Full Professor* in the Department of **Global Health**, *College of Public Health*, USF (Tampa, FL)

2014 – present *Associate/Full Professor* in the **School of Physical Therapy & Rehabilitation Sciences**, *Morsani College of Medicine*, USF (Tampa, FL)

3. AWARDS AND HONORS

1984 – 1985	Scholarship of the **German Academic Exchange Service (DAAD)** for the Duke University Master's exchange program
06/85 – 09/85	Scholarship of the **Duke University Marine Laboratory** for the summer course program at Duke Marine Lab
06/91 – 08/91	Scholarship of the ***Boehringer Ingelheim Fonds*** for the MBL Woods Hole, MA, course "Biology of Parasitism: Modern Approaches"
1993	**Ph.D. in Biochemistry with *magna cum laude***, University of Tübingen
1993 – 1994	Fellowship of the **European Molecular Biology Organization (EMBO)**, Postdoc at University of Bordeaux (France)
1994 – 1995	Fellowship of the ***Fondation pour la Recherche Médicale,*** Postdoc at University of Bordeaux (France)
1995 – 1997	Fellowship of the ***Alexander von Humboldt*** **Foundation**, Postdoc at Oregon Health Sciences University (Portland, OR)
1997 – 1999	Fellowship of the **American Heart Association, Oregon Chapter**, Postdoc at Oregon Health Sciences University (Portland, OR)
1998	Award for best poster presentation, **Canadian Society of Biochemistry and Molecular & Cellular Biology** ("Membrane Proteins in Health and Disease", April 2-5, 1998 in Banff, Alberta)
2004	Selection as MCG's selected exclusive representative for the **Georgia Life Sciences Summit 2004** (summit for biotechnology, industry, academia, government & venture capital finance; September 22, 2004, in Atlanta) with the patent application "Multiple Site-Directed Mutagenesis of More Than 10 Sites Simultaneously."
2009	***Robert J. Grasso Award*** **for Outstanding Dedication to Graduate Education**, USF College of Medicine
2012	Award for best poster presentation, **IAMSE Annual Conference**, June 23-26, 2012 in Portland,OR
2015	Recognition of **Outstanding Dedication to Teaching**, USF Morsani College of Medicine
2017	**Outstanding Freshman Instructor Award**, USF Morsani College of Medicine - Second-year MD student class
2017	**Outstanding Pre-Clinical Teaching Award**, USF Morsani College of Medicine - Third-year MD student class
2019	**Outstanding Freshman Instructor Award**, USF Morsani College of Medicine - Second-year MD student class
2019	**Graduate Program in Integrated Biomedical Sciences (GPIBS) Award for Excellence in Teaching**, USF Morsani College of Medicine - PhD and Master's graduate students

2022 **Distinguished Educator Award**, USF Morsani College of Medicine – *Academy of Distinguished Educators*

2023 **Outstanding Freshman Instructor Award**, USF Morsani College of Medicine - Second-year MD student class

4. MEMBERSHIP IN PROFESSIONAL AND SCIENTIFIC SOCIETIES

- American Society for Microbiology (ASM)
- American Society for Biochemistry and Molecular Biology (ASBMB)
- Society for Neuroscience (SfN)
- American Association for the Advancement of Science (AAAS)
- International Association of Medical Science Educators (IAMSE)
- Association of Biochemistry Educators (ABE)

5. SCIENTIFIC GRANT AND JOURNAL REVIEW

SCIENTIFIC GRANT REVIEWER FOR

2003	**US Department of Agriculture** (USDA-NRI) Competitive Grants Program, Animal Health & Well-Being Program (Program director: Dr. Peter J. Johnson)
2004 – 2007	**American Heart Association**, Southern & Ohio Valley Study Section 4B (Cell Transport & Metabolism; Immunology & Microbiology) (SRA: Tammy Hill)
2004	**USUHS** (Uniformed Services University of the Health Sciences) Intramural Research Program (SRA: Dr. Ruth Grossman)
2004	**The Wellcome Trust**, London (Infection & Immunology panel) (Scientific Programme Officer: Dr. Karen Noble)
2005 – 2006	**Louisiana Board of Regents/National Science Foundation** grant review (SRAs: Rachel Patterson and Carrie Robison)
2007	**US Department of Veterans Affairs**, Research & Development Program
2008 – 2012	**American Heart Association**, Study Section R2 (Immunology & Virology; Microbiology/Microbial Pathogenesis) (SRA: Kay Roberts)
2009	**Swiss National Science Foundation** (SNSF) grant review
2013 – 2017	**American Heart Association**, Study Sections Microbiology BSc1 and BSc2 (Spring and Fall cycle; SRA: Karen Atherton)
2019	**The Wellcome Trust/Department of Biotechnology India Alliance** grant review
2020	**Medical Research Council** (MRC), United Kingdom, grant review
2020	**Engineering and Physical Sciences Research Council** (EPSRC), United Kingdom, grant review

INTERNATIONAL JOURNAL REVIEWER FOR

- *BioTechniques*
- *Infection and Immunity*
- *Journal of Medicinal Plants*
- *Journal of Medicinal Plant Research*
- *Journal of Neuroscience Methods*
- *Journal of Parasitology*
- *Journal of Physiology*
- *Neuropsychopharmacology*
- *Nucleic Acids Research*
- *Parasitology Today*
- *PLoS ONE*
- *Proceedings of the National Academy of Sciences, U.S.A.*
- *Vaccine*

6. GRANT SUPPORT

submitted 38 grant proposals at USF (12 as PI, 26 as Co-PI/Co-I), 8 of which were funded (5 as PI, 3 as Co-I)

• ***SUBMITTED GRANT SUPPORT:***
"IDEvAI: Integrative Disease Ecology via Artificial Intelligence"

USF Provost Initiative CREATE Award
PIs: Diego Santiago-Alarcon, USF CAS; Lynn B. Martin, USF Global Health; Rays Jiang, USF Global Health
Co-investigator: Andreas Seyfang
Period: 2024 – 2027

• ***COMPLETED GRANT SUPPORT:***
USF: received $641,606 in total grant support as PI
MCG: received $284,000 in total grant support as PI

1. "Chronic *Toxoplasma gondii*, Pregnancy Reactivation, and Perinatal Depression"

NIH R01 HD086805-01A1 (3rd percentile, Impact Score: 15)
PI: Maureen Groer, USF Health-College of Nursing
Co-investigator: Andreas Seyfang (10% effort)
Amount: $ 3,300,060 total costs
Period: 09/2017 – 08/2022

2. "Pregnancy and the Role of Type I Interferons in Infectivity of Zika Virus in Tissue Culture"

USF Health RFA for Zika Virus Research
PI: Maureen Groer, USF Health-College of Nursing
Co-investigator: Andreas Seyfang
Amount: $ 70,000
Period: 04/2017 – 04/2019

3. "The Impact of Enteral Iron Availability on Intestinal Microbiome and Inflammation in Premature Infants"

USF Women's Health Collaborative Grant
PI: Thao (Tina) Ho, MD, USF-Pediatrics/NICU
Co-investigator: Andreas Seyfang
Amount: $ 15,000
Period: 06/2017 – 06/2018

4. "Characterization of *Candida* Cytochrome b_5 Reductase as Pharmacological Target"

FCoE-BITT SEED Grant
(Florida Center of Excellence for Biomolecular Identification and Targeted Therapeutics)
Amount: $ 75,000 total costs **PI: Andreas Seyfang**
Period: 05/2009 – 12/2011

5. “Biochemical Characterization of Cytochrome b5 Reductase in *Candida albicans*””

NIH/NIAID F31 AI084557-01
Amount: $ 68,606 total costs
Period: 07/2009 - 06/2011
Student: Mary Jolene Holloway
PI/Mentor: Andreas Seyfang

6. “Purification and Characterization of a Transformation Factor Secreted by a Rat Thyroid Tumor Cell Line”

Florida High-Tech Corridor Program (FHT 06-17)
Amount: $ 200,000 total costs
Period: 06/2006 – 06/2011
PI: Andreas Seyfang (40% effort)
Co-PI: Thomas B. Freeman, USF-Neurosurgery

7. “Characterization of a Neurogenesis Stimulating Factor from Human Umbilical Cord Blood Cells by Gene Expression and Proteomic Analysis”

USF Health Signature Interdisciplinary Program in Neuroscience (SIPIN) grant program
Amount: $ 8,000 total costs
Period: 03/2008 – 06/2010
PI: Andreas Seyfang
Co-PI: Alison E. Willing, USF-Neurosurgery

8. “Structure-Function Analysis of *Leishmania* MIT”

NIH/NIAID R21 AI064050-03
Amount: $ 290,000 total costs
Period: 04/2006 – 03/2009
PI: Andreas Seyfang (40% effort)

9. “Pharmacology and Regulation of the *myo*-Inositol Transporter from Trypanosomatids”

American Heart Association, Southeast Affiliate (AHA 0255567B, Grant-in-Aid)
Amount: $ 154,000 total costs
Period: 10/2002 - 06/2005
PI: Andreas Seyfang (30% effort)

10. “Transport of *myo*-Inositol and Fluconazole in the Pathogenic Yeast *Candida albicans*”

MCG Combined Intramural Grants Program
Amount: $ 20,000 total costs
Period: 02/2001 - 01/2002
PI: Andreas Seyfang

11. “Pharmacology and Regulation of the *myo*-Inositol Transporter from *Leishmania*”

American Heart Association, Southeast Affiliate (AHA 0060347B, Beginning-Grant-in-Aid)
Amount: $ 100,000 total costs
Period: 07/2000 - 09/2002
PI: Andreas Seyfang (30% effort)

12. “Functional Characterization of Inositol Transporters from *Leishmania* and Trypanosomes”

MCG Research Institute Grant Award, new principal investigator
Amount: $ 10,000 total costs
Period: 02/2000 - 01/2001
PI: Andreas Seyfang

• ***SUBMITTED GRANT PROPOSALS AT USF:***

1. "Chronic *Toxoplasma gondii*, Pregnancy Reactivation, and Perinatal Depression – COVID-19 Supplement"

NIH R01 HD086805 COVID-19 Supplement
PI: Maureen Groer, USF Health-College of Nursing
Co-investigator: Andreas Seyfang (20% effort)
Amount: $ 1,938,312 estimated total costs
Period: 09/2021 – 08/2022

2. "COVID-19 Modulation of Microbiome in Colorectal Cancer: Role of L-fucose"

NIH R21 CA260300-01
PI: Subhra Mohapatra, USF- Molecular Medicine
Co-PI: Andreas Seyfang
Amount: $ 431,480
Period: 02/2021 – 02/2023

3. "Microbiome and Colorectal Cancer: Impact of COVID-19"

USF Health Microbiome Program Seed Grant
PI: Subhra Mohapatra, USF- Molecular Medicine
Co-PI: Andreas Seyfang
Amount: $ 200,000
Period: 10/2020 – 09/2022

4. "Lung Microbiome and Mucosal Immune Response in Chronic Lung Allograft Dysfunction"

USF Health Microbiome Program Seed Grant
PI: Nirmal Sharma, MD, USF- Advanced Lung Diseases & Lung Transplantation/Internal Medicine
Co-PI: Andreas Seyfang
Amount: $ 200,000
Period: 09/2019 – 08/2021

5. "Microbial Dysbiosis in Chronic Lung Allograft Dysfunction"

NIH/NHLBI R01
PI: Nirmal Sharma, MD, USF- Advanced Lung Diseases & Lung Transplantation/Internal Medicine
Co-investigator: Andreas Seyfang (10% effort)
Amount: $ 2,418,726 estimated total costs
Period: 07/2020 – 06/2025

6. "Microbiome Alteration of Mucosal Immunity in Chronic Lung Allograft Dysfunction"

American Lung Association (ALA) Catalyst Award
PI: Nirmal Sharma, MD, USF- Advanced Lung Diseases & Lung Transplantation/Internal Medicine
Co-investigator: Andreas Seyfang
Amount: $ 100,000
Period: 06/2019 – 05/2021

7. “Microbiome Alteration of Mucosal Immunity in Chronic Lung Allograft Dysfunction”

International Society of Heart & Lung Transplantation (ISHLT) Career Development Award
PI: Nirmal Sharma, MD, USF- Advanced Lung Diseases & Lung Transplantation/Internal Medicine
Co-investigator: Andreas Seyfang
Amount: $ 160,000
Period: 07/2019 – 06/2021

8. “Genetic Predictors of Efficacy of Mindfulness-Based Stress Reduction (MBSR) Treatment in Breast Cancer (BC)”

Anna D. Valentine USF-Moffitt Cancer Research Award
3 Co-PIs: Cecile A. Lengacher (USF Health-College of Nursing), **Andreas Seyfang**, Jong Y. Park (Moffitt Cancer Center)
Amount: $ 50,000 estimated total costs
Period: 01/2015 – 12/2015

9. “Perinatal Depression, Pregnancy and Chronic *Toxoplasma gondii*”

NIH R01 HD071511-01A1 (10th percentile, Impact Score: 20)
PI: Maureen Groer, USF Health-College of Nursing
Co-investigator: Andreas Seyfang (5% effort)
Amount: $ 3,276,179 estimated total costs
Period: 12/2014 – 11/2018

10. “Endothelial Cells for Blood-Brain Barrier Repair in ALS”

NIH R21 NS067453-01 (2011)
PI: Svitlana Garbuzova-Davis, USF-Neurosurgery/Center for Aging & Brain Repair
Co-PI: Andreas Seyfang

11. “USF-India Translational Research Program in Leptospirosis and Respiratory Infections”

NIH/NIAID D43 (2012-2017)
PI: Shyam Mohapatra, USF-Internal Medicine
Co-investigator: Andreas Seyfang

12. “USF Training Program for Drug Discovery in Infectious Diseases”

NIH/NIAID T32 (Training Grant) (2011-2016)
PI: John Adams, USF Health-Global Health (COPH)
Co-investigator: Andreas Seyfang

13. “*Candida* Cytochrome b5 Reductase: Novel Therapeutic Target”

NIH/NIAID R01 AI087928-01 (2010-2015)
PI: Andreas Seyfang
Amount:$ 1,837,500 total costs

14. "Cytochrome b5 Reductase as Novel Therapeutic Target in Leishmaniasis and *Candida* Infections"
DoD-NSSEFF (**N**ational **S**ecurity **S**cience and **E**ngineering **F**aculty **F**ellowship) (2010-2015)
PI: Andreas Seyfang
Amount: $ 2,094,750 total costs

15. "Mechanisms of Endothelial Cell Impairment in a Mouse Model of ALS"
USF Neuroscience Collaborative Seed Grant Program (2010-2011)
Dual PI : Svitlana Garbuzova-Davis, USF-Neurosurgery/Center for Aging & Brain Repair
Dual PI: Andreas Seyfang

16. "The Development of an Animal Model for Ventricular Shunt Infection"
USF Neuroscience Collaborative Seed Grant Program (2010-2011)
Dual PI: Arthur Marlin, MD, USF-Neurosurgery
Dual PI: Andreas Seyfang

17. "Frameworks for Global Health Innovations"
NIH/Fogarty International Center R25 (Research Education Grant) (2010-2013)
PI: Wilbur Milhous, USF Health-Global Health (COPH)
Co-investigator: Andreas Seyfang

18. "Targeting Cytochrome b5 Reductase in *Leishmania* as Novel Therapeutic Target"
NIH/NIAID-CDRF
(RFA: "*Leishmania*: Collaborative Research Opportunities in North Africa and the Middle East")
PI: Andreas Seyfang (2010-2011)
Amount: $ 30,000 total costs

19. "Assessment of Maternal Stress and Black-White Disparity in Fetal Outcomes"
NIH RC1 (2009-2011)
PI: Hamisu Salihu, USF-College of Public Health
Co-PI: David Keefe, USF-Obstetrics & Gynecology
Co-investigator: Andreas Seyfang
Amount: $ 2,000,000 total costs

20. "Obesity and Fetal Health"
NIH R01 (2009-2014)
PI: Hamisu Salihu, USF-College of Public Health
Co-PI: David Keefe, USF-Obstetrics & Gynecology
Co-investigator: Andreas Seyfang
Amount: $ 2,940,000 total costs

21. "Potential of Cord Blood Cells to Rescue Aging Brain"
NIH/NIA R01 AG020927-05 (competitive renewal; 2008-2013)
PI: Alison E. Willing, USF-Neurosurgery/Center for Aging & Brain Repair
Co-PI: Andreas Seyfang
Amount: $ 1,812,500 total costs

22. "Proteomic Analysis of Rat Brain in an Animal Model of PTSD"
NARSAD Distinguished Investigator Award (2008-2009)
PI: David Diamond, USF-Psychology
Co-PI: Andreas Seyfang
Amount: $ 100,000 total costs

23. "Telomere Position Effect and Egg Quality"
NIH/NICHD R01 (2008-2013)
PI: David Keefe, USF-Obstetrics & Gynecology
Co-investigator: Andreas Seyfang
Amount: $ 1,800,750 total costs

24. "Arsenic-Induced Telomere Position Effect"
NIH/NIEHS R01 (2008-2013)
PI: David Keefe, USF-Obstetrics & Gynecology
Co-investigator: Andreas Seyfang
Amount: $ 1,800,750 total costs

25. "REU Site: Women's Health Summer Research Experience for the Undergraduates"
National Science Foundation Training Grant (2008-2010)
PI: Nagwa Dajani, USF-Neurosurgery/Center for Aging & Brain Repair
Co-investigator: Andreas Seyfang
Amount: $ 433,581 total costs

26. "Frameworks for Global Health Innovations"
NIH/Fogarty International Center R25 (Research Education Grant) (2008-2011)
PI: Wilbur Milhous, USF-Global Health (COPH)
Co-investigator: Andreas Seyfang
Amount: $ 406,999 total costs

27. "Training Program in Allergy, Immunology and Infectious Disease (TIPAID)"
NIH/NIAID T32 (Training Grant) (2008-2013)
PI: Shyam Mohapatra, USF-Internal Medicine
Co-investigator: Andreas Seyfang
Amount: $ 1,665,538 total costs

28. "Pharmacology and Regulation of the *myo*-Inositol Transporter from Trypanosomatids"
American Heart Association, Florida/Puerto Rico Affiliate (2006-2009)
PI: Andreas Seyfang
Amount: $ 264,000 total costs

29. "Inositol levels as a biomarker in Parkinson's disease patients"
Michael J. Fox Foundation for Parkinson's Research (2005-2007)
PI: Cesar V. Borlongan, USF-Neurosurgery/Center for Aging & Brain Repair
Co-investigator: Andreas Seyfang
Amount: $ 470,000 total costs

7. ACADEMIC COMMITTEE ACTIVITIES

MEDICAL COLLEGE OF GEORGIA:

- Member, **Medical College of Georgia Institutional Biosafety Committee** (1999 – 2004)
- Member, **Augusta VA Medical Center Institutional Safety Committee** (2004 – 2005)
- Member, **MCG Undergraduate Research Program Committee** (2000 – 2005)
- Member of **9 MCG Thesis Committees:**

Russell S. Timm, Ph.D., 12/2001	(Dept. of Biochemistry & Molecular Biology)
Ronald L. George, Jr., Ph.D., 04/2002	(Dept. of Biochemistry & Molecular Biology)
Lei Huang, Ph.D., 06/2002	(Institute of Molecular Medicine and Genetics)
Rahul A. Datar, Ph.D. 04/2003	(Dental Research Center, School of Dentistry)
Hany A. Naggar, Ph.D., 04/2003	(Dept. of Cellular Biology & Anatomy)
Robert Seymour, M.D./Ph.D., 03/2004	(Institute of Molecular Medicine and Genetics)
Ericka Daniels, M.S., 05/2004	(Dept. of Physiology)
Rong Ou, Ph.D., 07/2004	(Institute of Molecular Medicine and Genetics)
Judith Lascola, Ph.D. candidate	(Dept. of Biochemistry & Molecular Biology)

UNIVERSITY OF SOUTH FLORIDA, TAMPA:

- Senator, **USF Faculty Senate** (2007 – 2013) two 3-year terms
- Committee Member, **USF Faculty Senate Tenure & Promotion Guideline Task Force** (2013 – 2014)
- Committee Member, **USF Morsani College of Medicine Appointment, Promotion and Tenure (APT) Committee** (2015 – present)

Committee Member, **Moffitt Cancer Center-USF Morsani College of Medicine Appointment, Promotion and Tenure (Moffitt-USF APT) Committee** (2021 – present)

- Committee Member, **USF Morsani College of Medicine LCME Accreditation Team** (2007; 2015)
- Committee Member, **APRC (USF MCOM Academic Performance Review Committee)** (2012 – present)
- Committee Member, **APRSC (USF MCOM Academic Performance Review Sub-Committee, Physical Therapy)** (2012 – 2018)
- Committee Member, **USF MCOM Preclerkship Directors Committee** (2012 – present)
- Committee Member, **USF Morsani College of Medicine Committee on Research (COMCOR)** (2011 – 2013)
- Committee Member, **Molecular Medicine Education Committee** (2009 – present)
- Executive Committee Member, **USF Signature Interdisciplinary Program in Allergy, Immunology & Infectious Disease (SIPAIID)** (2007 – 2009)
- Committee Member, **USF Morsani College of Medicine PhD Program student selection committee** (2008 – 2013)
- Committee Member, **Ph.D. Concentration in Neuroscience** (2007 – 2009)
- Committee Member, **Molecular Medicine faculty search committee** (2008 – 2009; 2014; 2023-2024)

• Committee Member, **Internal Medicine faculty search committee** (2019 – 2021)

• Member, USF College of Medicine **Scholarly Concentration in International Medicine** (2007 – present); **<u>eight mentored MD students</u>:**

Tania Velez, M.D. student (class of 2009)
Asa Oxner, M.D. student (class of 2011), now Associate Professor & Vice Chair, USF MCOM
Vishal Patel, M.D. student (class of 2015)
Anmol Kundlas, M.D. student (class of 2023)
Dominique Cook, M.D. student (class of 2026)
Linda Schiller, M.D. student (class of 2026)
Jonathan Sellas, M.D. student (class of 2027) – current research mentoring
Kenneth Harland, M.D. student (class of 2027) – current research mentoring

• Member of **61 USF Thesis Committees**
(45 Ph.D., 8 M.S., 1 M.P.H., 4 M.S.P.H., 3 Honors College):

<u>Completed Graduate Student Committees</u>:

William V. Nikolic, Ph.D., 06/2008	(Dept. of Molecular Medicine/Neuroscience)
Kavon Rezai-Zadeh, Ph.D., 08/2008	(Dept. of Molecular Medicine/Neuroscience)
Nadine N. Bewry, Ph.D., 12/2008	(Dept. of Molecular Medicine/Moffitt)
Susan Lucas, M.P.H., 12/2008	(Dept. of Global Health, College of Public Health)
Tracy Sherwood, Ph.D., 03/2010	(Dept. of Molecular Medicine)
Timothy Boyd, Ph.D., 07/2010	(Dept. of Molecular Medicine)
Sarah Norring, Ph.D. 09/2010	(Dept. of Molecular Pharmacology & Physiology)
Brian Giunta, M.D.; Ph.D. 10/2010	(Depts. of Molecular Medicine/Psychiatry)
Jesse Arbuckle, Ph.D. 04/2011	(Dept. of Molecular Medicine)
Keri Kalmbach, Ph.D. 07/2011; NYU	(Dept. of Obstetrics & Gynecology/Pathology)
Ricci Haines, Ph.D. 06/2012	(Dept. of Molecular Medicine/Cardiovascular)
Rhonda Wilbur, M.S. 07/2012	(Dept. of Molecular Medicine/SIPAIID)
Kelly Barrios-Marrugo, Ph.D. 11/2012	(Dept. of Molecular Medicine/Moffitt)
Christopher Campbell, Ph.D. 03/2013	(Dept. of Global Health, College of Public Health)
Brian Vesely, Ph.D. 03/2013	(Dept. of Global Health, College of Public Health)
Thomas Hayman, M.D./Ph.D. 05/2013	(Dept. of Molecular Medicine/NIH-NCI)
Allyson Radford-Duffy, Ph.D. 07/2013	(College of Nursing)
Terianne Wong, Ph.D. 08/2013	(Dept. of Molecular Medicine/SIPAIID)
Erica Fratz, Ph.D. 03/2014	(Dept. of Molecular Medicine)
Carrie Butler, Ph.D. 06/2014	(Dept. of Molecular Medicine)
Amorce Lima, Ph.D. 07/2014	(Dept. of Molecular Medicine/SIPAIID)
Bosko Stojanovski, Ph.D. 02/2015	(Dept. of Molecular Medicine)
Diana Hernández-Ontiveros, Ph.D. 7/15	(Dept. of Mol. Pharmacology & Physiol./Neurosci)
Miriam George, Ph.D. 7/2015	(Dept. of Global Health, COPH; *External Chair*)
Phaedra Thomas, Ph.D. 7/2015	(Dept. of Global Health, College of Public Health)
Nhan Tu, Ph.D., 11/2015	(Dept. of Molecular Medicine)
Erica Wei Deng, Ph.D. 6/2016	(Dept. of Mol. Pharmacology & Physiology)
Lynn Dong-Blake, Ph.D. 7/2016	(Dept. of Molecular Medicine/SIPAIID)
Jared Tur, Ph.D. 9/2016	(Dept. of Mol. Pharmacology & Physiology)
Viviana Sampayo-Escobar, Ph.D.7/2017	(Dept. of Molecular Medicine/SIPAIID)

Jasmine Boykin, M.S.P.H. 12/2017 (Dept. of Global Health, COPH)
Ryan Anderson, Ph.D. 10/2018 (Dept. of Chemistry, College of Arts & Sciences)
Ryan Green, Ph.D. 11/2018 (Dept. of Molecular Medicine/SIPAIID)
Mark Howell, Ph.D. 3/2019 (Dept. of Molecular Medicine/SIPAIID)
Rezaul Karim, Ph.D. 6/2020 (Dept. of Molecular Medicine)
Ishani Wickramage, Ph.D. 7/2023 (Dept. of Molecular Medicine/SIPAIID-MPP)
Alison Hughes, Ph.D. candidate (Dept. of Chemistry, College of Arts & Sciences)
Gabriela Suarez, Ph.D. candidate (Dept. of Chemistry, College of Arts & Sciences)

Apryl Quillen, M.S., 07/2007 (Dept. of Molecular Medicine; ***Major Professor***)
Silke Lopez de Mesa, Honors Coll. 2008 (Dept. of Molecular Medicine; ***Thesis Mentor***)
Lucio Malvisi, M.S.P.H., 08/2009 (Dept. of Global Health; ***Major Professor***)
Jordan Markel, Honors College 2009 (Dept. of Molecular Medicine; ***Thesis Mentor***)
Jonathan Martin, Honors College 2009 (Dept. of Molecular Medicine; ***Thesis Mentor***)
Chris Laird, M.S. Biotech., 07/2010 (Dept. of Molecular Medicine; ***Thesis Mentor***)
Benedict Christen, M.S. Biotech, 7/2011 (Dept. of Molecular Medicine; ***Thesis Mentor***)
Mary Jolene Holloway, Ph.D. 11/2011 (Dept. of Molecular Medicine; ***Major Professor***)
Ala Azhari, M.S.P.H., 11/2012 (Dept. of Global Health; ***Major Professor***)
Novaira Tahir, M.S. Biotech. 12/2014 (Dept. of Molecular Medicine; ***Thesis Mentor***)
Amir Khiabani, M.S. Mol.Med. 12/2014 (Dept. of Molecular Medicine; ***Thesis Mentor***)
Kathryn Fomuke, M.S. Mol.Med. 6/2016 (Dept. of Molecular Medicine; ***Thesis Mentor***)
Johan Chabanon, M.S.P.H. 03/2017 (Dept. of Global Health; ***Major Professor***)
Sean Berringer, M.S. Mol.Med. 8/2020 (Dept. of Molecular Medicine; ***Thesis Mentor***)

Caroline Simmons, Ph.D. 3/2023 (Dept. of Molecular Medicine/SIPAIID; **Co-Major Professor**)
Jyotsna Chawla, Ph.D. 3/2023 (Dept. of Molecular Medicine/SIPAIID; **Co-Major Professor**)
Justin Nicholas, Ph.D. 3/2023 (Dept. of Molecular Medicine/SIPAIID; **Co-Major Professor**)
Roukiah Khalil, Ph.D. 6/2023 (Dept. of Molecular Medicine/SIPAIID)
Andrew McGill, Ph.D. 6/2023 (Dept. of Molecular Medicine/SIPAIID)
Taylor Martinez, Ph.D. 5/2024 (Dept. of Molecular Medicine/Neuroscience)
Kristen Dominguez, Ph.D. 5/2024 (Dept. of Molecular Medicine/SIPAIID)

Active Graduate Student Committees:
Andrew Cromwell, Ph.D. candidate (Dept. of Molecular Medicine)
Adewale James, Ph.D. candidate (Dept. of Molecular Pharmacology & Physiology)

• Member of **44 USF PhD Comprehensive Qualifying Exam Committees:**
Wendy Sammons (July 2006) (Dept. of Molecular Medicine) *CQE Chair*
William V. Nikolic (December 2006) (Dept. of Molecular Medicine) *CQE Chair*
Joe Ping-Jen Chou (December 2006) (Dept. of Molecular Medicine)
Nadine Bewry (January 2007) (Dept. of Molecular Medicine/Moffitt)
Kavon Rezai-Zadeh (April 2007) (Dept. of Molecular Medicine)
Marisela Agudelo (October 2007) (Dept. of Molecular Medicine)
Mary Jolene Holloway (August 2008) (Dept. of Molecular Medicine)
Timothy Boyd (December 2008) (Dept. of Molecular Medicine)
Brian Giunta, M.D. (September 2009) (Depts. of Molecular Medicine/Psychiatry)

Jesse Arbuckle (October 2009)	(Dept. of Molecular Medicine)
Keri Kalmbach (July 2010)	(Dept. of Obstetrics & Gynecology/Pathology)
Christopher Campbell (August 2010)	(Dept. of Global Health, College of Public Health)
Ricci Haines (March 2011)	(Dept. of Molecular Medicine)
Brian Vesely (July 2011)	(Dept. of Global Health, College of Public Health)
Terianne Wong (August 2011)	(Dept. of Molecular Medicine) *CQE Chair*
Nhan Tu (September 2011)	(Dept. of Molecular Medicine)
Amorce Lima (September 2011)	(Dept. of Molecular Medicine)
Thomas Hayman (July 2012)	(Dept. of Molecular Medicine/NIH-NCI) *CQE Chair*
Jillian Whelan (July 2012)	(Dept. of Molecular Medicine) *CQE Chair*
Carrie Butler (August 2012)	(Dept. of Molecular Medicine)
Mallory Gillam (September 2012)	(Dept. of Molecular Medicine) *CQE Chair*
Erica Wei Deng (April 2013)	(Dept. of Mol. Pharmacology & Physiology)
Diana Hernandez-Ontiveros (April 2013)	(Dept. of Mol. Pharmacology & Physiology/CABR)
Phaedra Thomas (August 2013)	(Dept. of Global Health, College of Public Health)
Lynn Dong (October 2013)	(Dept. of Molecular Medicine/SIPAIID)
Chris Laird (October 2013)	(Dept. of Molecular Medicine)
Viviana Sampayo-Escobar (Aug 2014)	(Dept. of Molecular Medicine/SIPAIID)
Orville Pemberton (January 2015)	(Dept. of Molecular Medicine) *CQE Chair*
Ryan Green (January 2015)	(Dept. of Molecular Medicine/SIPAIID)
Beatrice Colon (May 2015)	(Dept. of Molecular Medicine) *CQE Chair*
Mark Howell (November 2015)	(Dept. of Molecular Medicine/SIPAIID)
Justin Gibbons (March 2017)	(Dept. of Molecular Medicine) *CQE Chair*
Rezaul Karim (June 2017)	(Dept. of Molecular Medicine) *CQE Chair*
April Darling (March 2018)	(Dept. of Molecular Medicine) *CQE Chair*
Caroline Simmons (October 2019)	(Dept. of Molecular Medicine/SIPAIID)
Jyotsna Chawla (November 2019)	(Dept. of Molecular Medicine/SIPAIID)
Justin Nicholas (November 2019)	(Dept. of Molecular Medicine/SIPAIID)
Roukiah Khalil (November 2019)	(Dept. of Molecular Medicine/SIPAIID)
Taylor Martinez (February 2020)	(Dept. of Molecular Medicine/Neuroscience)
Andrew McGill (April 2020)	(Dept. of Molecular Medicine/SIPAIID)
Andrew Cromwell (November 2021)	(Dept. of Molecular Medicine)
Alexa Gannon (April 2022)	(Dept. of Molecular Medicine/SIPAIID) *CQE Chair*
Kristen Dominguez (June 2022)	(Dept. of Molecular Medicine/SIPAIID)
Joanne Tejero (September 2023)	(Dept. of Molecular Medicine) *CQE Chair*

8. TEACHING

MEDICAL COLLEGE OF GEORGIA:

• ***Medical Student Teaching, MCG:***

2000 – 2005 ***Medical Microbiology*** (IDT 5250; Spring) *180-185 students*
"Parasitic Protozoa" (2 hrs)
"Parasitic Helminths" (2 hrs)
"Lab Demonstrations in Medical Parasitology" (4 hrs wet lab)

• ***Graduate Student Teaching, MCG:***

1999 – 2005 ***Biochemistry and Gene Regulation*** (SGS 8021; Fall) *15-20 students*
"Microbial Genetics: Parasites" (1 hr)
"RNA Editing and Antigenic Variation in Trypanosomes" (1 hr)

2000 – 2005 ***Integrated Systems Biology*** (SGS 8033; Fall) *20-25 students*
"Introduction to Protozoan Parasites" (1 hr)
"Introduction to Parasitic Helminths" (1 hr)

2002 – 2005 ***Immunology and Microbiology*** (SGS 8035; Spring) *20-25 students*
"Emerging Infectious Diseases" (1 hr)
"Microbial Pathogenicity" (1 hr)

2000 – 2005 ***Introduction to Faculty Research*** (SGS 8040; Fall)
"Molecular and Biochemical Parasitology" (1 hr) *20-25 students*

2001 – 2005 ***Current Topics and Techniques in Molecular Biology*** (BMB 8201; Spring)
"Yeast Two-Hybrid System" (2 hrs) *15-20 students*

UNIVERSITY OF SOUTH FLORIDA, TAMPA:

A. ***Medical Student Teaching, USF Morsani College of Medicine:***

2011 – 2012 ***Core Principles of Medical Sciences & Musculoskeletal System***
(**BMS 6640/UME Course 1, Year 1**; Fall)
- **2011: Co-Course Director** *182 students*
- **2012: Course Director** *218 students*

Active Learning Session: "Muscular Dystrophy" (1 hr)
"Complexity of the Human Genome and Personalized Medicine" (1 hr)
"Nucleic Acid Metabolism & Cancer" (1 hr)

2013 – present ***Cancer Biology***
(**BMS 6816/UME Course 1B, Year 1**; Fall)
- **Course Director** (*developed as new course*) *197 students*

"Introduction to Cancer Biology" (1 hr)
"Complexity of the Human Genome and Personalized Medicine" (1 hr)
"Nucleic Acid Metabolism & Cancer" (1 hr)
"Catalytic Proteins and Enzyme Inhibitors" (2hrs)
"Concepts of Vaccination and Immunotherapies" (1 hr)
"Energy Metabolism and Cancer" (1 hr) *voted best lecture of course block (2013)*
"Carbohydrate Metabolism and Disease" (1 hr)

"TCA Cycle and Mitochondrial Function" (1 hr)

2013 – present ***Musculoskeletal System*** *197 students*
(BMS 6640/UME **Course 1A, Year 1**; Fall)
Engaged Learning Session: "Muscular Dystrophy" (1 hr) *voted best Engaged Learning session of course block (2013)*

2018 – present ***Cardiovascular & Pulmonary Systems*** *197 students*
(BMS 6633/UME **Course 2, Year 1**; Fall)
"Blood Microbiology: Malaria" (1 hr)
Engaged Learning Session: "Sickle Cell Disease" (2 hrs)

2013 – present ***Endocrinology, GI & Reproductive Systems*** *197 students*
(BMS 6639/UME **Course 3, Year 1**; Spring)
Engaged Learning Session: "Glucose Metabolism and Related Diseases"(2 hrs)
"Glycolysis and Gluconeogenesis" (1 hr)
"Cholesterol Metabolism" (1 hr)
"Amino Acid Metabolism" (1 hr)

2020 – present ***Professions of Health*** *197 students*
(BMS 5005/UME **MD Program Introduction Course, Year 1**; Summer)
"Introduction to Biochemistry" (1 hr)

2014 – present ***Introduction to Medical Sciences/*** *12-37 students*
Foundations in Medical Sciences pre-matriculation program
(COM-Molecular Medicine, GMS 6004; Summer)
"Foundations in Biochemistry I and II" (4 hrs)

2005 – present ***Course 5*** *(UME Year 2)* *171 students*
(BMS 6641/UME Course 5, Year 2; Fall)
(previously BMS6300/***Principles of Medical Immunology and Infectious Diseases***)
"Tissue and Blood-Borne Parasites: Protozoa" (2 hrs)
"Protozoan Infections of the GI Tract" (1 hr)
"Helminth Infections of the GI Tract" (1 hr)
GI Clinical Conference (team-taught): (2 hrs)
"Case 4: *Giardia* infection"
"Case 6: *Taenia* tapeworm infection"

2005 – 2022 **Small Group Leader: *Microbiology & Immunology Small Group Conferences*** (9 hrs Fall) **Year 2** *14 students*

2022 – present ***Course 7*** *(UME Year 2)* *171 students*
(BMS 6643/UME Course 7, Year 2; Spring)
"Clinical Biochemistry Applications" (1 hr)

2013 – 2017 ***Medical Biochemistry for DPT Students***
(**BMS 6206/UME Course 1-DPT, Year 1**; Fall)
- **Course Director** (*developed as new course*) *48 students*

"Glycolysis and Gluconeogenesis" (1 hr)
"TCA Cycle and Mitochondrial Function" (1 hr)
"Glycogen Storage and Carbohydrate Metabolism" (1 hr)
"Lipid and Fatty Acid Metabolism" (1 hr)

"Cholesterol" (1 hr)

2016 – present ***Integration Director* of MD Curriculum for the disciplines Biochemistry & Genetics** for Year 1 and Year 2 preclerkship Courses 1-7 as well as Year 3 and Year 4 Clerkships (to ensure coverage of the respective national content objectives)

2011 – 2013 **Monitor for *Molecular Relationships Competency*** of Year 1 medical students for (*182 students 2011/12*, *218 students 2012/13*)
Course 1 (BMS 6640 *Core Principles of Med.Sci. & Musculo-skeletal System*),
Course 2 (BMS 6633 *Cardiovascular & Pulmonary Systems*),
Course 3 (BMS 6639 *Endocrinology*, *GI & Reproductive Systems*),
Course 4 (BMS 6641 *Neuroscience*)

B. ***Graduate Student Teaching, USF College of Medicine & College of Public Health*:**

• *Director*, **Ph.D. Program of the Department of Molecular Medicine** (2008 – 2011) received 2009 ***Robert J. Grasso Award* for Outstanding Dedication to Graduate Education**, USF College of Medicine.
Extensive mentoring of departmental PhD students; department had 5 NIH-F31 fellowships, and 2 AHA pre-doctoral fellowships between 2008 and 2011.

• *Director*, **M.S. Concentration in Medical Microbiology & Immunology** of the Department of Molecular Medicine (2007 – 2008)

***Biochemistry, Molecular Medicine, Biotechnology* teaching activities**

2011 – present ***Basic Medical Biochemistry*** *210-280 students*
(COM-Molecular Medicine, GMS 6201; Fall) ***MSP3 Program***
"Carbohydrate Metabolism and Glycolysis" (2 hrs)
"Pyruvate Metabolism and TCA Cycle" (2 hrs)
"Mitochondrial Electron Transport and Oxidative Phosphorylation" (2 hrs)
"Carbohydrate Storage and Gluconeogenesis" (2 hrs)
"Pentose Phosphate Pathway; Galactose & Fructose Metabolism" (2 hrs)

2014 – present ***Translational Biotechnology***
(COM-Molecular Medicine, **GMS 6069**; Spring)
• **Course Director** (*re-developed course*) *15-22 students*
"Introduction to Biotechnology" (2 hrs)
"Drug Discovery and Biotechnology" (2 hrs)
"Business Strategies: *Lean Six Sigma* concepts" (1 hr)
"Global Biotechnology and Infectious Diseases" (2 hrs)
"Site visit 1: *USF CONNECT Incubator*" (2 hrs)
"Site visit 2: *CDDI Center of Excellence*" (2 hrs)
"Site visit 3: *Moffitt Tissue Core*/Personalized Medicine" (2 hrs)
"Site visit 4: *Morphogenesis*" (2 hrs)
"Site visit 5: *Bausch & Lomb*" (2 hrs)
"Site visit 6: *SGN Nanopharma*" (2 hrs)
"Site visit 7: *Bristol-Myers Squibb*" (2 hrs)
"Site visit 8: *Tampa Wastewater Treatment Plant*/Clean Water" (2 hrs)
"Site visit 9: *Muma Advanced Microscopy & Cell Imaging*" (2 hrs)

"Site visit 10: *Yuengling Brewery*/Production of Beer" (2 hrs)

2018 – present ***Introduction to Biotechnology***
(COM-Molecular Medicine, BSC6436; Fall)
- **Co-Course Director** 2022 *12-27 students*

"History of Biotechnology" (2 hrs) *12-27 students*

2015 – present ***Biotechnology and Bioethics***
(COM-Molecular Medicine, BSC6437; Summer)
"Ethics in Clinical Trials and Drug Discovery" (2 hrs) *12-24 students*

2015 – 2019 ***Technology and Law***
(COM-Molecular Medicine and USF Patent Office, EIN 6106; Fall)
"Clinical Trials and Regulations" (2 hrs) *12 students*

2006 – present ***Directed Research*** (COM-Molecular Medicine, GMS 7910)

2006 – present ***Foundation in Biomedical Sciences*** *21-171 students*
(COM-Molecular Medicine, GMS 6001; Fall)
"Carbohydrate Metabolism" (2 hrs, 2006-2012, 2020-present)
"TCA Cycle & Oxidative Phosphorylation" (2 hrs, 2006-2012, 2020-present)
"Amino Acid Metabolism" (1 hr, 2006-2016)
"Nucleic Acid Metabolism" (1 hr, 2006-2016)
"Innate Immunity" (1 hr, 2006-2011)

2020 – present ***Human Structure and Function*** *48 students*
(COM-Molecular Medicine, GMS 6604; Fall)
"Cellular Energy I: Glycolysis & Gluconeogenesis" (1 hr)
"Cellular Energy II: Oxidative Phosphorylation" (1 hr)

2009 – 2013, 2016 – present ***Graduate Seminar in Molecular Medicine***
(COM-Molecular Medicine, **GMS 7939**; Spring, Fall)
- **Course Director** (15 hrs/semester) *23-35 students*

2008 – 2014 ***Experimental Design and Analysis*** *21-27 students*
(COM-Molecular Medicine, GMS 6103; Fall)
"Gene Expression Analysis: Microarray and qPCR" (3 hrs)

2006 – 2009 ***Current Topics in Biochemistry*** (COM-Molecular Medicine, GMS 6876)

***Medical Microbiology and Infectious Diseases* teaching activities**

2006 – present ***Microbial Pathogenesis and Host-Parasite Interactions***
(COM-Medical Microbiology, **GMS 6110**; Spring or Fall)
- **Course Director** (*re-developed course*) *32-98 students*

"Introduction and Overview of Host-Parasite Relationships" (2 hrs)
"Mechanisms of Fungal Pathogenesis" (2 hrs)
"Mechanisms of Host-Parasite Pathogenesis I: Protozoa" (2 hrs)
"Mechanisms of Host-Parasite Pathogenesis II: Helminths" (2 hrs)
"Malaria and Pathogenesis of *Plasmodium*" (2 hrs)

2008 – present ***Medical Parasitology and Mycology***
(COM-Medical Microbiology, **GMS 6115**; Fall)
- **Course Director** (*developed as new course*) *31-45 students*

"Introduction to Protozoa" (2 hrs)
"Trypanosomes and *Leishmania*" (2 hrs)
"Helminths" (2 hrs)
"Anti-Parasitic Drugs" (1 hr)
"Population Dynamics and Lifecycle Strategies, r vs. K strategists" (1 hr)
"Introduction to Fungi and Overview of Mycoses" (2 hr)
"Anti-Fugal Drugs" (1 hr)

2011 – present ***Foundation in Medical Microbiology & Immunology*** *16-19 students*
(COM-Molecular Medicine, GMS 6103; Spring)
- **Co-Course Director, Section *Eukaryotic Microbiology***

"Introduction to Parasitology" (2 hrs)
"Trypanosomes and *Leishmania*" (2 hrs)
"Malaria and Toxoplasmosis" (2 hrs)
"Amoebae and Intestinal Protozoa" (2 hrs)
"Helminths" (2 hrs)
"Medical Mycology" (2 hrs)

2011 – present ***Basic Microbiology & Immunology*** *210-280 students*
(COM-Molecular Medicine, GMS 6141; Fall) ***MSP3 Program***
- **Co-Course Director, Section *Eukaryotic Microbiology***

"Blood and Tissue-dwelling Protozoan Parasites" (2 hrs)
"Protozoan Infections of the GI Tract" (2 hrs)
"GI Tract and Tissue-dwelling Helminth Infections" (2 hrs)
"Anti-parasitic Drugs; Concepts of Host-Parasite Relationships" (2 hrs)
"Introduction and Overview of Medical Mycology" (2 hrs)

2008 – present ***Vaccines and Applied Immunology*** *25-45 students*
(COM-Molecular Medicine, GMS 6114; Summer)
"Vaccine Strategies against Parasites" (1.5 hr)

2007 – 2017 ***Exotic and Emerging Infectious Diseases*** *21-34 students*
(College of Public Health, PHC 6510; Fall)
"Emerging Parasitic Diseases: Protozoa and Helminths" (3 hrs)

2005 ***Infectious Disease Epidemiology*** (College of Public Health, PHC 6934; Fall)
"Epidemiology of Protozoan Parasites" (1 hr) *23 students*
"Epidemiology of Worm Infections" (1 hr)
"Crossing of the Species Barrier- Significance for the Development of New Diseases, Virulence, and Pathogenesis" (1 hr)

2006 ***Epidemiology of Diseases of Major Public Health Importance***
(College of Public Health, PHC 6074; Spring) *97 students*
"Epidemiology of Protozoan Parasites" (1 hr)
"Epidemiology of Worm Infections" (1 hr)
"Crossing of the Species Barrier- Significance for the Development of New Diseases, Virulence, and Pathogenesis" (1 hr)

2006 – 2010 ***Medical Microbiology*** (COM-Medical Microbiology, GMS 6100; Fall)
68-75 students
"Overview of Medical Parasitology: 1. Protozoan Parasites" (2 hrs)
"Overview of Medical Parasitology: 2. Parasitic Worms" (1 hr)

2006 ***Molecular and Cellular Immunology*** *15 students*
(COM-Medical Microbiology, GMS 6101; Spring)
"Innate Immunity II: Immunity to Intracellular Pathogens" (1 hr)

<u>*Neurosciences* teaching activities</u>

2005 – present ***Aging and Neuroscience*** *20-25 students*
(COM-Center for Aging & Brain Repair, GMS 7771; Fall)
"Cell Biology and Genetics of Aging" (3 hrs)

2008 – present ***Neuroimmunology*** *15-22 students*
(COM-Center for Aging & Brain Repair, GMS 6078; Fall)
"Viral Encephalitis and Prion Disease" (3 hrs)

2007 – 2008 ***Physiobiology of Aging*** (COM-Neurosurgery, GMS 7930-004; Fall)
"Genetics and Molecular Basis of Aging" (3 hrs) *12-15 students*

2008 ***Biomedical Aging*** *8 students*
(COM-Center for Aging & Brain Repair, GEY 6934; Spring)
"Genetics and Molecular Basis of Aging" (3 hrs)

C. ***<u>Training and Mentorship Activities</u>***

• ***Medical Resident Training*** (Directed Research):
Nicolas Arredondo, MD (Neurosurgery resident), 2006 – 2007

• ***Medical Student Mentoring*** (Directed Research):
Scholarly Concentration in International Medicine research projects
Tania Velez, M.D. student (class of 2009)
Asa Oxner, M.D. student (class of 2011), now Associate Professor & Vice Chair, USF MCOM Internal Medicine
Vishal Patel, M.D. student (class of 2015)
Anmol Kundlas, M.D. student (class of 2023)
Dominique Cook, M.D. student (class of 2026)
Linda Schiller, M.D. student (class of 2026)
Jonathan Sellas, M.D. student (class of 2027) – current research mentoring
Kenneth Harland, M.D. student (class of 2027) – current research mentoring

• ***Ph.D. Rotation Students****:*
Heather M. Cathcart, 2003
Joshua A. Fields, 2003
Amy L. Hinchey, 2005
Shara Pantry, 2006
Yvonne Davis, 2006
Mary Jolene Holloway, 2007
Joshua Haakenson, 2011

• ***Undergraduate Students Training*** (Directed Research):
Stephen B. Hobbs, 2001 (Augusta State University)
Jeanette K. Bramwell, 2002 (summer student from Univ. of Newcastle upon Tyne, UK)
Jonathan W. Lowery, 2004 (Augusta State University)
Kamisha Woolery, 2007 (USF Honors College)
Erin Fitzgerald, 2007 (summer student from MIT, Cambridge, MA)

Silke Lopez de Mesa, 2007 – 2008 (USF Honors College)
Jordan Markel, 2008 – 2009 (USF Honors College, MARC Scholar)
Jonathan Martin, 2008 – 2009 (USF Honors College)

• ***Training and Mentoring:***

Robert Lober, research assistant 1999 – 2000 (now MD/PhD; Neurosurgery/Associate Professor at Wright State University, OH)
Tyler P. Mongan, research assistant 1999 – 2002 (now practicing DO in Hawaii)
"Jean" Huaqian Jin, research assistant 2001 – 2003 (now MS in Medical Technology)
Jonathan G. Lawson, MS, research assistant 2003 – 2004 (now MD; Critical Care Medicine/ Pulmonology at Augusta University/MCG Medical Center)
Amanda G. Smith, research assistant 2004 – 2005 (research assistant at MCG)
Matthew S. Dellacona, research assistant 2004-2005 (now DO; Family Medicine in PA)
Mohammad Minhajuddin, PhD, postdoc 2001 – 2002 (now Associate Professor at UC Denver, CO)
Sudhandiran Ganapasam, PhD, postdoc 2003 – 2004 (now Associate Professor at Univ. of Madras, Chennai/India)
Amy L. Hinchey, research assistant 2005 – 2006 (PhD student at USF)
Laurel L. Sandler, research assistant 2006 – 2007 (now MS in teaching; high school principal)
Kamisha Woolery, research assistant 2007 – 2008 (PhD student at USF)
Chris Laird, M.S.student/research assistant 2009 – 2010 (PhD student at USF)
Zachary Griggs, M.S. student/research assistant 2010 – 2011 (now DO; Otolaryngology/ ENT in SC)
Steven Gunther, M.S. student/research assistant 2010 – 2011 (now MD; Psychiatry/Assistant Professor at USF)
Matthew Zeeb, M.S. student/research assistant 2010 – 2011 (now DO student at LECOM)
Anum Khan, M.S. student/research assistant 2011 – 2012 (now DO; Hospital Medicine at Jefferson Health)
Matthew Anderson, M.S. student/research assistant 2011 – 2012 (now DO; internist in FL)
Brad T. Miller, M.S. student/research assistant 2011 – 2012 (now MD; Pediatrics/Assistant Professor at Indiana University)
Adarsh Bellur, M.S. student/research assistant 2011 – 2014 (now MD; Radiology resident NY)
Matthew Doenges, M.S. student/research assistant 2013 – 2014 (now PharmD; faculty at Northeastern University)
Chris Massengill, M.S. student/research assistant 2014 – 2015 (now MD; anesthesiologist at Moffitt)
Sara Sievers, M.S. student/research assistant 2014 – 2015 (now DO; Emergency Medicine resident at UConn Health)
Juan F. Arturo, M.S. student/research assistant 2015 – 2016 (now MD; Surgery resident FL)
Johan Chabanon, MSPH student/research assistant 2015 – 2016 (now MD; Pediatrics resident at Mount Sinai Health System, NY)
Sean Berringer, M.S. student/research assistant 2019 – 2020 (now PA student; AdventHealth)

9. COMMUNITY OUTREACH ACTIVITIES

• Member, ***American Heart Association*** **Hillsborough County Community Board**

• **Community Presentation:**
"Myocarditis- *Infections of the Heart*." at American Heart Association, Florida/Puerto Rico Affiliate Headquarters, St. Petersburg, FL, November 2005

• **Hillsborough High School IB Program**, Tampa, FL;
Summer student training/directed laboratory research, May – August 2007, for

Tyler Cash-Padgett (High school senior)

• **High School Science Fair, Hillsborough County Competition**, February 20–21, 2008 in Tampa, FL:

Participation with Tyler Cash-Padgett (student won **First Prize** in Microbiology category)
Project Title:
"Generation of Chimeric Transport Proteins by Genetic Engineering (Gene SOEing)"

• **High School Science Fair, Florida State Competition**, April 16–17, 2008 in Lakeland, FL:

Participation with Tyler Cash-Padgett (student won **Fourth Prize** in Microbiology category)
Project Title:
"Generation of Chimeric Transport Proteins by Genetic Engineering (Gene SOEing)"

10. **PATENTS**

SEYFANG, A. (2005). "Method for Multiple Site-Directed Mutagenesis."
U.S. Patent No. 6,878,531; *International Patent Application (PCT) No. WO 2005/054492*

SEYFANG, A., BELLUR, A., WELLS, D. & DOENGES, M. (2016). "Methods of Treating NFA-1 Organism Infection Using Apocynin."
U.S. Patent No. 9,492,455

SEYFANG, A., BELLUR, A., WELLS, D. & DOENGES, M. (2017). "Methods of Treating NFA-1 Organism Infection Using Allopurinol."
U.S. Patent No. 9,655,901

SEYFANG, A., LOCKSMITH, T.J., BELLUR, A., WELLS, D. & DOENGES, M. (2018). "Methods of Treating *Acanthamoeba* Infection Using Apocynin."
U.S. Patent No. 10,058,517

SEYFANG, A., MASSENGILL, C.L. & SIEVERS, S.R. (2019). "Transfection Vector for Pathogenic Amoebae and Uses Thereof."
U.S. Patent No. 10,273,487

SEYFANG, A., LOCKSMITH, T.J., BELLUR, A., WELLS, D. & DOENGES, M. (2020). "Methods of Treating *Acanthamoeba* Infection Using Allopurinol."
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U.S. Patent No. 11,851,707

11. INVITED LECTURES AND PRESENTATIONS

06/17/1993 "Trypanosomes – *Some Like it Sweet*: Purification, Functional Reconstitution and Characterization of the *Trypanosoma brucei* Glucose Transporter." Invited lecture at the International Institute of Cellular and Molecular Pathology (ICP), Brussels, Belgium.

06/22/1997 "Asp-19 and Glu-121 Are Critical for Transport Function of the Inositol-Proton Symporter from *Leishmania donovani*." Gordon Research Conference on "Mechanisms of Membrane Transport", Plymouth, NH.

04/02/1998 "Glu187, Asp300 and Glu429 in Conserved Cytoplasmic Sequence Motifs are Important for Transport Function of the *Leishmania* Inositol-Proton Symporter." Eighth International Symposium on Cellular and Molecular Biology: "Membrane Proteins in Health and Disease", Canadian Society of Biochemistry and Molecular & Cellular Biology, Banff, Alberta, Canada.

01/25/1999 "Structure-Function Analysis of a Model Proton Symporter: The *Leishmania myo*-Inositol/Proton Transporter, MIT." Department of Biochemistry & Molecular Biology, Medical College of Georgia, Augusta, GA.

03/30/1999 "Substrate Depletion Upregulates *myo*-Inositol Transporter and Uptake of Glucose and Adenosine in *Leishmania*." Forum of the Centre for Molecular Biology Heidelberg: "Pathogenic Protozoa: Molecules, Structures and Mechanisms", Heidelberg, Germany.

08/08/1999 "*Leishmania myo*-Inositol/H^+ Transporter MIT as a Model Proton Symporter from Early Eukaryotes: Structure-Function Analysis, Pharmacology, Regulation and MIT Knockouts." International Research Conference: "Membrane Transporters: New Perspectives in Drug Delivery and Drug Targeting", Ascona, Switzerland.

01/09/2000 "Structure-Function Analysis and Regulation of the *Leishmania myo*-Inositol Transporter." Institute of Molecular Medicine and Genetics (IMMAG), Program for Gene Regulation, Medical College of Georgia, Augusta, GA.

05/10/2000 "*Leishmania myo*-Inositol/H^+ Transporter as a Model Proton Symporter from Early Eukaryotes: Structure-Function Analysis, Pharmacology, Regulation and MIT Knockouts."
Tenth Annual Molecular Parasitology/Vector Biology Symposium, Athens, GA.

12/05/2000 "Structure-Function Analysis of a Model Proton Symporter: The *Leishmania myo*-Inositol/Proton Transporter, MIT." Department of Cell Biology & Anatomy, Medical College of Georgia, Augusta, GA.

07/22/2001 "Transporters in Protozoan Parasites: Pharmacological Target and Model Transporters in Early Eukaryotes" FASEB (Federation of the American Society for Experimental Biology) Summer Research Conference on "New Perspectives in Transporter Biology", Tucson, AZ.

08/05/2001 "Substrate Recognition and Pharmacology of *myo*-Inositol Transport in *Trypanosoma cruzi*." PharmaConference: "Membrane Transporters: From Identification to Drug Delivery", Interlaken, Switzerland.

12/10/2001 "The *Leishmania* Inositol Transporter: Structure-Function Analysis and Pharma-cological Target." Department of Physiology, Medical College of Georgia, Augusta, GA.

02/25/2003 "Regulation of the *Leishmania myo*-Inositol Transporter MIT." Department of Cellular Biology, University of Georgia, Athens, GA.

02/26/2003 "Membrane Transporters and Nutrient Salvage in Parasitic Protozoa." Center for Tropical and Emerging Global Diseases, University of Georgia, Athens, GA.

03/07/2003 "Calmodulin-dependent Regulation of *Leishmania* MIT." Department of Biochemistry & Molecular Biology, Medical College of Georgia, Augusta, GA.

05/09/2003 "Membrane Transport in Protozoan Flagellates and the Opportunistic Fungi *Candida albicans* and *Cryptococcus neoformans.*" Microbiology and Biodefense Conference, Medical College of Georgia, Augusta, GA.

08/05/2003 "Calmodulin-dependent Regulation of *myo*-Inositol Transport in the Protozoan *Leishmania donovani*." PharmaConference "Transporters and Drugs", Pontresina/St.Moritz, Switzerland.

05/07/2004 "A Story of *Candida albicans* and his other Sugar-Coated Buddy, *Cryptococcus neoformans.*" Microbiology and Biodefense Conference, Medical College of Georgia, Augusta, GA.

09/22/2004 "Multiple Site-Directed Mutagenesis of More Than 10 Sites Simultaneously." Georgia Life Sciences Summit 2004, Atlanta, GA.

11/08/2005 "Myocarditis- *Infections of the Heart*." American Heart Association, Florida/Puerto Rico Affiliate Headquarters, St. Petersburg, FL.

02/24/2006 "Calmodulin-dependent Regulation of *myo*-Inositol Transport in the Protozoan *Leishmania donovani."* 22nd Meeting of The German Society for Parasitology, Vienna, Austria.

06/08/2006 "Pharmacological Significance of Inositol Metabolism: From Microbial Pathogens to the Human Brain." 1st Annual Molecular Medicine Research Symposium, Tampa, FL.

06/21/2007 "Structure-Function Analysis and Regulation of *Leishmania myo*-Inositol Transporter MIT." 2nd Annual Molecular Medicine Research Symposium, Tampa, FL.

03/06/2008 "Post-Transcriptional Regulation of the *Leishmania myo*-Inositol Transporter by Substrate Depletion." 23rd Meeting of The German Society for Parasitology, Hamburg, Germany.

10/01/2008 "Protozoan Parasites as Risk Factors in Transplantation: Chagas' Disease, Leishmaniasis, and Toxoplasmosis." LifeLink® HealthCare Institute, Tampa, FL.

10/23/2008 "Protozoan Parasites as Risk Factor in Cardiac Transplantation Surgery: Chagas' Disease and Toxoplasmosis." LifeLink® HealthCare Institute and TGH Cardiac Transplant Program, Tampa, FL.

04/15/2009 "Chagas Disease and Leishmaniasis as Risk Factors in Blood Transfusion." Claro Scientific, Inc. and Florida Blood Services, St. Petersburg, FL.

06/23/2009 "*Leishmania myo*-Inositol Transporter MIT: Drug Delivery and Novel Therapeutic Target." NIH/NIAID and Institut Pasteur de Tunis Conference: "*Leishmania* – Collaborative Research Opportunities in North Africa and the Middle East", Tunis, Tunisia.

07/09/2009 "*Trypanosoma brucei myo*-Inositol Transporter TcMIT: Drug Delivery and Novel Therapeutic Target."
(International Symposium on the Centennial of the Discovery of Chagas Disease, Rio de Janeiro, Brazil)

07/28/2009 "*Candida* Cytochrome b5 Reductase: Novel Therapeutic Target."
(USF Department of Molecular Medicine, Tampa, FL)

12/04/2009 "*Candida* Cytochrome b5 Reductase as Novel Pharmaceutical Target."
(USF Department of Molecular Medicine Retreat, Tampa, FL)

04/13/2010 "Biochemical and Pharmacological Characterization of Cytochrome b5 Reductase as Novel Therapeutic Target in *Candida albicans*."
(Global Health Infectious Disease Research (GHIDR) seminar series, USF Department of Global Health, Tampa, FL)

10/05/2010 "Opportunistic Microbial Pathogens: Chagas Disease and Leishmaniasis as Risk Factors in Blood Transfusion."
(Hillsborough Community College, Tampa, FL)

11/04/2010 "*Candida albicans* Cytochrome b5 Reductase as Novel Pharmaceutical Target."
(USF Signature Interdisciplinary Program in Allergy, Immunology & Infectious Diseases (SIPAIID) seminar series, Tampa, FL)

03/29/2011 "*Candida* Cytochrome b5 Reductase as Novel Target for Rational Drug Design."
(USF Department of Chemistry colloquium, Tampa, FL)

05/12/2011 "Biochemical and Pharmacological Characterization of Cytochrome b5 Reductase as Novel Therapeutic Target in *Candida albicans*."
(Fourth FEBS Advanced Lecture Course on Human Fungal Pathogens: Molecular Mechanisms of Host-Pathogen Interactions and Virulence, Nice-La Colle sur Loup, France)

12. SCIENTIFIC PUBLICATIONS

1. FROMMEL, T.O.; **SEYFANG, A.** & BALBER, A.E. (1988). *Trypanosoma brucei* sspp.: Cleavage of Variant Specific and Common Glycoproteins during Exposure of Live Cells to Trypsin.
   Experimental Parasitology **66**: 213-224.

2. DUSZENKO, M.; **SEYFANG, A.** & LÜCK, A. (1988). Biosynthesis, Intracellular Transport and Turnover of a Variant Surface Glycoprotein in *Trypanosoma brucei.*
   International Journal of Medical Microbiology **308**: 296.

3. **SEYFANG, A.**, MECKE, D. & DUSZENKO, M. (1990). Degradation, Recycling, and Shedding of *Trypanosoma brucei* Variant Surface Glycoprotein.
   Journal of Protozoology **37**: 546-552.

4. **SEYFANG, A.** & DUSZENKO, M. (1990). Degradation, Recycling and Shedding of Variant Surface Glycoproteins (VSG) in *Trypanosoma brucei.*
   International Journal of Medical Microbiology **317**: 3.

5. **SEYFANG, A.** & DUSZENKO, M. (1991). Specificity of glucose transport in *Trypanosoma brucei.* Effective inhibition by phloretin and cytochalasin B.
   European Journal of Biochemistry **202**: 191-196.

6. **SEYFANG, A.** & DUSZENKO, M. (1992). Characterization and Reconstitution of the D-Glucose Transporter from *Trypanosoma brucei.*
   Annales de la Société Belge de Médecine Tropicale **72**: 90.

7. **SEYFANG, A.** & DUSZENKO, M. (1992). Glucose Transport in *Trypanosoma brucei.*
   International Journal of Medical Microbiology **325**: 73-74.

8. **SEYFANG, A.** & DUSZENKO, M. (1993). Functional reconstitution of the *Trypanosoma brucei* plasma-membrane D-glucose transporter.
   European Journal of Biochemistry **214**: 593-597.

9. DUSZENKO, M. & **SEYFANG, A.** (1993). Endocytosis and Intracellular Transport of Variant Surface Glycoproteins in Trypanosomes. In *Advances in Cell and Molecular Biology of Membranes: Membrane Traffic in Protozoa* (Plattner, H., ed.), JAI Press Inc., Greenwich, Conn. (U.S.A.), pp. 227-258.

10. **SEYFANG, A.** (1993). Isolation and Characterization of the Glucose Transporter from *Trypanosoma brucei*. Ph.D. Thesis, University of Tübingen, Tübingen (Germany), 154 pages.

11. WILLE, U.; **SEYFANG, A.** & DUSZENKO, M. (1994). Characterization of the glucose transporter in procyclic forms of *Trypanosoma brucei.*
    European Journal of Biochemistry **236**: 228-233.

12. BAKALARA, N.; **SEYFANG, A.**; BALTZ, T. & DAVIS, C. (1995). *Trypanosoma brucei* and *Trypanosoma cruzi*: Life Cycle-Regulated Protein Tyrosine Phosphatase Activity.
    Experimental Parasitology **81**: 302-312.

13. **SEYFANG, A.**; BRINGAUD, F.; DUSZENKO, M. & BALTZ, T. (1995). Reconstitution and Functional Analysis of a Protozoan Transporter: The *Trypanosoma brucei* Plasma-Membrane Glucose Transporter.

International Journal of Medical Microbiology **282**: 210-211.

14. BAKALARA, N.; **SEYFANG, A.**; DAVIS, C. & BALTZ, T. (1995). Characterization of a life-cycle-stage-regulated membrane protein tyrosine phosphatase in *Trypanosoma brucei.*
European Journal of Biochemistry **234**: 871-877.

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Biochemical Journal **312**: 687-691.

16. WILLE, U.; **SEYFANG, A.** & DUSZENKO, M. (1996). Glucose uptake occurs by facilitated diffusion in procyclic forms of *Trypanosoma brucei*.
European Journal of Biochemistry **236**: 228-233.

17. LANDFEAR, S.M.; SNAPP, E.L. & **SEYFANG, A.** (1996). Function, Regulation and Subcellular Targeting of Membrane Transporters in *Leishmania* Parasites.
Memorando do Instituto Oswaldo Cruz **91**: 49-50.

18. **SEYFANG, A.**; KAVANAUGH, M.P. & LANDFEAR, S.M. (1997). Aspartate 19 and Glutamate 121 Are Critical for Transport Function of the *myo*-Inositol/H^+ Symporter from *Leishmania donovani*.
Journal of Biological Chemistry **272**: 24210-24215.

19. BARRETT, M.P.; TETAUD, E.; **SEYFANG, A.**; BRINGAUD, F. & BALTZ, T. (1998). Trypanosome Glucose Transporters.
Molecular and Biochemical Parasitology **91**: 195-205.

20. VASUDEVAN, G.; CARTER, N.S.; DREW, M.A.; BEVERLEY, S.M.; SANCHEZ, M.A.; **SEYFANG, A.**; ULLMAN, B. & LANDFEAR, S.M. (1998). Cloning of *Leishmania* Nucleoside Transporter Genes by Rescue of a Transport-Deficient Mutant.
Proceedings of the National Academy of Sciences, USA **95**: 9873-9878.

21. **SEYFANG, A.** & LANDFEAR, S.M. (1999). Substrate Depletion Upregulates Uptake of *myo*-Inositol, Glucose and Adenosine in *Leishmania*.
Molecular and Biochemical Parasitology **104**: 121-130.

22. **SEYFANG, A.** & LANDFEAR, S.M. (2000). Four Conserved Cytoplasmic Sequence Motifs Are Important for Transport Function of the *Leishmania* Inositol/H^+ Symporter.
Journal of Biological Chemistry **275**: 5687-5693.

23. JIN, J.H. & **SEYFANG, A.** (2003). High-affinity *myo*-Inositol Transport in *Candida albicans*: Substrate specificity and pharmacology.
Microbiology **140**: 3371-3381.

24. **SEYFANG, A.**; MINHAJUDDIN, M & JIN, H. (2003). Calmodulin-dependent regulation of *myo*-inositol transport in the protozoan *Leishmania donovani*.
FASEB Journal **17**: 1322.

25. LING, J.; PI, W.; YU, X.; BENGRA, C.; LONG, Q.; JIN, H.; **SEYFANG, A.** & TUAN, D. (2003). The ERV-9 LTR enhancer is not blocked by the HS5 insulator and synthesizes through the HS5 site non-coding, long RNAs that regulate LTR enhancer function.
Nucleic Acids Research **31**: 4582-4596.

26. **SEYFANG, A.** & JIN, J.H. (2004). Multiple site-directed mutagenesis of more than 10 sites simultaneously and in a single round.
Analytical Biochemistry **324**: 285-291.

27. MONGAN, T.P.; GANAPASAM, S.; HOBBS, S.B. & **SEYFANG, A.** (2004). Substrate Specificity of the *Leishmania donovani myo*-Inositol Transporter: Critical Role of Inositol C-2, C-3 and C-5 Hydroxyl Groups.
Molecular and Biochemical Parasitology **135**: 133-141.

28. LIN, T.; GAO, L.; **SEYFANG, A.** & OLIVER, JR., J.H. (2005). 'Candidatus *Borrelia texasensis'*, from the American dog tick *Dermacentor variabilis*.
International Journal of Systematic and Evolutionary Microbiology **55**: 685-693.

29. **SEYFANG, A.** (2005). "Method for Multiple Site-Directed Mutagenesis."
U.S. Patent No. 6,878,531; *International Patent Application (PCT) No. WO 2005/054492*

30. LIU, L.; OKUKA, M.; BAILEY, S.M.; MUNOZ, P.; LI, C.; WU, C.; CZERWIEC, E.; SANDLER, L.; **SEYFANG, A.**; BLASCO, M.A. & KEEFE, D.L. (2007).
Telomere Lengthening Early in Development.
Nature Cell Biology **9**: 1436-1441.

31. BARBER, M.J.; ROMA, G. & **SEYFANG, A.** (2008). Expression and Characterization of a Functional *Leishmania* Variant of Cytochrome b_5 Reductase. *FASEB Journal* **22**: 634.

32. XUE, C.; LIU, T.; CHEN, L.; LI, W.; LIU, I.; KRONSTAD, J.W.; **SEYFANG, A.** & HEITMAN, J. (2010). Role of an Expanded Inositol Transporter Repertoire in *Cryptococcus neoformans* Sexual Reproduction and Virulence. *mBio* **1(1)**: e00084-10.

33. GROER, M.W.; YOLKEN, R.H.; BECKSTEAD, J.W.; FUCHS, D.; MOHAPATRA, S.S.; **SEYFANG, A.** & POSTALACHE, T.T. (2011). Prenatal Depression and Anxiety in *Toxoplasma gondii* Positive Women. *Am. J. Obstet. Gynecol.* **204**(5): 433.e1-7.

34. **SEYFANG, A.**; NAZIAN, S.J.; SAPORTA, S.; DOUPNIK, C.A.; JOHNSON, W.E. & STEVENSON, F.T. (2012). Assessment of an Adjusted vs. Fixed Pass Line for Student Performance in a Medical School Curriculum. *Medical Science Educator* **22(4S)**: 270-271.

35. **SEYFANG, A.**; SAPORTA, S. & JOHNSON, W.E. (2013). Effect of Pre-Medical Education on Student Performance in a First-Year Medical School Curriculum. *Medical Science Educator* **23(4S)**: 712.

36. DUFFY, A.R.; BECKIE, T.M.; BRENNER, L.A.; BECKSTEAD, J.W.; **SEYFANG, A.**; POSTALACHE, T.T. & GROER, M.W. (2015). Relationship between *Toxoplasma gondii* and Mood Disturbance in Women Veterans. *Military Medicine* **180**(6): 621-625.

37. **SEYFANG, A.**; BELLUR, A.; WELLS, D. & DOENGES, M. (2016). "METHODS OF TREATING NFA-1 ORGANISM INFECTION USING APOCYNIN." *U.S. PATENT NO. 9,492,455.*

38. **SEYFANG, A.**; BELLUR, A.; WELLS, D. & DOENGES, M. (2017). "METHODS OF TREATING NFA-1 ORGANISM INFECTION USING ALLOPURINOL." *U.S. PATENT NO. 9,655,901.*

39. **SEYFANG, A.**; LOCKSMITH, T.J.; BELLUR, A.; WELLS, D. & DOENGES, M. (2018). "Methods of Treating *Acanthamoeba* Infection Using Apocynin." *U.S. Patent No. 10,058,517*

40. **SEYFANG, A.**; MASSENGILL, C.L. & SIEVERS, S.R. (2019). "Transfection Vector for Pathogenic Amoebae and Use Thereof." *U.S. Patent No. 10,273,487.*

41. DUFFY, A.R.; O'CONNELL, J.R.; PAVLOVICH, M.; RYAN, K.A.; LOWRY, C.A.; DAUE, M.; RAHEJA, U.K.; BRENNER, L.A.; MARKON, A.O.; PUNZALAN, C.M.; DAGDAG, A.; HILL, D.E.; POLLIN, T.I.; **SEYFANG, A.**; GROER, M.W.; MITCHELL, B.D. & POSTOLACHE, T.T. (2019). *Toxoplasma gondii* Serointensity and Seropositivity: Heritability and Household-Related Associations in the Old Order Amish. *International Journal of Environmental Research & Public Health* **16**: 3732-3740.

42. **SEYFANG, A.**; LOCKSMITH, T.J.; BELLUR, A.; WELLS, D. & DOENGES, M. (2020). "Methods of Treating *Acanthamoeba* Infection Using Allopurinol." *U.S. Patent No. 10,668,027*

43. SHARMA, N.S.; VESTAL, G.; WILLE, K.; PATEL, K.N.; CHENG, F.; TIPPARAJU, S.; TOUSIF, S.; BANDAY, M.M.; XU, X.; WILSON, L.; VISWAM, S.N.; MORROW, C.; HAYES, JR., D.; **SEYFANG, A.**; BARNES, S.; DESHANE, J.S. & GAGGAR, A. (2020). Differences in Airway Microbiome and Metabolome of Single Lung Transplant Recipients. *Respiratory Research* **21**: 104 (1-12).

44. LIM, S.J.*; **SEYFANG, A.***; DUTRA, S.; KANE, B. & GROER, M.W. (2020). Gene expression responses to Zika virus infection in peripheral blood mononuclear cells from pregnant and non-pregnant women. *MicrobiologyOpen* **9**(12): e1134 (1-21). *shared co-first authorship

45. BANDAY, M.M.; KUMAR, A.; VESTAL, G.; SETHI, J.; PATEL, K.N.; O'NEILL, E.B.; FINAN, J.; CHENG, F.; LIN, M.; DAVIS, N.M.; GOLDBERG, H.; COPPOLINO, A.; MALLIDI, H.R.; DUNNING, J.; VISNER, G.; GAGGAR, A.; **SEYFANG, A.** & SHARMA, N.S (2021). N-myc-Interactor Mediates Microbiome Induced Epithelial to Mesenchymal Transition and is Associated with CLAD. *J. Heart Lung Transplant.* **40**(6): 447-457.

46. MUTKA, T.; **SEYFANG, A.**; YOO, J.Y.; DUTRA, S.V.O.; JI, M.; LOUIS-JACQUES, A.; DUFFY, A.; BRUDER, K.; PRESCOTT, S.; KIM, K. & GROER, M. (2023). Adverse pregnancy outcomes in *Toxoplasma* seropositive Hispanic women. *J. Obstet. Gynecol. Res.* **49**(3):893-903.

47. BANDAY, M.M.; RAO, S.B.; SHANKAR, S.; KHANDAY, M.A.; FINAN, J.; O'NEILL, E.; COPPOLINO, A.; **SEYFANG, A.**; KUMAR, A.; RINEWALT, D.E.; GOLDBERG, H.J.; WOOLLEY, A.; MALLIDI, H.R.; VISNER, G.; GAGGAR, A.; PATEL, K.N. & SHARMA, N.S (2023). IL-33 Mediates *Pseudomonas* Induced Airway Fibrogenesis and Is Associated with CLAD. *J. Heart Lung Transplant.* **42**(1): 53-63.

48. SIMMONS, C.; GIBBONS, J.; ZHANG, M.; OBERSTALLER, J.; VALENTE PIRES, C.; CASANDRA, D.; WANG, C.; **SEYFANG, A.**; OTTO, T.D.; RAYNER, J.C. & ADAMS, J.H. (2023). Protein KIC5 Is a Novel Regulator of Artesimin Stress Response in the Malaria Parasite *Plasmodium falciparum. Sci. Rep.* **13**: 399.

49. CHAWLA, J.; GOLDOWITZ, I.; OBERSTALLER, J.; ZHANG, M.; VALENTE PIRES, C.; NAVARRO, F.; SOLLELIS, L. WANG, C.C.Q; **SEYFANG, A.**; DVORIN, J.; OTTO, T.D.; RAYNER, J.C.; MARTI, M. & ADAMS, J.H. (2023). Phenotypic Screens Identify Genetic Factors Associated with Gametocyte Development in the Human Malaria Parasite *Plasmodium falciparum. Microbiol. Spectr*. **11**(3): e04164-22.

50. SIMMONS, C.; GIBBONS, J.; WANG, C.; VALENTE PIRES, C.; ZHANG, M.; OBERSTALLER, J.; CASANDRA, D.; **SEYFANG, A.**; OTTO, T.D. & ADAMS, J.H. (2023). A novel Modulator of Ring Stage Translation (MRST) gene alters artemisinin sensitivity in *Plasmodium falciparum. mSphere* **8**(4): e00152-23.

51. PRESCOTT, S.; MUTKA, T.; BAUMGARTEL, K.; YOO, J.Y.; MORGAN, H.; POSTOLACHE, T.T.; **SEYFANG, A.**; GOSTNER, J.M.; FUCHS, D.; KIM, K. & GROER, M. (2023). Tryptophan metabolism and immune alterations in pregnant Hispanic women with chronic *Toxoplasma gondii* infection. *Am. J. Reprod. Immunol.* **90**: e13768.

52. **SEYFANG, A.** & SHARMA, N.S. (2023). "Isolation and Cultivation of Lung Microbiome and Use Thereof." *U.S. Patent No. 11,788,155*

53. SHARMA, N.S., BANDAY, M. & **SEYFANG, A.** (2023). "N-Myc-Interactor Protein as a Marker for Chronic Lung Disease and Uses Thereof." *U.S. Patent No. 11,851,707*

13. ABSTRACTS

1. DUSZENKO, M.; **SEYFANG, A.** & LÜCK, A. (1988). Biosynthesis, Intracellular Transport and Turnover of a Variant Surface Glycoprotein in *Trypanosoma brucei.*
(13th Meeting of The German Society for Parasitology, March 22-25, 1988, in Neuchâtel, Switzerland)

2. DUSZENKO, M.; PINGEL, S.; **SEYFANG, A.**; MIOSKA, T. & MECKE, D. (1988). Intracellular Transport of a variant surface glycoprotein in *Trypanosoma brucei. International Congress Series* **801**: 24.
(XIIth International Congress for Tropical Medicine and Malaria, September 18-23, 1988, in Amsterdam, The Netherlands)

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(14th Meeting of The German Society for Parasitology, April 4-6, 1990, in Marburg/Lahn, Germany)

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5. **SEYFANG, A.** & DUSZENKO, M. (1991). Characterization and Reconstitution of the D-Glucose Transporter from *Trypanosoma brucei.*
(Trypanosomiasis Seminar, December 11-13, 1991, in Antwerp (Belgium); Prince Leopold Institute of Tropical Medicine & The British Society for Parasitology)

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(15th Meeting of The German Society for Parasitology, March 30-April 3, 1992, in Berlin, Germany)

7. **SEYFANG, A.** & DUSZENKO, M. (1992). Reconstitution and Purification of the D-Glucose Transporter from *Trypanosoma brucei. Abstracts*: 105.
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(Max Planck Society Symposium on the "Molecular Biology of African Trypanosomes and Leishmania with Special Emphasis on the Cell Surface", June 22-26, 1992, at Ringberg Castle/Lake Tegernsee, Germany)

9. **SEYFANG, A.** & DUSZENKO, M. (1993). The Plasma-Membrane D-Glucose Transporter of *Trypanosoma brucei*: Isolation and Biochemical Characterization. *Abstracts*: 136.
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10. **SEYFANG, A.**; BRINGAUD, F.; DUSZENKO, M. & BALTZ, T. (1994). Reconstitution and Functional Analysis of a Protozoan Transporter: The *Trypanosoma brucei* Plasma-Membrane Glucose Transporter.
(16th Meeting of The German Society for Parasitology, March 21-25, 1994, in Bochum, Germany)

11. WILLE, U.; **SEYFANG, A.** & DUSZENKO, M. (1994). Characterization of the glucose transporter in procyclic forms of *Trypanosoma brucei.*
(Annual Meeting of The German Society for Cell Biology, March 20-24, 1994, in Lübeck, Germany)

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13. **SEYFANG, A.** & LANDFEAR, S.M. (1996). Functional Characterization and Regulation of the Inositol/Proton Symporter in *Leishmania. Abstracts*: Session II.
(Seattle Protozoology Conference, March 21-22, 1996, in Seattle, WA)

14. **SEYFANG, A.** & LANDFEAR, S.M. (1996). Functional Characterization and Regulation of the Inositol/Proton Symporter in *Leishmania. Abstracts*: 25.
(Molecular Parasitology Meeting VII, September 15-19, 1996, in Woods Hole, MA)

15. BAKALARA, N.; **SEYFANG, A.**; SANTARELLI, X.; CASSAGNE, C.; DAVIS, C. & BALTZ, T. (1996). Characterization and Partial Purification of a Membrane Tyrosine Phosphatase in *Trypanosoma brucei* Bloodstream Forms. *Abstracts*: 417.
(Molecular Parasitology Meeting VII, September 15-19, 1996, in Woods Hole, MA)

16. LANDFEAR, S.M.; SNAPP, E.L. & **SEYFANG, A.** (1996). Function, Regulation and Subcellular Targeting of Membrane Transporters in *Leishmania* Parasites.
(XII Meeting of the Brazilian Society of Protozoology/ XXIII Annual Meeting on Basic Research in Chagas' Disease, November 5-8, 1996, in Caxambu, Brasil)

17. **SEYFANG, A.** & LANDFEAR, S.M. (1997). Asp-19 and Glu-121 Are Critical for Transport Function of the Inositol-Proton Symporter from *Leishmania donovani*. *Posters II*: 23.

(Gordon Research Conference "Mechanisms of Membrane Transport", June 22-27, 1997, in Plymouth, NH)

18. CUNNINGHAM, M.L.; MOORE, J.B.; **SEYFANG, A.**; LANDFEAR, S. & BEVERLEY, S.M. (1997). Pteridine Transport in *Leishmania. Abstracts*: 236.
(Molecular Parasitology Meeting VIII, September 24-28, 1997, in Woods Hole, MA)

19. **SEYFANG, A.** & LANDFEAR, S.M. (1997). Glu187, Asp300 and Glu429 in Conserved Cytoplasmic Sequence Motifs are Important for Transport Function of the *Leishmania* Inositol/H^+ Symporter. *Abstracts*: 302.
(Molecular Parasitology Meeting VIII, September 24-28, 1997, in Woods Hole, MA)

20. VASUDEVAN, G.; CARTER, N.; DREW, M.; BEVERLEY, S.M.; SANCHEZ, M.A.; **SEYFANG, A.**; ULLMAN, B. & LANDFEAR, S.M. (1998). Cloning the *Leishmania donovani* Adenosine/ Pyrimidine Nucleoside Transporter by Functional Complementation*. Abstracts*: Session IV.
(Seattle Protozoology Conference, March 27-27, 1998, in Seattle, WA)

21. **SEYFANG, A.** & LANDFEAR, S.M. (1998). Glu187, Asp300 and Glu429 in Conserved Cytoplasmic Sequence Motifs are Important for Transport Function of the *Leishmania* Inositol-Proton Symporter. *Abstracts*: PI-46. **Poster won First Prize.**
(8th Winternational Symposium on Cellular and Molecular Biology, Canadian Society of Biochemistry and Molecular & Cellular Biology: "Membrane Proteins in Health and Disease", April 2-5, 1998, in Banff, Alberta, Canada)

22. **SEYFANG, A.** & LANDFEAR, S.M. (1998). Extracellular Substrate Concentration Regulates Uptake of *myo*-Inositol, Glucose and Adenosine in *Leishmania*. *Abstracts*: 276.
(Molecular Parasitology Meeting IX, September 13-17, 1998, in Woods Hole, MA)

23. **SEYFANG, A.** & LANDFEAR, S.M. (1999). Substrate Depletion Upregulates *myo*-Inositol Transporter and Uptake of Glucose and Adenosine in *Leishmania*.
(Forum of the Centre for Molecular Biology Heidelberg: "Pathogenic Protozoa: Molecules, Structures and Mechanisms", March 29-31, 1999, in Heidelberg, Germany)

24. **SEYFANG, A.** & LANDFEAR, S.M. (1999). *Leishmania myo*-Inositol/H^+ Transporter MIT as a Model Proton Symporter from Early Eukaryotes: Structure-Function Analysis, Pharmacology, Regulation and MIT Knockouts.
(International Research Conference: "Membrane Transporters: New Perspectives in Drug Delivery and Drug Targeting", August 8-12, 1999, in Ascona, Switzerland)

25. **SEYFANG, A.** (2000). *Leishmania myo*-Inositol/H^+ Transporter as a Model Proton Symporter from Early Eukaryotes: Structure-Function Analysis, Pharmacology, Regulation and MIT Knockouts.
(10th Annual Molecular Parasitology/Vector Biology Symposium, May 10, 2000, in Athens, GA)

26. **SEYFANG, A.** & LANDFEAR, S.M. (2000). Targeted Gene Disruption of the *Leishmania donovani myo*-Inositol Transporter MIT. *Abstracts*: 78.
(Molecular Parasitology Meeting XI, September 17-21, 2000, in Woods Hole, MA)

27. **SEYFANG, A.** (2001). Transporters in Protozoan Parasites: Pharmacological Target and Model Transporters in Early Eukaryotes. *FASEB Abstracts*: 4.

(FASEB Summer Research Conference "New Perspectives in Transporter Biology", July 21-26, 2001, in Tucson, AZ)

28. **SEYFANG, A.**; MINHAJUDDIN, M; JIN, H. & MONGAN, T.P. (2001). Substrate Recognition and Pharmacology of *myo*-Inositol Transport in *Trypanosoma cruzi*, *Abstracts*: P34. (PharmaConference "Membrane Transporters: From Identification to Drug Delivery", August 5-9, 2001, in Interlaken, Switzerland)

29. **SEYFANG, A.**; MINHAJUDDIN, M; JIN, H. & MONGAN, T.P. (2001). Substrate Specificity and Pharmacology of *myo*-Inositol Transport in *Trypanosoma cruzi. Abstracts*: 6C. (Molecular Parasitology Meeting XII, September 12-16, 2001, in Woods Hole, MA)

30. **SEYFANG, A.**; MINHAJUDDIN, M; JIN, H. & MONGAN, T.P. (2002). Substrate Selectivity and Pharmacology of *Trypanosoma cruzi myo*-Inositol Transport. (12th Annual Molecular Parasitology/Vector Biology Symposium, May 3, 2002, in Athens, GA)

31. **SEYFANG, A.**; JIN, H.; MINHAJUDDIN, M & MONGAN, T.P. (2002). The *Leishmania* MIT, a *myo*-Inositol/ Proton Model Transporter from Early Eukaryotes: Structure-Function Analysis and Regulation. *Abstracts*: A49. (American Society for Microbiology Southeastern Branch Annual Meeting, November 7-9, 2002, in Gainesville, FL)

32. JIN, H. & **SEYFANG, A.** (2002). Functional Characterization and Pharmacology of High-Affinity Inositol Transport in the Pathogenic Yeast *Candida albicans*. *Abstracts*: A26. (American Society for Microbiology Southeastern Branch Annual Meeting, November 7-9, 2002, in Gainesville, FL)

33. MINHAJUDDIN, M.; JIN, H. & **SEYFANG, A.** (2002). Calmodulin-dependent Regulation of *myo*-Inositol Transport in the Protozoan *Leishmania donovani*. *Abstracts*: A34. (American Society for Microbiology Southeastern Branch Annual Meeting, November 7-9, 2002, in Gainesville, FL)

34. **SEYFANG, A.**; MINHAJUDDIN, M & JIN, H. (2003). Calmodulin-dependent regulation of *myo*-inositol transport in the protozoan *Leishmania donovani*. *Abstract* 847.7 (Experimental Biology 2003 Conference, April 11-15, 2003, in San Diego, CA)

35. **SEYFANG, A.**; MINHAJUDDIN, M.; JIN, H. & GANAPASAM, S. (2003). Calmodulin-dependent Regulation of *myo*-Inositol Transport in the Protozoan *Leishmania donovani*. (13th Annual Molecular Parasitology/Vector Biology Symposium, May 1, 2003, in Athens, GA)

36. JIN, H. & **SEYFANG, A.** (2003). Functional Characterization and Pharmacology of High-Affinity Inositol Transport in the Pathogenic Yeast *Candida albicans*. *Abstracts*: P18. (13th Annual Molecular Parasitology/Vector Biology Symposium, May 1, 2003, in Athens, GA)

37. **SEYFANG, A.**; MINHAJUDDIN, M.; JIN, J.H. & GANAPASAM, S. (2003). Calmodulin-dependent Regulation of *myo*-Inositol Transport in the Protozoan *Leishmania donovani*. *Abstracts*: P26.

(PharmaConference "Transporters and Drugs", August 17-21, 2003, in Pontresina/ St.Moritz, Switzerland)

38. **SEYFANG, A.**; MINHAJUDDIN, M.; JIN, J.H. & GANAPASAM, S. (2003). Calmodulin-dependent Regulation of *myo*-Inositol Transport in the Protozoan *Leishmania donovani*. *Abstracts*: 11B.
(Molecular Parasitology Meeting XIV, September 14-18, 2003, in Woods Hole, MA)

39. **SEYFANG, A.**; LAWSON, J.G. & LANDFEAR, S.M. (2004). Post-Transcriptional Regulation of the *Leishmania myo*-Inositol Transporter by Substrate Depletion.
(14th Annual Molecular Parasitology/Vector Biology Symposium, April 30, 2004, in Athens, GA)

40. LAWSON, J.G.; FIELDS, J.A.; CATHCART, H.M. & **SEYFANG, A.** (2004). Pharmacology of High-Affinity *myo*-Inositol Transport in the Opportunistic Pathogenic Fungus *Cryptococcus neoformans*. *Abstracts*: P6.
(14th Annual Molecular Parasitology/Vector Biology Symposium, April 30, 2004, in Athens, GA)

41. TUAN, D.; LING, J.; ZHU, X.; PI, W.; AINOL, L.; YU, X.; ZHANG, L.; JIN, H.; **SEYFANG, A.**; TAKEDA, Y. & KO, L. (2004). A tracking and transcription mechanism of the ERV-9 LTR and the HS2 enhancers in the human beta-globin gene locus.
(14th Conference on Hemoglobin Switching, September 10-14, 2004, in Orcas Island, WA)

42. **SEYFANG, A.** & JIN, J.H. (2004). Multiple Site-Directed Mutagenesis of More Than 10 Sites Simultaneously. *Abstracts*: 25.
(Georgia Life Sciences Summit 2004, September 22, 2004, in Atlanta, GA)

43. LAWSON, J.G.; FIELDS, J.A.; CATHCART, H.M. & **SEYFANG, A.** (2005). Pharmacology of High-Affinity *myo*-Inositol Transport in the Opportunistic Pathogenic Fungus *Cryptococcus neoformans*.
(American Society for Microbiology Southeastern Branch Annual Meeting, October 27-29, 2005, in St. Petersburg, FL)

44. **SEYFANG, A.**; MINHAJUDDIN, M; JIN, H. & MONGAN, T.P. (2005). Substrate Selectivity and Pharmacology of *myo*-Inositol Transport in *Trypanosoma cruzi*.
(American Society for Microbiology Southeastern Branch Annual Meeting, October 27-29, 2005, in St. Petersburg, FL)

45. **SEYFANG, A.**; MINHAJUDDIN, M.; JIN, J.H. (2006). Calmodulin-dependent Regulation of *myo*-Inositol Transport in the Protozoan *Leishmania donovani*. *Abstracts*: 107.
(22th Meeting of The German Society for Parasitology, February 22-25, 2006, in Vienna, Austria)

46. CASH-PADGETT, T. & **SEYFANG, A.** (2008). Generation of Chimeric Transport Proteins by Gene Engineering (Gene SOEing). **Poster won First Prize.**
(Hillsborough County Science Fair, February 20-21, 2008, in Tampa, FL)

47. HOLLOWAY, M.J.; BARBER, M.J. & **SEYFANG, A.** (2008). Characterization of Cytochrome b_5 and Cb_5 Reductase in the Fungal Pathogen, *Candida albicans*. *Abstracts*: C-7.
(18th Annual USF Health Research Day, February 22, 2008, in Tampa, FL)

48. **SEYFANG, A.**; JIN, J.H.; MINHAJUDDIN, M. & MONGAN, T.P. (2008). Post-Transcriptional Regulation of the *Leishmania myo*-Inositol Transporter by Substrate Depletion. *Abstracts*: 39.
(23th Meeting of The German Society for Parasitology, March 4-7, 2008, in Hamburg, Germany)

49. BARBER, M.J., ROMA, G., & **SEYFANG, A.** (2008). Expression and Characterization of a Functional *Leishmania* Variant of Cytochrome b5 Reductase.
(Experimental Biology 2008, April 5-9, 2008, in San Diego, CA)

50. CASH-PADGETT, T. & **SEYFANG, A.** (2008). Generation of Chimeric Transport Proteins by Gene Engineering (Gene SOEing). **Poster won Fourth Prize.**
(Florida State Science Fair, April 16-17, 2008, in Lakeland, FL)

51. HOLLOWAY, M.J.; ROMA, G.; BARBER, M.J. & **SEYFANG, A.** (2008). Characterization of Cytochrome b_5 Reductase and its Electron Acceptor, Cytochrome b_5, in the Fungal Pathogen *Candida albicans*. *Abstracts.* **Poster won First Prize.**
(USF SIPAIID 2nd Annual Conference, May 9-10, 2008, in Tampa, FL)

52. HOLLOWAY, M.J., ROMA, G., BARBER, M.J., & **SEYFANG, A.** (2008). Biochemical Characterization of Cytochrome b_5 Reductase in the Opportunistic Fungus *Candida albicans*. *Abstracts: 7.*
(2008 USF Office of Research Innovation and Graduate School Research Week, November 6, 2008, in Tampa, FL)

53. DE ABREU, L.G.; HUANG, J.; OKUKA, M.; REIS, R.; LIU, L.; **SEYFANG, A.** & KEEFE, D. (2008). Epigenetic Modifications Alter Telomere Length During Preimplantation Embryo Development. *Abstracts:* P-704.
(American Society for Reproductive Medicine (ASRM), 64th Annual Meeting, November 8-12, 2008, in San Francisco, CA)

54. HOLLOWAY, M.J., ROMA, G., BARBER, M.J., & **SEYFANG, A.** (2009). Characterization of Cytochrome b_5 Reductase in the Opportunistic Fungus *Candida albicans. Abstracts.*
(USF SIPAIID 3rd Annual Conference, January 29-30, 2009, in Tampa, FL)

55. HOLLOWAY, M.J., ROMA, G., BARBER, M.J., & **SEYFANG, A.** (2009). Characterization of Cytochrome *b*5 Reductase in the Fungal Pathogen, *Candida albicans*. *Abstracts.*
(19th Annual USF Health Research Day, February 20, 2009, in Tampa, FL)

56. MALVISI, L., HOLLOWAY, M.J., MARKEL, J., BARBER, M.J., & **SEYFANG, A.** (2009). Cytochrome b_5 Reductase as a Pharmaceutical Target in the Malaria Parasite *Plasmodium falciparum.*
(USF Public Health Research Week, March 27-April 7, 2009, in Tampa, FL)

57. HOLLOWAY, M.J., ROMA, G., BARBER, M.J., & **SEYFANG, A.** (2009). Biochemical Characterization of Cytochrome b_5 Reductase in the Fungal Pathogen *Candida albicans*.
(The American Society for Microbiology General Meeting, May 17-21, 2009, in Philadelphia, PA)

58. **SEYFANG, A**. (2009). *Leishmania myo*-Inositol Transporter MIT: Drug Delivery and Novel Therapeutic Target.

(NIH/NIAID – Institut Pasteur de Tunis Conference: "*Leishmania* – Collaborative Research Opportunities in North Africa and the Middle East", June 22-25, 2009, in Tunis, Tunisia)

59. **SEYFANG, A**., MINHAJUDDIN, M., MORGAN, T.P. (2009). *Trypanosoma brucei myo*-Inositol Transporter TcMIT: Drug Delivery and Novel Therapeutic Target. (International Symposium on the Centennial of the Discovery of Chagas Disease, July 8-10, 2009, in Rio de Janeiro, Brazil)

60. HOLLOWAY, M.J., ROMA, G., BARBER, M.J., & **SEYFANG, A.** (2009). Biochemical Characterization of Cytochrome b_5 Reductase in the Fungal Pathogen *Candida albicans*.
(2009 USF Office of Research Innovation and Graduate School Research Week, October 5-9, 2009, in Tampa, FL)

61. HOLLOWAY, M.J., ROMA, G., BARBER, M.J., & **SEYFANG, A.** (2009). Biochemical Characterization of Cytochrome b_5 Reductase in the Fungal Pathogen *Candida albicans*.
(FCoE-BITT 2009 Symposium on Drug Design, Discovery, and Delivery, October 14-16, 2009, in Tampa, FL)

62. HOLLOWAY, M.J., LAIRD, C., WOOLERY, K. , BARBER, M.J., & **SEYFANG, A.** (2010). Biochemical and Pharmacological Characterization of Cytochrome b_5 Reductase as Novel Therapeutic Target in *Candida albicans*. *Abstracts.*
(20th Annual USF Health Research Day, January 15, 2010, in Tampa, FL)

63. HOLLOWAY, M.J., LAIRD, C., WOOLERY, K. , BARBER, M.J., & **SEYFANG, A.** (2010). Biochemical and Pharmacological Characterization of Cytochrome b_5 Reductase as Novel Therapeutic Target in *Candida albicans*.
(ASM *Candida* and Candidiasis Conference, March 22-26, 2010, in Miami, FL)

64. HOLLOWAY, M.J., GRIGGS, Z.H., GUNTHER, S.R., BARBER, M.J., & **SEYFANG, A.** (2011). Biochemical and Pharmacological Characterization of Cytochrome b_5 Reductase as Novel Therapeutic Target in *Candida albicans*. *Abstracts:* 159
(FEBS Advanced Lecture Course: Human Fungal Pathogens: Molecular Mechanisms of Host-Pathogen Interactions and Virulence, May 7-13, 2011, in Nice, France)

65. GRIGGS, Z.H., GUNTHER, S.R., HOLLOWAY, M.J., BARBER, M.J., & **SEYFANG, A.** (2011). Biochemical and Pharmacological Characterization of Cytochrome b_5 Reductase as Novel Therapeutic Target in *Candida albicans. Abstracts*.
(USF SIPAIID Annual Symposium, May 27, 2011, in Tampa, FL)

66. BELLUR, A., AZHARI, A., KHAN, A., MILLER, B.T., SHIN, K., ANDERSON, M. & **SEYFANG, A.** (2012). A Family of Seven Cytochrome b_5 Reductase as Novel Therapeutic Target in *Leishmania mexicana. Abstracts*.
(USF SIPAIID Annual Symposium, June 1, 2012, in Tampa, FL)

67. **SEYFANG, A.**, NAZIAN, S.J., SAPORTA, S., DOUPNIK, C.A., JOHNSON, W.E. & STEVENSON, F.T. (2012). Assessment of an Adjusted vs. Fixed Pass Line for Student Performance in a Medical School Curriculum*. Abstracts*. **Won Best Poster Award.**
(International Association of Medical Science Educators (IAMSE) Annual Meeting, June 23-26, 2012, in Portland, OR)

68. BELLUR, A., AZHARI, A., MILLER, B.T., SHIN, K., ANDERSON, M., KHAN, A. & **SEYFANG, A.** (2012). A Family of Seven Cytochrome b_5 Reductase as Novel Therapeutic Target in *Leishmania mexicana. Abstracts*.
(American Society of Tropical Medicine & Hygiene (ASTMH) Annual Meeting, November 11-15, 2012, in Atlanta, GA)

69. BELLUR, A.,WELLS, D & **SEYFANG, A.** (2013). *Naegleria fowleri* Virulence Factor Nfa-1 is a Hemerythrin with NAD(P)H-dependent Oxidoreductase Activity*. Abstracts*.
(USF Health Research Day Annual Symposium, February 22, 2013, in Tampa, FL)

70. BELLUR, A.,WELLS, D & **SEYFANG, A.** (2013). *Naegleria fowleri* Virulence Factor Nfa-1 is a Hemerythrin with NAD(P)H-dependent Oxidoreductase Activity*. Abstracts: P26*.
(CDDI Symposium: *Frontiers of Drug Discovery*, March 29, 2013, in Tampa, FL)

71. **SEYFANG, A.**, SAPORTA, S. & JOHNSON, W.E. (2013). Effect of Pre-Medical Education on Student Performance in a First-Year Medical School Curriculum*. Abstracts*.
(Association of Biochemistry Course Directors (ABCD) Biennial Meeting, May 5-9, 2013, in Santa Fe, NM)

72. **SEYFANG, A.**, SAPORTA, S. & JOHNSON, W.E. (2013). Effect of Pre-Medical Education on Student Performance in a First-Year Medical School Curriculum*. Abstracts: 205*.
(International Association of Medical Science Educators (IAMSE) Annual Meeting, June 8-11, 2013, in St. Andrews, Scotland/UK)

73. BELLUR, A.,WELLS, D, DOENGES, M. & **SEYFANG, A.** (2014). *Naegleria fowleri* Virulence Factor Nfa-1 is a Hemerythrin with NAD(P)H-dependent Oxidase Activity*. Abstracts*.
(USF Health Research Day Annual Symposium, February 21, 2014, in Tampa, FL)

74. BELLUR, A., MASSENGILL, C.L., WELLS, D, DOENGES, M., SULESKEY, A.L. & **SEYFANG, A.** (2015). *Naegleria fowleri* Virulence Factor Nfa-1 is a Hemerythrin with NAD(P)H-dependent Oxidase Activity*. Abstracts*.
(USF Health Research Day Annual Symposium, February 20, 2015, in Tampa, FL)

75. BELLUR, A., MASSENGILL, C.L., WELLS, D, DOENGES, M., SULESKEY, A.L. & **SEYFANG, A.** (2015). *Naegleria fowleri* Virulence Factor Nfa-1 is a Hemerythrin with NAD(P)H-dependent Oxidase Activity*. Abstracts*.
(CDDI Symposium: *Frontiers of Drug Discovery*, February 27, 2015, in Tampa, FL)

76. **SEYFANG, A.** (2015). Cancer Biology as an Anchor to Teach the Core Principles of Medical Sciences in a First-Year Medical School Curriculum*. Abstracts*.
(Association of Biochemistry Course Directors (ABCD) Biennial Meeting, May 3-7, 2015, in Santa Fe, NM)

77. **SEYFANG, A.** (2015). Cancer Biology as an Anchor to Teach the Core Principles of Medical Sciences in a First-Year Medical School Curriculum*. Abstracts.*
(International Association of Medical Science Educators (IAMSE) Annual Meeting, June 13-16, 2015, in San Diego, CA)

78. LOUIS-JACQUES, A.F.; ROMERO, S.T.; SINKEY, R.G.; **SEYFANG, A.** & GROER, M.W. (2016). Maternal Epigenetic Programming by Lactation Status: Pilot Study. *Abstracts*.
(Society for Maternal-Fetal Medicine (SMFM) 36th Annual Meeting, February 1-6, 2016, in Atlanta, GA)

79. FOMUKE, K., ARTURO, J., MASSENGILL, C.L., SIEVERS, S., TAHIR, N. & **SEYFANG, A.** (2016). Development of a *Naegleria fowleri* Transfection Vector as Novel Genetic Tool in Pathogenic Ameba*. Abstracts*. **Won Best Poster Award.**
(USF Health Research Day Annual Symposium, February 19, 2016, in Tampa, FL)

80. FOMUKE, K., ARTURO, J., MASSENGILL, C.L., SIEVERS, S., TAHIR, N. & **SEYFANG, A.** (2016). Development of a *Naegleria fowleri* Transfection Vector as Novel Genetic Tool in Pathogenic Ameba*. Abstracts*.
(USF-Tampa Bay STEM Summit, March 30, 2016, in Tampa, FL)

81. ARTURO, J., FOMUKE, K., MASSENGILL, C.L., SIEVERS, S., TAHIR, N. & **SEYFANG, A.** (2016). Development of a *Naegleria fowleri* Transfection Vector as Novel Genetic Tool in Pathogenic Ameba*. Abstracts*.
(CDDI Symposium: *Frontiers of Drug Discovery*, May 16, 2016, in Tampa, FL)

82. **SEYFANG, A.**, DUFFY, A.R., GROER, M.W. & POSTOLACHE, T.T. (2017). Molecular Epidemiology of *Toxoplasma gondii* Serotypes in Old Order Amish Families*. Abstracts*.
(USF Health Research Day Annual Symposium, February 24, 2017, in Tampa, FL)

83. **SEYFANG, A.**, DUFFY, A.R., GROER, M.W. & POSTOLACHE, T.T. (2017). Molecular Epidemiology of *Toxoplasma gondii* Serotypes in Old Order Amish Families*. Abstracts*.
(CDDI Symposium: *Frontiers of Drug Discovery and Infectious Diseases*, May 15, 2017, in Tampa, FL)

84. POSTOLACHE, T., BRUNDIN, L., GROER, M., LOWRY, C., **SEYFANG, A.**, ERLANGSEN, A., FUCHS, D. & BRENNER, L. (2017). *Toxoplasma gondii*, Inflammation and Suicidal Behavior: Premises for Interventional Studies*. Abstracts*.
(IASR/AFSP International Summit on Suicide Research, November 5-8, 2017, in Henderson, NV)

85. **SEYFANG, A.**, GROER, M.W., DUFFY, A.R., KANE, B. & POSTOLACHE, T.T. (2019). *Toxoplasma gondii* Serotypes and Cytokine Analysis in Old Order Amish Families*. Abstracts*.
(USF Health Research Day Annual Symposium, February 22, 2019, in Tampa, FL)

86. **SEYFANG, A.** (2019). Use of a Customized NBME Step 1 Subject Exam for Course Assessment in the Pre-clerkship Curriculum*. Abstracts*.
(Association of Biochemistry Educators (ABE) Biennial Meeting, May 5-9, 2019, in Tucson, AZ)

87. **SEYFANG, A.** (2019). Use of a Customized NBME Step 1 Subject Exam for Course Assessment in the Pre-clerkship Curriculum*. Abstracts*.
(International Association of Medical Science Educators (IAMSE) Annual Meeting, June 8-11, 2019, in Roanoke, VA)

88. LIM, J., **SEYFANG, A.**, KANE, B., OZORIO-DUTRA, S.V. & GROER, M.W. (2019). Enhanced pro-inflammatory responses in peripheral blood mononuclear cells may affect Zika-infection outcomes during pregnancy. *Abstracts*.
(USF Genomics Annual Symposium: *Personal Genomics*, November 15, 2019, in Tampa, FL)

89. BERRINGER, S., BANDAY, M., SHARMA, N. & **SEYFANG, A.** (2020). Cloning and Characterization of Torque Teno Virus TTV3 and TTV8 from Lung Transplant Patients. *Abstracts*.
(USF Health Research Day Annual Symposium, February 21, 2020, in Tampa, FL)

90. CHAWLA, J., OBERSTALLER, J., ZHANG, M., WANG, C., XU, S., NAUMOV, A., **SEYFANG, A.**, OTTO, T.D., RAYNER, J.C. & ADAMS, J.H. (2020). A forward genetic screen identifies genes essential for gametocyte development and transmission of the malaria parasite *Plasmodium falciparum. Abstracts*: 299E.
(Molecular Parasitology Meeting XXXI, September 20-24, 2020, in Woods Hole, MA - virtual)

91. CHAWLA, J., OBERSTALLER, J., ZHANG, M., WANG, C., XU, S., NAUMOV, A., **SEYFANG, A.**, OTTO, T.D., RAYNER, J.C. & ADAMS, J.H. (2020). A High-throughput Phenotypic Screen Unravels *Plasmodium falciparum* Genes Essential For Malaria Transmission (Gametocyte Development). *Abstracts*.
(American Society of Tropical Medicine & Hygiene (ASTMH) Annual Meeting, November 15-19, 2020, in Toronto, Canada - virtual)

92. NICHOLAS, J., DE, S.L., NTUMNGIA, F., HERMAN, C., **SEYFANG, A.** & ADAMS, J.H. (2020). Identifying potential liver-stage vaccine candidates against human malaria parasites *P. falciparum* and *P. vivax. Abstracts*.
(American Society of Tropical Medicine & Hygiene (ASTMH) Annual Meeting, November 15-19, 2020, in Toronto, Canada - virtual)

93. SIMMONS, C., OBERSTALLER, J., ZHANG, M., XU, S., GIBBONS, J., WANG, C., CASANDRA, D., **SEYFANG, A.**, OTTO, T.D., RAYNER, J.C. & ADAMS, J.H. (2020). Characterization of genes in *Plasmodium falciparum* mutants associated with altered sensitivity to artemisinin. *Abstracts*.
(American Society of Tropical Medicine & Hygiene (ASTMH) Annual Meeting, November 15-19, 2020, in Toronto, Canada - virtual)

94. CHAWLA, J., OBERSTALLER, J., ZHANG, M., WANG, C., XU, S., NAUMOV, A., **SEYFANG, A.**, OTTO, T.D., RAYNER, J.C. & ADAMS, J.H. (2020). A Whole Genome Screen Identifies Genes Essential for Transmission Stages of the Malaria Parasite *Plasmodium falciparum. Abstracts*.
(USF Health Research Day Annual Symposium, February 26, 2021, in Tampa, FL)

95. NICHOLAS, J., DE, S.L., NTUMNGIA, F., HERMAN, C., **SEYFANG, A.** & ADAMS, J.H. (2021). Identifying potential liver-stage vaccine candidates against human malaria parasites *P. falciparum* and *P. vivax. Abstracts*.
(USF Health Research Day Annual Symposium, February 26, 2021, in Tampa, FL)

96. NICHOLAS, J., NTUMNGIA, F., SUBRAMANI, P., KOLLI, S., DE, S.L., **SEYFANG, A.** & ADAMS, J.H. (2022). Early characterization of potential liver-stage vaccine candidates against human malaria parasite *P. vivax. Abstracts*.

(USF Health Research Day Annual Symposium, February 25, 2022, in Tampa, FL)

97. GROER, M., KIM, K., PRESCOTT, S., **SEYFANG, A.** & MUTKA, T. (2022). Adverse Pregnancy Outcomes in *Toxoplasma gondii* Seropositive Hispanic Women*. Abstracts*.
(16th International Congress on Toxoplasmosis and *Toxoplasma gondii* Research (ToxoXVI), May 22-26, 2022, in Riverside, CA)

98. PRESCOTT, S., KIM, K., **SEYFANG, A.**, POSTOLACHE, T., FUCHS, D. & GROER, M. (2022). Plasma Cytokines and Tryptophan Metabolites Across Pregnancy and the Postpartum in *T.gondii* Negative and Positive Women*. Abstracts*.
16th International Congress on Toxoplasmosis and *Toxoplasma gondii* Research (ToxoXVI), May 22-26, 2022, in Riverside, CA)

99. **SEYFANG, A.** (2022). The Effect of Class Attendance on Academic Performance in a Pre-clerkship Curriculum*. Abstracts*.
(International Association of Medical Science Educators (IAMSE) Annual Meeting, June 4-7, 2022, in Denver, CO)

100. CHAWLA, J., OBERSTALLER, J., ZHANG, M., WANG, C., PIRES, C.V., XU, S., SOLLELIS, L., **SEYFANG, A.**, OTTO, T.D., RAYNER, J.C., MARTI, M. & ADAMS, J.H. (2020). A High-throughput Phenotypic Screen Unravels *Plasmodium falciparum* Genes Essential for Gametocyte Development*. Abstracts*.
(American Society of Tropical Medicine & Hygiene (ASTMH) Annual Meeting, October 30-November 3, 2022, in Seattle, WA)

101. CHAWLA, J., GOLDOWITZ, I., OBERSTALLER, J., ZHANG, M., PIRES, C.V., NAVARRO, F., SOLLELIS, L., WANG, C., **SEYFANG, A.**, DVORIN, J., OTTO, T.D., RAYNER, J.C., MARTI, M. & ADAMS, J.H. (2023). High-throughput Phenotypic Screens Unravel *Plasmodium falciparum* Genes Essential for Gametocyte Development*. Abstracts*.
(USF Health Research Day Annual Symposium, March 3, 2023, in Tampa, FL)

102. NICHOLAS, J., DE, S.L., THAWORNPAN, P., KOLLI, S.K., SUBRAMANI, P.A., BRASHEAR, A., CHOOTONG, P., CUI, L., NTUMNGIA, F.B., **SEYFANG, A.** & ADAMS, J.H. (2023). Recombinant expression and preliminary characterization of *P. vivax* sporozoite antigens essential for liver-stage invasion*. Abstracts*.
(USF Health Research Day Annual Symposium, March 3, 2023, in Tampa, FL)

103. **SEYFANG, A.** (2023). The Effect of Online Class Delivery on Academic Performance in a Pre-clerkship Curriculum*. Abstracts*.
(Association of Biochemistry Educators (ABE) Biennial Meeting, April 30-May 4, 2023, in Kiawah Island, SC)

104. **SEYFANG, A.** (2023). The Effect of Online Class Delivery on Academic Performance in a Pre-clerkship Curriculum*. Abstracts*.
(International Association of Medical Science Educators (IAMSE) Annual Meeting, June 9-13, 2023, in Cancun, Mexico)

105. COOK, D., SCHILLER, L., DIB DIAZ GRANADOS, J.C., **SEYFANG, A.** (2024). Pregnancy Treatments and Related Ethnobotanical Aspects in Wiwa and Arhuaco Indigenous Patients in Northern Colombia*. Abstracts*.
(UCF Global Health Conference XIII, January 13, 2024, in Orlando, FL)

106. SCHILLER, L., COOK, D., DIB DIAZ GRANADOS, J.C., **SEYFANG, A.** (2024). Acute Respiratory Infections and Related Ethnobotanical Aspects in Wiwa and Arhuaco Indigenous Patients in Northern Colombia*. Abstracts*.
(UCF Global Health Conference XIII, January 13, 2024, in Orlando, FL)

107. COOK, D., SCHILLER, L., DIB DIAZ GRANADOS, J.C., **SEYFANG, A.** (2024). Pregnancy Treatments and Related Ethnobotanical Aspects in Indigenous Patients in Northern Colombia*. Abstracts*.
(USF Health Research Day Annual Symposium, March 1, 2024, in Tampa, FL)

108. SCHILLER, L., COOK, D., DIB DIAZ GRANADOS, J.C., **SEYFANG, A.** (2024). Acute Respiratory Infections and Related Ethnobotanical Aspects in Indigenous Patients in Northern Colombia*. Abstracts*.
(USF Health Research Day Annual Symposium, March 1, 2024, in Tampa, FL)

109. **SEYFANG, A.** (2024). The Effect of Online Class Delivery on Academic Performance in a Pre-clerkship Curriculum*. Abstracts* and invited talk.
(USF MedEd Symposium, March 1, 2024, in Tampa, FL)

14. **MISCELLANEOUS**

Citizenship: U.S.A. and Germany

Languages: English (fluent), German (native), French (fluent), Spanish (basic); *classical languages:* Latin, Egyptian Hieroglyphics

Hobbies: Classical music, Egyptology; traveling; swimming, horseback riding; wildlife and bird watching; photography (wildlife – architecture – ethnography)

15. RESEARCH GOALS AND OBJECTIVES; TECHNIQUES

Laboratory of Medical Microbiology and Molecular Parasitology:

Research in the Seyfang laboratory focuses on three major projects **(i) human microbiome analysis in clinical applications**, **(ii) membrane permeases (transporters)** as target for drug delivery and **(iii) cytochrome *b*5 reductase** as enzymatic drug target in opportunistic microbial pathogens including protozoan parasites and nosocomial and neuro-pathogenic fungi (*Candida albicans*, *Cryptococcus neoformans*).

We are studying the **human microbiome** in **clinical applications** and ***in vitro* co-culture with organ cells** as a model system. This includes, in collaboration with clinicians, microbiome analysis of lung transplant recipients as predictor for transplantation outcome, co-cultivation of the lung pathogen *Pseudomonas aeruginosa* with human lung epithelial cells to investigate biofilm formation, and the significance of the gut microbiome in colorectal and other cancers in mouse models and human samples.

A second research project relates to **membrane transport proteins** in pathogenic microorganisms that are of particular interest as they form the primary interface between microorganism and human host to interfere with their physiological functions. Moreover, as the **gatekeepers of the cell**, these permeases control specificity and quantity of nutrient acquisition from the host and hence are an attractive pharmacological target for delivery of cytotoxic and parasite-specific substrate analogues and drugs into microbial cells.

We are studying the biochemistry and molecular pharmacology of membrane transporters (permeases) for essential nutrients and vitamins as targets for rational drug design and as vehicles for **drug delivery in opportunistic microbial pathogens** including **protozoan parasites** (*Leishmania* and trypanosomes), which include the etiological agents of devastating and often fatal diseases such as kala-azar/leishmaniasis, Chagas' heart disease and sleeping sickness. Furthermore, our laboratory studies the biochemistry and pharmacology of membrane transport in the **opportunistic pathogenic fungi** *Candida* and *Cryptococcus neoformans*, which are important oral, nosocomial and/or neuro-pathogenic pathogens and of increasing medical significance owing to the HIV disease/AIDS pandemic and the development of drug resistance. Moreover, we also study the **significance of inositol in the brain** and its implications in neurodegenerative diseases such as Alzheimer's and Parkinson's disease.

We have chosen the ***myo*-inositol transporters** in these pathogens as a novel target since inositol is an essential precursor for the glycosyl-phosphatidylinositol (GPI)-anchors of protective and/or immunomodulatory surface molecules in parasitic protozoa and pathogenic fungi, and GPI-anchored surface molecules are about 1000 times more abundant on the cell surface of these parasites than on mammalian cells. Hence, we are employing a multi-disciplinary approach of biochemistry, proteomics, molecular pharmacology and genetics to probe the structure-function relationship,

substrate/drug selectivity, protein-protein interaction, and significance for microbial pathogenicity of these membrane proteins at the molecular level in both *in vitro* culture and animal models.

Our laboratory could show that inositol transport in *Leishmania*, trypanosomes and the two pathogenic fungi *Candida* and *Cryptococcus* is active and proton-coupled but sodium-independent, in contrast to the sodium-coupled inositol transport in the intestine and kidney of the human host by permeases of a different, structurally unrelated transporter superfamily. Using drug design based on the specificity of substrate recognition of the *Leishmania* model *myo*-inositol/H^+ transporter MIT, we have started to develop **fluorinated inositol analogues** and could already show strong inhibition of cell growth in *Leishmania* by the inositol analogue 3-fluoro-*myo*-inositol.

A third project investigates **cytochrome *b*5 reductase** as enzymatic drug target in these opportunistic microbial pathogens. Cytochrome *b*5 reductase (Cb5r) plays an important role in P450-mediated detoxification of xenobiotics and drugs, lipid biosynthesis, and the synthesis of cholesterol (humans) or ergosterol (fungi, *Leishmania* and *Trypanosoma cruzi*). Hence we use recombinant Cb5r protein for biochemical, structural and pharmacological studies and *in silico* modeling as a novel pharmacological target in these opportunistic microbial pathogens.

TECHNIQUES that are employed in the laboratory, and that are ready to be shared with other labs for fruitful collaborations, include all aspects of protein biochemistry and molecular biology, proteomics, microarray and real-time PCR gene expression analysis, site-directed mutagenesis, targeted gene disruption and reverse genetics. We perform microbiome analysis and use microbiome culturomics methods, as well as microbiome organ cell co-cultivation systems. Specifically, we use heterologous expression in *Xenopus* oocytes microinjected with transporter RNA, cDNA library construction and expression cloning by functional complementation in yeast and flagellates, yeast-two-hybrid system and protein pull-down assays, and the generation of transgenic protozoa, *Candida* and *Cryptococcus* cells in reverse genetics approaches. Furthermore, we use axenic cultivation of both mammalian and insect forms of trypanosomes and *Leishmania*, and yeast-to-hyphae transformation in *Candida* to probe the pharmacology of these important permeases *in vivo*. Hence, our studies are aimed to develop **novel inositol-based drugs** such as fluoro-inositol analogues specific for these microbial pathogens.