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CURRICULUM VITAE

Kari Dugger, Ph.D.

**Associate Professor
Microbiology Discipline Chair
Department of Biomedical Sciences**

PERSONAL INFORMATION:

Kari Dugger, Ph.D.

Citizenship: USA

Race / Ethnicity: Native American

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TEACHING EXPERTISE:

Specific topic expertise: Human physiology, pharmacology, immunology, microbiology, cell biology, lung physiology, genetics, cancer biology, cardiovascular physiology, and scientific writing

CURRICULAR DEVELOPMENT:

With a team of Microbiology and Immunology experts across four VCOM campuses (Virginia, South Carolina, Louisiana and Alabama), we continue to build a scaffolded curriculum that both prepares students for the subsequent clinical medicine curriculum that approaches pathology and physiology by systems in years 1 and 2 of their medical curriculum, but also to ensure success of their USMLE COMLEX 1 boards. New educational pedagogies are currently being integrated to improve student engagement and retention.

LEADERSHIP EXPERIENCE:

Led, developed, mentored and executed a new undergraduate major (Biomedical Sciences-BMD) that grew from 12 students to >700 students since its inception in 6 years. During this time, a BMD mission, vision, marketing strategy and faculty/staff were established. Significant networking and university collaborations were initiated and maintained to ensure the major's sustainability and success.

Previously, with my team of talented faculty and staff, we developed a Biomedical Science (BMD) undergraduate course sequence for a new BMD undergraduate major (2016-2021) that included science content, humanistic knowledge and transferrable skill scaffolding. A backwards design curricular mapping method was used to design the undergraduate curriculum and focused on three main Learning Objectives: mastery of human-based science content, understanding & application of scientific writing, and development of a professional identity. Teaching methods

included a variety of high impact learning practices (<https://www.aacu.org/node/4084>) to support strong student engagement and promote collaborations that ensured courses aligned and built upon one another in a meaningful way to the students. Examples include, but not limited to: *first year experiences, capstone, service-learning, team-based learning, undergraduate research, scientific communication and diversity learning.*

RESEARCH FOCUS:

My research interests focus on the mechanism in which exercise and/or chronic depression changes the immune function in context of asthma and cancer immunity. I am pursuing projects that have branched from initial findings in my lab: exercise (physical stressor) communicates with immune cells by the activation of the sympathetic autonomic nervous system (SNS). All immune cells express adrenergic receptors and can, therefore, respond to SNS stimulation. Further, chronic mild depression (psychological stressor) has the capacity to affect adrenergic signaling resulting in its dysfunction of immune cells. **Both stressors (physical and psychological) have been shown to affect cancer risk and/or progression (positively and negatively, respectively) although mechanisms of action remain unclear. Further, it will be important to define how these lifestyle factors may impact the newer generations of cancer immunotherapies.**

Notably, I completed a funded project focused on the optimization of bacterial load detection in urine samples to reduce the time required to diagnose and treat urinary tract infections. This project was in close collaborations with the Department of Engineering at Auburn University and has the capacity for translational impact in clinical diagnostics.

CAREER SUMMARY:

Cautious Visionary. A progressive biomedical instructor, communicator and leader interested in combining meta- and humanistic knowledge to the practice and communication of current scientific research. Building relationships and knowledge foundations that support being a 'change agent'. Fully committed to creating and researching a learning environment that is inclusive and maintains a growth mindset for all students.

EDUCATION:

College	Centre College, Danville, KY - Bachelor's in science (B.S.) in Chemistry, 2001
Graduate School	University of Alabama at Birmingham (UAB) Department of Microbiology/Immunology, Ph.D. 2007
Postdoctoral Training	Postdoctoral Fellow, University of Alabama at Birmingham (UAB) Department of Physiology and Biophysics, 2008-2010

ACADEMIC POSITIONS AND EMPLOYMENT:

<u>Year</u>	<u>Position, Institution</u>
2021-present	Associate Professor, Microbiology Discipline Chair , Edward Via College of Osteopathic Medicine-Auburn, Auburn, AL
2016- 2021	Associate Professor , Department of Clinical and Diagnostic Sciences, Biomedical Sciences Program, School of Health Professions, University of Alabama at Birmingham (UAB), Birmingham, AL

2016- 2021	Program Director , Department of Clinical and Diagnostic Sciences, Biomedical Sciences Program, School of Health Professions, University of Alabama at Birmingham (UAB), Birmingham, AL
2016-2018	Research Fellow , NIH NCI CURE (continuing umbrella of research experiences), collaboration between NCI, Washington D.C., Mitchell Cancer Institute - USA, Mobile, AL (<i>Mentor</i> : Dr. Ajay Singh), and Department of Radiology at UAB, Birmingham, AL (<i>Mentors</i> : Drs. Lalita Shevde-Samant & Kurt Zinn)
2010- 2016	Graduate Faculty , Center for Lung Biology, College of Medicine, University of South Alabama (USA), Mobile, AL
2010- 2016	Assistant Professor , Department of Biomedical Sciences, College of Allied Health Professions, University of South Alabama (USA), Mobile, AL
2009-2010	Post-doctoral T32 Fellow - Immunology Training Grant – Director: Harry W. Schroeder, Jr. M.D., Ph.D., University of Alabama at Birmingham
2008-2009	Post-doctoral T32 Fellow - Lung Biology and Translational Medicine Training Grant – Director: Dr. David Allison, University of Alabama at Birmingham
2001-2002	Research Technician , Department of Immunology, St. Jude Children’s Hospital, Memphis, TN. Dr. Dario Vignali
Summer 2001	Pediatric Oncology Education Intern (POE) , Department of Immunology, St. Jude Children’s Research Hospital, Memphis, TN <i>Mentors</i> : Dr. Dario Vignali and Dr. Creg Workman

TEACHING ACTIVITIES:**COURSES TAUGHT:**

<i>Year</i>	<i>Course(Role)</i>	<i>Institution-Program</i>
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MEDICAL SCHOOL COURSES:

2021 – present	MED7035: Medical Microbiology (Course Director & Lecturer)	VCOM-Auburn, Medical School Curriculum
2021 – present	MED7025: Medical Genetics (Lecturer)	VCOM-Auburn, Medical School Curriculum
2021 – present	MED7301: Clinical Medicine - (Lecturer) Musculoskeletal (CM-MSK)	VCOM-Auburn, Medical School Curriculum
2021 – present	MED7271: Clinical Medicine - (Lecturer) Neurology (CM-Neuro)	VCOM-Auburn, Medical School Curriculum
2021 – present	MED7277: Clinical Medicine - (Lecturer) Cardiology/Pulmonary (CM-Cardio/Pulm)	VCOM-Auburn, Medical School Curriculum
2022 – present	MED7289: Clinical Medicine - (Lecturer) Gastrointestinal (CM-GI)	VCOM-Auburn, Medical School Curriculum
2022 – present	MED7301: Clinical Medicine - (Lecturer)	VCOM-Auburn, Medical

	Obstetrics & Gynecology (CM-Ob/Gyn)	School Curriculum
2022 – present	MED7301: Clinical Medicine - (Lecturer) Hematology & Oncology (CM-Heme/Onc)	VCOM-Auburn, Medical School Curriculum
2022 – present	MED7301: Clinical Medicine - (Lecturer) Dermatology (CM-Derm)	VCOM-Auburn, Medical School Curriculum
2022 – present	Board Review - (Lecturer) MSK and Heme/Onc Topics	VCOM-Auburn, Medical School Curriculum

GRADUATE & PROFESSIONAL SCHOOL COURSES:

2019	BHS503: Virology and Vaccines (Lecturer)	UAB, Biomedical and Health Sciences, Master's Program
2018	CLS518: Immunology and Vaccines (Lecturer)	UAB, Clinical Lab Sciences, Master's Program
2009	T cell/Antigen presentation (Lecturer)	UAB, Microbiology & Immunology Doctoral Program
2008	BIO225: Microbiology	Samford University Nursing Program
2006-7	BIO261L: Microbiology Lab	UAB, Nursing Program

UNDERGRADUATE COURSES: (*COURSE DIRECTOR & LECTURER IN ALL OF THE FOLLOWING*)

2018-2019	BMD201: Bioethics (Lecturer only) <i>Alcoholism & Mental Health</i>	UAB, Biomedical Sciences
2018-2021	BMD475 (2h): BMD Capstone (writing intensive) UABTeach: Writing Case Studies in Science	UAB, Biomedical Sciences
2017-2020	BMD497: Directed research (writing intensive)	UAB, Biomedical Sciences
2017 2021	BMD490: Directed Reading (journal club)	UAB, Biomedical Sciences
2017-2021	BMD317: Human Physiology/ Pharmacology for Health Professions II Team Based Learning Designated Course	UAB, Biomedical Sciences
2016 - 2021	BMD475: BMD Capstone (writing intensive) Social Issues in Biomedical Sciences Team Based Learning Designated Course	UAB, Biomedical Sciences
2016 - 2021	BMD315: Human Physiology/ Pharmacology for Health Professions I Team Based Learning Designated Course	UAB, Biomedical Sciences
2014	BMD401: Immunology (Lecturer only)	USA, Biomedical Sciences

Hypersensitivity Reactions

2012-2016	BMD350: Genomics	USA, Biomedical Sciences
2011-2016	BMD494: Directed Research (writing intensive)	USA, Biomedical Sciences
2011-2016	BMD499: Honors Research (writing intensive)	USA, Biomedical Sciences
2010-2015	BMD420/520: Intro to Pharmacology	USA, Biomedical Sciences
2008/9	BIO416/516: Cellular Physiology	UAB, Biology
2008	BIO218: Human Physiology	Samford University, Biology

**COURSES DEVELOPED (NSF FUNDED WORKSHOP) BUT NOT TAUGHT:
BIOMEDICAL SCIENCES CONCENTRATION – SCIENCE OF DISPARITIES**

The Biomedical Sciences Undergraduate major is a two-pronged curriculum that emphasizes both science content knowledge and professional skills development. There is significant emphasis placed on written/oral communications, effective teamwork, and critical thinking to ensure our students have the transferable skill expertise needed to succeed, wherever their path leads after graduation. All current and future graduates of the Biomedical Sciences Program have a fundamental understanding of human biology and have developed competency in personal skills. In the Science of Disparities Concentration, students will expand their knowledge base to build an understanding of social and genetic determinants of health that impact our comprehension and communication of the human health sciences. Further, students will explore the complications associated with our interpretation and implementation of health sciences. Finally, students will transition into socially responsible scientists by engaging in community projects that facilitate their clear understanding of the impact of their scientific knowledge through a practicum experience using the service-learning pedagogies.

PROFESSIONAL MEMBERSHIPS:

<i>Year</i>	<i>Professional Society</i>
2022-Present	Member, Association of Professors of Human and Medical Genetics (APHMG)
2022-Present	Member, Association of Medical School Microbiology and Immunology Chairs (AMSMIC)
2021-Present	Member, America Society of Microbiology (ASM)
2021-Present	Member, Infectious Diseases Society of America (IDSA)
2019-2021	Member, ASCB – American Society for Cell Biology – STEM Education Research
2018-2021	Member, ROSE – Research on STEM education
2017- Present	Member, SACNAS – Society for Advancement of Chicanos/Hispanics and Native Americans in Science
2015- 2016	Member, ADVANCE Women in STEM (Gulf Coast Region)
2011- 2019	Member, American Association of Immunologists (AAI)
2011- 2017	Member, Psychoneuroimmunology Research Society (PNIRS)

HONORS AND AWARDS:

<i>Year(s)</i>	<i>Award</i>
2011-12; 2014-15	The Azalea Chapter of Mortar Board "Top Professor" Award University of South Alabama, Mobile, AL

PROFESSIONAL SERVICE:

<i>Year</i>	<i>Role</i>
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SCIENCE & TEACHING EXPERTISE:

2022-2023	Science Consultant, Merck Pharmaceuticals and Sidley Austin
2022	External Reviewer for Undergraduate Program, Department of Microbiology & Immunology, University of Nevada - Reno
2020-21	Panelist, Teaching in Teams, Center for Teaching and Learning, University of Alabama at Birmingham
2018	Panelist, Bentham Science (<i>Clinical Immunology, Endocrine & Metabolic Drugs</i>)

GRANT REVIEWS:

2019	Reviewer, NIH/NCI R15 Grant Review Panel – ZRG1 OTC-A (80) A Study Section AREA: Oncological Sciences Grant Applications
2018	Reviewer, NIH/NCI Mock Grant Review Panel
2017	Reviewer, NIH-funded INBRE (Idea Network of Biomedical Research Excellence) program, Puerto Rico
2015	Intramural Reviewer, USA Office of Research and Economic Development, Research and Scholarly Development Grant Program

MANUSCRIPT REVIEWS:

2018	<i>Ad hoc</i> Reviewer, Exercise Immunology Reviews
2015	<i>Ad hoc</i> Journal Reviewer, <i>British Medical Journal, BMJ</i>
2012-2015	<i>Ad hoc</i> Journal Reviewer, <i>Brain, Behavior and Immunity</i>
2012-2015	<i>Ad hoc</i> Journal Reviewer, <i>Journal of Immunity</i>
2012-2015	<i>Ad hoc</i> Journal Reviewer, <i>American Journal of Physiology, AJP</i>
2012-2015	<i>Ad hoc</i> Journal Reviewer, <i>American Journal of Lifestyle Medicine</i>

RESEARCH MENTOR ACTIVITIES:

<i>Year(s)</i>	<i>Student (Institution)</i>	<i>Current Position</i>
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UNDERGRADUATE - PRIMARY MENTOR

2019-2021	Jansen Wilson (UAB) <u>Thesis:</u> Inhibition of CXCR4: CXCL12 crosstalk in PDAC tumors decreases tumor growth	Clinical Laboratory Scientist
2019-2021	Rogan Sullivan (UAB Honors College) <u>Thesis:</u> Inhibition of CXCR4: CXCL12 crosstalk	UAB Public Health Master's

	in PDAC tumors decreases tumor growth	
2018-2021	Greg Williams (UAB Honors College) <u>Thesis:</u> CXCR4 role in PDAC cell line UN-KC-6141	applying to medical schools
2018-2019	Shelly Choi (BY492 Directed Research) <u>Thesis:</u> Oral gavage injury and pharmaceutical delivery systems	South Korean Med School
2017-2019	Sydney Byrd (BY492 Directed Research) <u>Thesis:</u> Development of Pancreatic Ductal Adenocarcinoma mouse model	Auburn University Vet School
2017-2018	Hayley Nichols (BMD 497 Directed Research) <u>Thesis:</u> Development of Pancreatic Ductal Adenocarcinoma mouse model	VCOM-Auburn
2016-2017	Chris Burton (BMD 497 Directed Research) <u>Thesis:</u> Development of Pancreatic Ductal Adenocarcinoma mouse model	UAB Public Health Master's
2016-2017	Devin Howton (BMD 497 Directed Research) <u>Thesis:</u> Development of Pancreatic Ductal Adenocarcinoma mouse model	Pharmaceutical Sales
2015-2016	Syeda Kabir (BMD499 Directed Research) <u>Thesis:</u> Chronic Stress promotes cancer tumor growth and suppresses cancer immune responses in mice.	Clinical Lab Scientist
2015-2016	Kory Dees (BMD 499 Directed Research) <u>Thesis:</u> Physical Activity promotes cancer tumor growth and cancer immune responses in mice.	UAB Medical School
2012-2014	Chase Lunsford (University Honors – USA) <u>Thesis:</u> Exercise induced β 2-adrenergic receptor activation generates cAMP levels that increase suppressive function of T Regulatory cells within an asthmatic lung.	Unknown
2011-2013	Kacie Watson (University Honors – USA) <u>Thesis:</u> The Role of β 2-Adrenergic Receptor on T cell.	Physician's Assistant
2011-2013	Parker Chastain (University Honors – USA) <u>Thesis:</u> The Role of β 2-Adrenergic Receptor on T regulatory cell Suppressive Function.	Global Health Outreach
2011-2012	Taylor Chrisman (Depart. Honors – USA) <u>Thesis:</u> Effects of Exercise on T cell Function in the Asthmatic Lung.	Law School

2009-2010 Ben Jones, M.D. (BI470 Birmingham South. Univ.) Neuro-Medical Doctor
Thesis: Exercise mediates airway hyper-responsiveness and inflammation in a murine model of asthma

GRADUATE & MEDICAL SCHOOL- PRIMARY MENTOR

2021-2022 Caroline Clark, D.O. Pediatrics Residency
Thesis: Rapid Detection of *Escherichia coli* in Urine Using Magnetostrictive Particle Biosensor Technology

UNDERGRADUATE COMMITTEE MEMBER: (NOT PRIMARY MENTOR)

<i>Year(s)</i>	<i>Students</i>	<i>Institution</i>
2011-2016	11 Undergraduate Honors Students	University of South Alabama College of Allied Health and College of Medicine

GRADUATE & MEDICAL SCHOOL COMMITTEE MEMBER: (NOT PRIMARY MENTOR)

<i>Year(s)</i>	<i>Student</i>	<i>Department-Institution</i>
2013-2017	Sabrina Ramelli (PhD)	Department of Pharmacology USA, College of Medicine Ph.D Dissertation <i>Primary Mentor:</i> Dr. William Gerthoffer

SERVICE ACTIVITIES:

INSTITUTIONAL:

<i>Year</i>	<i>Role</i>
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Edward Via College of Osteopathic Medicine (VCOM)

2023-Present Judge, VCOM Auburn Research Day
 2022-Present Member and Secretary, Auburn Campus Faculty Senate at VCOM
 2022-Present Member, Financial Aid Committee (VCOM)
 2021-Present Interviewer, medical school admissions (VCOM)
 2021-2022 Member, Professional and Ethics Standards Board (PESB) - VCOM

University of Alabama at Birmingham (UAB)

2020-2021 Member, School of Health Profession, SHP Task Force on Working at Home during COVID19 (UAB)
 2020-2021 Member, School of Health Profession, SHP Task Force on “Caretakers” Working at Home during COVID19 (UAB)
 2019-2021 Member, School of Health Profession, UAB SHP Wellness Committee
 2019 Member, Supplemental/Teaching Assistant Taskforce (UAB)
 2019 Member, Department-Wide Poster Session Taskforce (UAB)
 2018-2021 Member, UAB Signature Core Curriculum Committee

Edward Via College of Osteopathic Medicine (VCOM)

Amount: \$50,000

Role: Primary Investigator

- **Faculty Development Grant Program Dugger (PI) 06/01/2019-09/30/2020**

Title: Elucidating a role for CXCR7 in the tumor microenvironment and immune cell function

UAB, Faculty Development Office (FDGP)

Amount: \$5,000

Role: Early Independent Investigator into new field of study

- **NIH/RO1 Minority Supplement (PA-15-322) Singh (PI) 06/01/2016 – 12/31/2018**

Title: Targeting tumor-stromal interaction for pancreatic cancer therapy

Minority Scientist Award: to characterize pancreatic tumor immune responses in the presence of SHH and/or CXCR4 antagonists.

National Cancer Institute, **NIH/NCI**

Amount: \$10,000

Role: Early Independent Investigator

- **T32 NIH/NIAID Schwiebert (PI) 07/01/2009-08/31/2010**

T32 AI007051-32

Title: Immunologic Diseases and Basic Immunology Training Grant

The goal of this project was to assess was to that moderate-intensity aerobic exercise training alters Th cell trafficking patterns within the lungs of a murine asthma model.

National Institute of Allergy and Infectious Diseases, **NIH/NIAID**

Amount: Salary and Benefits

Role: Post-doctoral Fellow

- **T32 NIH/NHLBI Schwiebert (PI) 01/01/2008-06/30/2009**

T32 HL007553-25

Title: Basic Mechanisms in Lung Disease Training Grant

The goal of this project was to that moderate-intensity aerobic exercise training alters Th cell responses within the lungs of a murine asthma model.

National Heart, Lung, and Blood Institute, **NIH/NHLBI**

Amount: Salary and Benefits

Role: Post-doctoral Fellow

- **NIH/RO1 Minority Supplement (NS46032) Barnum (PI) 01/01/2007-12/31/2007**

Title: The role of LFA-1 in T cell trafficking and effector functions in demyelinating disease. Minority Scientist Award: To develop T cell trafficking profiles of β -integrins in the mouse model of Multiple Sclerosis, EAE.

National Institute of Allergy and Infectious Diseases, **NIH/NIAID**

Amount: Tuition and Benefits

Role: Graduate Student

PUBLICATIONS – RESEARCH ARTICLES: (in chronological order).

1. Song P; Mansur A; **Dugger KJ**; Davis TR; Howard G; Yankeelov TE; Sorace AG. CD4 T-cell immune stimulation of HER2+ breast cancer cells in response to trastuzumab *in vitro*. *Cancer Cell Int* 20, 544 (2020). <https://doi.org/10.1186/s12935-020-01625-w>.

2. Deshmukh SK, Tyagi N, Khan MA, Srivastava SK, Al-Ghadhban A, **Dugger K**, Carter JE, Singh S, Singh AP. Gemcitabine treatment promotes immunosuppressive microenvironment in pancreatic tumors by supporting the infiltration, growth, and polarization of macrophages. *Sci Rep*. 2018 Aug 10;8(1):12000. PMID:30097594
3. **Dugger KJ**, Sayner S, Chastain P, Watson K, Chrisman T, and Estes NR. Beta-2 adrenergic receptors increase TREG cell suppression in an OVA-induced allergic asthma mouse model when mice are moderate aerobically exercised. *BMC Immunology*. 2018 Feb, 19:9. PMID: 29452585
4. Deshmukh SK, Srivastava SK, Tyagi N, Ahmad A, Singh AP, Ghadhban AAL, Dyess DL, Carter JE, **Dugger K**, Singh S. Emerging evidence for the role of differential tumor microenvironment in breast cancer racial disparity: a closer look at the surroundings. *Carcinogenesis*. 2017 Aug 1;38(8):757-765. PMID: 28430867
5. **Dugger KJ**, Chrisman T, Jones B, Chastain P, Watson K, Estell K, Zinn K, Schwiebert L. Moderate aerobic exercise alters migration patterns of antigen specific T helper cells within an asthmatic lung. *Brain Behav Immun*. 2013 Nov;34:67-78. PMID: 23928286 (PMCID: PMC3826814)
6. **Dugger K***, Lowder T, Estell K, Schwiebert LM. Repeated Bouts of Aerobic Exercise Enhance Regulatory T Cell Responses in a Murine Asthma Model. *Brain Behav Immun* 2010 Jan;24(1):153-9. *co-first authors PMID:19781626 (PMCID: PMC2787986)
7. Hu X, Wohler JE, **Dugger KJ**, Barnum SR. beta2-integrins in demyelinating disease: not adhering to the paradigm. *J Leukoc Biol*. 2010 Mar;87(3):397-403. PMID:20007244 (PMC Journal – In Press)
8. **Dugger K**, Lowder TW, Tucker TA, Schwiebert LM. Epithelial Cells as immune effector cells: The role of CD40. *Semin Immunol*. 2009 Oct;21(5):289-92. Review. PMID:19628407 (PMCID: PMC 2749080)
9. **Dugger KJ***, Chewning J, Zinn, K, Weaver, CT. Bioluminescence-based visualization of CD4 T cell dynamics using a T lineage-specific luciferase transgenic model. *BMC Immunol*. 2009 Aug 3;10:44. *co-first authors PMID:19650922. (PMCID: PMC2736162)
10. **Dugger KJ**, Zinn K, Bullard D, Barnum, SR Effector and Suppressor Roles for LFA-1 During the Development of Experimental Autoimmune Encephalomyelitis. *J Neuroimmunol*. November 2008. PMID:19010554 (PMCID: PMC2665690)
11. Zinn KR, Chaudhuri TR, Szafran AA, O'Quinn D, Weaver C, **Dugger K**, Kesterson R, Wang X, Frank SJ. Noninvasive bioluminescence imaging in small animals. *ILAR J*, 2008;49(1):103-15.. PMID:18172337 (PMCID: PMC2614121)
12. Azadniv M, **Dugger K**, Bowers WJ, Weaver C, Crispe IN. Imaging CD8+ T cell dynamics in vivo using a transgenic luciferase reporter. *J Immunol.*, 19:1165-73, 2007. PMID:17698980
13. Workman CJ, **Dugger KJ**, Vignali DA. Cutting edge: molecular analysis of the negative regulatory function of lymphocyte activation gene-3. *J Immunol*. 169:5392-5, 2002. (PMID:12421911)
14. Workman CJ, Rice DS, **Dugger KJ**, Kurschner C, Vignali DA. Phenotypic analysis of the murine CD4-related glycoprotein, CD223 (LAG-3). *Eur J Immunol.*, 32:2255-63, 2002. PMID:12209638

PROFESSIONAL PRESENTATIONS: SCIENTIFIC PROFESSIONAL MEETINGS

WORKSHOPS:

1. *Developing the Future Substance of STEM Education (NSF workshop)*. **Dugger KJ**, Chapleau KJ, Richardson NM, Giordano-Mooga S. (2020)

<https://education.asu.edu/sites/default/files/substance-of-stem-education-concept-paper.pdf>
and <https://serc.carleton.edu/stemfutures/index.html>

“The citizens of tomorrow must be better able to understand, discover, develop, and implement innovative and principled solutions to complex, STEM-infused problems in a rapidly changing environment.

It is also clear that in the face of unprecedented challenges – and opportunities – traditional silos between scientific knowledge, essential skills, and human values are dissolving. Learning to succeed in this world will require new kinds of learning and new forms of knowledge. Our students will need to go beyond mere knowledge of STEM disciplines. They will need creativity, ingenuity, and the ability to work collaboratively. And they will need to understand the broader social and the ethical contexts within which we live and work.”

2. *Building a science curriculum from the inside-out.* **Dugger KJ**, Giordano-Mooga S., Estes NR., Wright T., and Chapleau K. ASCB (American Society for Cell Biology) – Teaching Tomorrow's Scientists. Athens, GA (2019)

We led a workshop to introduce Simon Sinek’s idea of “The Golden Circle” as a means to effectively lead an academic program. Briefly, the “Golden Circle” proposes that when developing a new product (or in our case, courses, advising strategy and/or curriculum) there are 3 questions that must be answered: Why, How, and What? According to this model, Sinek believes companies work from the outside-in, that is, they identify their “What” before identifying their “Why”. By beginning with the “Why,” we understand our core beliefs. Further, it is these beliefs that drive us to produce better quality products. The Biomedical Sciences program has implemented this model while developing a meaningful curriculum over the last 5 years.

3. *Project Kaleidoscope. Teach. Lead. Differently.* AACU <https://www.aacu.org/pkal> (2018)

“STEM higher education reform dedicated to empowering STEM faculty, including those from underrepresented groups, to graduate more students in STEM fields who are competitively trained and liberally educated...this STEM Leadership Institute is uniquely designed to provide you with a distinctive opportunity to develop leadership capacity in **acting as an agent of change** in transformation of STEM higher education within your department, institution and the nation.”

PROFESSIONAL DEVELOPMENT:

1. AACU/NSF (National Science Foundation) Knowledge Exchange Institute. Critical Inquiry Based Reform for Broadening Participation in STEM. Virtual format (2020)
2. AACU/NSF (National Science Foundation) Knowledge Exchange Institute. Critical Inquiry Based Reform for Broadening Participation in STEM. Washington DC (2019)
3. ASCB (American Society for Cell Biology), Teaching Tomorrow’s Scientists, Athens, GA (2019)
4. AACU (Association of American Colleges and Universities) Creating a 21st Century General Education, San Francisco, CA (2019)
5. AACU (Association of American Colleges and Universities) STEM Higher Education Leadership Program (Project Kaleidoscope – PKAL) Washington DC (2018)
6. NIH NCI CURE (continuing umbrella of research experiences) and Mock NIH Study Section Washington DC (2018)

7. Teaching Professor Conference, Atlanta, GA (2018)
8. Keystone Conference: Cell Plasticity within The Tumor Microenvironment (A1) Big Sky, MT (Jan 8-12, 2017)
9. NIH/NCI, CURE (Continuing Umbrella of Research Experiences) Program Professional Development Workshop, Washington D.C. (2017)
10. Best Practices surrounding innovative Course Based Undergraduate Research Experiences (CUREs) in varied academic disciplines – Faculty Development Workshop, UAB (2017)
11. Scoring Workshop for the Critical Thinking Assessment Test (CAT), UAB (2017)
12. CURE (Course-based Undergraduate Research Experience) Workshop at University of West Alabama, Livingston, AL (2016)
13. American Association of Immunology National Conference, (AAI) New Orleans, LA (2015)
14. American Association of Immunology National Conference, (AAI) Denver, CO (2003)

Center for Teaching and Learning (CTL-UAB) Training (2016-2021) *(some notable, but not all seminars attended)*

- As a panel member: Effective student teams in hybrid course formats
- The QEP: Creating Effective Team Based Learning Modules
- IDEA Quick Guide to Objectives and Results
- Faculty Foundations: Quality Enhancement Plan – Learning in effective teams
- QEP: CATME peer evaluations
- Medical Education: Case-based learning
- QEP: Strategies for Managing Team-based Conflict
- Backwards Designs
- Effective Student Learning outcomes
- Assessment of programmatic student learning outcomes
- Managing Highly Effective Teams

School of Health Professions Training (2016-2021)

- Crucial Conversations
- Leadership Coaching (monthly – 2016-2018)
- Effective Team Skills – Patrick Lencioni
- Disability Support Services
- Emotional Intelligence
- Find Your Why – Simon Sinek
- Leadership Challenge: Who is the most difficult person to hold accountable?
- Grading writing and providing effective feedback
- Backwards Design

AACU (American Association of Colleges and Universities) Training (2018-2021)

- Increasing diversity in STEM higher education
- High Impact learning practices
- Integrating social issues into STEM education
- Addressing diversity within team dynamics
- Effective grading of STEM writing
- General Education national trends
- Broadening participation
- Living learning communities

ORAL AND ABSTRACT/POSTER PRESENTATIONS:

LOCAL & INTERNAL PRESENTATIONS

1. *By Kory Dees*; Dees K, Kabir K, Singh A and **Dugger K**; Physical Activity Promotes Both Tumor Growth and Cancer Immunity. Inaugural Undergraduate Research Symposium (NURS), St. Jude Children's Hospital, Memphis, TN (July 2016)
2. *By Parker Chastain*; Chastain P, Watson KA, and **Dugger K**; The Role of β 2-Adrenergic Receptor on T regulatory cell Suppressive Function. University Committee on Undergraduate Research Forum – (UCUR), University of South Alabama, Mobile, AL (2013)

REGIONAL & NATIONAL PRESENTATIONS

3. *By Dr. Robert Estes*; Robert Estes and **Kari Dugger**. Impacts on Team-Based Learning: Correlations between psychological safety, student attitude and team success in an undergraduate biomedical sciences curriculum. Team Based Learning Collaborative (TBLC) Annual Conference. Online. (April 2022)
4. **Dugger KJ**, Zinn KR, Bullard D and Barnum SR; The Role of LFA-1 in T cell Trafficking and Functions in Demyelinating Disease. American Association of Immunology, (AAI) Miami, FL (2007)
5. **Dugger K**, Zinn KR, and Weaver CT; Tracking T cell trafficking in real-time in vivo by a bioluminescent reporter. Academy of Molecular Imaging, Orlando, FL (2003)

ABSTRACTS/POSTER ONLY PRESENTATIONS:

LOCAL & INTERNAL PRESENTATIONS

1. *By Jessica Kranzlein & Shannon Rice (OMS II)*; Caroline Clark, Roxana Bahani, Kenny Brock, ZY Cheng, Jessica Kranzlein, Shannon Rice and **Kari J Dugger**. Rapid Detection of *Escherichia coli* and *Staphylococcus epidermidis* in Urine Using Magnetostrictive Particle Biosensor Technology. **VCOM-Auburn Research Day**, Edward Via Osteopathic Medical School, Auburn, AL (February 2022)
2. *By Roxana Bahani*; Roxana Bahani, Kory Dees, Kayla Kabir, Rogan Sullivan, Jansen Wilson and **Kari Dugger**. Physical Activity and Chronic Stress Promote Tumor Growth And Alter T-Cell Immunity. **VCOM-Auburn Research Day**, Edward Via Osteopathic Medical School, Auburn, AL (February 2022)
3. *By Shelly Choi*; Choi, S., Byrd, S., Abu-Khajeel, S., Williams, G., Bhadkamkar, S., Mancinone, R., and **Dugger, KJ**. Inhibition of CXCR4: CXCL12 crosstalk in PDAC tumors decreases tumor growth. **UAB Undergraduate Research Expo**, University of Alabama at Birmingham, Birmingham, AL (Spring 2019)
4. *By Sydney Byrd and Hayley Nichols*; Byrd S, Burton C, Howton D, Nichols H, and **Dugger K**; Development of Pancreatic Ductal Adenocarcinoma mouse model. **UAB Undergraduate Research Expo**, University of Alabama at Birmingham, Birmingham, AL (Fall 2017)
5. *By Kacie Watson*; Watson KA, Chastain P, and **Dugger K**; The Role of β 2-Adrenergic Receptor on T cell. **University Committee on Undergraduate Research Forum – (UCUR)**, University of South Alabama, Mobile, AL (2013)
6. *By Taylor Chrisman*; Chrisman T and **Dugger K**; Effects of Exercise on T cell Function in the Asthmatic Lung. **University Committee on Undergraduate Research Forum – (UCUR)**, University of South Alabama, Mobile, AL (2012)

REGIONAL & NATIONAL PRESENTATIONS

7. *By Roxana Bahani*; Roxana Bahani, Kory Dees, Kayla Kabir, Rogan Sullivan, Jansen Wilson and **Kari Dugger**. Physical Activity and Chronic Stress Promote Tumor Growth And Alter T-Cell Immunity. **Medical Association of Alabama Annual Conference**, Montgomery AL (April 2022)
8. **Dugger KJ**, Watson KA, Chastain P, and Sayner S; A role for beta-2 adrenergic receptors in the moderate aerobic exercise-modulated T regulatory cell function within an murine OVA-driven allergic asthmatic lung. **American Association of Immunology, (AAI)** Pittsburgh, PA (2014)
9. **Dugger KJ**, Chrisman T, Estell K, and Schwiebert LM; A role for Beta 2-adrenergic receptor signaling in the exercise-induced re-distribution of Th cells within an asthmatic lung. **Psychoneuroimmunology (PNIRS)** San Diego, CA (2012)
10. **Dugger KJ**, Estell K, and Schwiebert LM; The effect of exercise on Th2 migration within an asthmatic lung. American Association of Immunology, (AAI) San Francisco, CA (2011)
11. **Dugger KJ**, Estell K, Lowder T, Zinn KR, and Schwiebert LM; Effects of Moderate Intensity Aerobic Exercise on T cell Migration within the Asthmatic Lung. **Keystone Symposia Asthma and Allergy**, Keystone, CO (2009)
12. Schwiebert LM, Estell K, Lowder T, **Dugger K**; Moderate Intensity Aerobic Exercise Attenuates Asthmatic Responses in Obese Mice. **American Academy of Allergy Asthma and Immunology, (AAAAI)** New Orleans, LA (2009)
13. **Dugger KJ**, Hu J, Barnum SR, Zinn KR, and Weaver CT; Characterization of a T cell-Specific Reporter Transgenic Model For In Vivo Study of Effector T cell Trafficking and Survival. **American Association of Immunology, (AAI)** Boston, MA (2006)