Magdalene Ameka, Ph.D.

Personal details

Current mailing address: 3003B Oakland Ave, Nashville TN, 37212.
Email: Magdalene.ameka@vanderbilt.edu

Education

- **2013-2017: PhD** Molecular and Cellular Biology, Department of Molecular Medicine (formerly Department of Molecular and Cellular Biology), University of Iowa Carver College of Medicine.
- **2005-2009: Bachelor of Sciences** in Biochemistry and Biophysical Sciences with a minor in Chemistry, University of Houston.

Research Experience

2006-08: Undergraduate Research Assistant, (Dr. Vincent Tam)
University of Houston School of Pharmacy, Department of Clinical Administration. Houston, TX.

- ❖ Studied mechanisms of multi-drug resistance in *Pseudomonas aeruginosa* isolated from past cystic fibrosis patients.
- ❖ Assisted in developing pharmacokinetic and pharmacodynamic models of *P. aeruginosa* survival and growth when cultured with various antibiotics.

2009: Research Summer Intern, (Dr. Alejandro Lloret)
Ionis Pharmaceuticals (formerly Isis Pharmaceuticals), Carlsbad, CA.

- ❖ Used a proprietary RNAi oligosynthesis platform to develop viable RNAi oligonucleotides to target α-synuclein Lewy bodies in Alzheimer's' disease animal models.
- ❖ Used a similar RNAi platform to test RNAi oligonucleotides against CAG repeats in the Huntingtin gene.
- ❖ Learnt cell culture of assiduous dopaminergic neurons and transfection via electroporation.

2010-13: Research Assistant then Research Specialist, (Dr. Bruce Cuevas)
Loyola University Medical Center, Department of Pharmacology, Maywood, IL.

- ❖ Projects explored the regulation of MAPK signaling cascades in the milieu of metastatic breast cancer.
- ❖ I developed and maintained different xenograft mouse models of metastatic breast cancer. Gained considerable experience in cell culture and transfection, cloning, cell viability assays, in vitro ubiquitination assays, recombinant protein purification (GST and Tet systems), western blotting, pulldowns and immunoprecipitation, radiolabeled and "cold" kinase assays, in vivo luminescent imaging and luminescent reporter assays, flow cytometry, immunofluorescence (fluorescent microscopy including confocal microscopy), migration assays, cellular fractionation and purification, in vivo measurement and monitoring of tumor progression and metastases and animal handling and husbandry.
- ❖ Managed lab budget and purchases for a small lab (5 individuals)
- ❖ Mentored and supervised incoming staff.

2013-2017: Graduate Research Assistant, (Dr. Matthew Potthoff).
University of Iowa Carver College of Medicine, Department of Pharmacology, Iowa City, IA

- ❖ My graduate project focused on understanding the mechanisms behind the chronic energy expending and euglycemic effects of the insulin sensitizer Fibroblast Growth Factor 21.
- ❖ Comprehensive experience in adipose tissue biology with a firm understanding of complex in vivo and in vitro metabolic phenotyping and characterization.
- ❖ Have solid experience in and not limited to CLAMS set up and data analysis, XF96 Seahorse measurements of mitochondrial activity, primary adipocyte isolation and cell culture, insulin and glucose

tolerance tests (including radio-labeled glucose uptake tests via 2DG injections, tissue isolation and radiolabel counting and live in vivo FDG-PET/CT scanning and data analysis), measurement assays of metabolites and hormones and adipokines in serum, in vivo measurements of energy expenditure and food intake and macronutrient preference in mice, immunohistochemistry, mouse genetics, oral gavage for both food and drug administration, IP drug administration, some small survival animal surgery.

- ❖ Mentoring and tutoring experience.

2017-present: Post-doctoral Research Fellow (Dr Alyssa Hasty)

Vanderbilt University Department of Molecular Physiology and Biophysics, Nashville TN

- ❖ Understanding the role played by adipose tissue macrophages in the pathogenesis and progression of obesity and insulin resistance.
- ❖ Using mouse models to elucidate how differences in macrophage Fe handling impacts macrophage polarization, function, energetics and its effects on adipose tissue health and expansion and systemic insulin resistance
- ❖ Extensive grant writing and manuscript preparation
- ❖ Extensive mentorship of graduate students
- ❖ Continuous RCR training and workplace bystander intervention training

Publications

1. Tam, V.H., Chang, K-T., Abdelraouf, K., Brioso, C.G., **Ameka, M.**, McCaskey, L.A., Weston, J.S., Caeiro, J-P. and Garey, K.W.: Prevalence, resistance mechanisms, and susceptibility of multidrug-resistant bloodstream isolates of Pseudomonas aeruginosa. Antimicrob Agents Chemother. 54(3):1160-1164, 2010. PMCID: PMC2826008
2. Rieger, M.A., Duellman,T., Hooper, C., **Ameka, M.**, Bakowska, J.C. and Cuevas, B.D.: The MEKK1 SWIM domain is a novel substrate receptor for c-Jun ubiquitylation. Biochem J 445(3):431-439, 2012. PMCID: PMC3653270
3. Mirza, A.A., Kahle, M.P., **Ameka, M.**, Campbell, E.M. and Cuevas, B.D.: MEKK2 regulates focal adhesion stability and motility in invasive breast cancer cells. Biochim Biophys Acta. 1843(5):945-954, 2014. PMCID: PMC3960922
4. **Ameka, M.**, Mirza, A., Kahle, M.P. and Cuevas, B.D.: MEKK2 regulates paxillin ubiquitylation and localization in invasive breast cancer cells. Biochem J. 2014 Nov 15;464(1):99-108. PMID:25190348
5. Markan, K.R., Naber, M.C., **Ameka, M.K.**, Anderegg, M.D., Mangelsdorf, D.J., Kliewer, S.A., Mohammadi, M. and Potthoff, M.J.: Circulating FGF21 is liver derived and enhances nutrient uptake during refeeding and overfeeding. Diabetes. 2014 Dec;63(12):4057-63. PMID: 25008183
6. **Ameka, M***, BonDurant, LD*, Naber, MC, Ornitz, D and Potthoff MJ.: FGF21 Regulates Metabolism through Adipose-Dependent and -Independent Mechanisms. Cell Metabolism. 2017. Apr 4;25(4):935-944.e4. doi: 10.1016/j.cmet.2017.03.005. PMID: 28380381. * co-first authors.
7. McDonnell J.W, Koethe J R, Mallal S.A, Pilkinton M A, Kirabo A, **Ameka M.K**, Cottam M A, Hasty A H, and Kennedy A J. High CD8 T cell Receptor Clonality and Altered CDR3 Properties in Adipose Tissue of Obese Mice. 2018. Diabetes. DB18-0040. PMID: 30181158
8. **Ameka, M***, Markan, K.R*, BonDurant, LD Naber, MC, Don Morgan, Kamal Rahmouni, Potthoff MJ. Liver Derived FGF21 Maintains Core Body Temperature During Acute Cold Exposure Sci Rep. 2019 Jan 24;9(1):630. doi: 10.1038/s41598-018-37198-y.PMID: 30679672

Leadership and Volunteer Experience

- **2018-present:** Volunteer aide for disabled elderly, *Metro Development and Housing Agency, Nashville*
    - Assisting disabled seniors in public housing with basic household activities, health screening and registering to vote.

- **2006-2008:** Resident Assistant, *University of Houston, Residential Life and Housing*.
    - Unanimously voted RA of the year 2007 for my area.

- **2006:** Volunteer, Long-term Convalescent Inpatient Nutrition. *Riverside General Hospital, Houston, TX.*
    - Tailored menus to fit nutritional needs of hospice patients.

- **2001-03:** Volunteer, Healthcare of HIV+ and abandoned children. *New Life Children's Home, Nairobi, Kenya.*

Non-research Experience

- **2008-2009:** CRLA Master Tutor, *University of Houston, Learning Support Services*.
    - Tutored individual and small class settings in areas of math, biochemistry, biology, chemistry, French and English.

- **2007-2010:** Certified and licensed Pharmacy Technician (TX), *Walgreens' Pharmacy*.

- **2006-2008:** Resident Assistant, *University of Houston, Residential Life and Housing*.

Honors and Awards

- TPEG Grant for International Students **2005-06**
- Houston Junior Chamber of Commerce Study Abroad Scholarship **2007**
- Resident Assistant of the Year **2007**
- University of Houston Provost's Undergraduate Research Scholarship from the Honor's College for Extended Research **2008**
- In-state tuition waiver for certified tutoring
  Learning Services and Support Center
  University of Houston **2008**
- Post Comprehensive Exam Award
  University of Iowa
  Department of Molecular and Cellular Biology, Iowa city, IA **2016**
- MCB Retreat Travel Award
  University of Iowa
  Department of Molecular and Cellular Biology, Iowa city, IA **2016**
- Finalist and winner of the "Peoples' Choice Award" (Three Minute Defense competition)
  University of Iowa
  The Graduate College, Iowa city, IA **2016**

- Bhatnagar Travel Award
  University of Iowa
  Department of Pharmacology, Iowa City, IA — **2016**
- PBI Best Paper Competition
  University of Iowa
  PBDB Diabetes Center
  University of Iowa
  Iowa city, IA — **2017**
- Invited Speaker
  NOBCChE Annual Conference 2018
  Orlando FL — **2018**
- Travel Award to Sept 2018 meeting
  NOBCChE Annual Conference 2018
  Orlando FL — **2018**
- Best post-doctoral poster, Vanderbilt Diabetes Days November 2019 — **2019**
- American Heart Association Post-doctoral research Award — **2020**
- Invited Speaker
  "Integrating Metabolism and Immunity" Keystone Symposia
  April 2020 — **2020**

Professional Affiliations

American Heart Association — **2014-present**
America Diabetes Association — **2018-present**