

Tolunay Beker Aydemir Ph.D.

Assistant Professor

Division of Nutritional Sciences, Cornell University

244 Garden Avenue Ithaca, NY 14850

(607) 255-3770

tb536@cornell.edu**EDUCATION:**

Biochemistry and Molecular Biology, Ph.D., University of Florida, College of Medicine, Gainesville, FL

Thesis: Role of Zinc and Zinc Transporters in Liver Regeneration

Mentor: Robert J. Cousins, Ph.D.

Molecular Hepatology, M.S., Ankara University School of Medicine, Ankara, Turkey

Thesis: Detection of anti-HBV Activation in HepAD38 Cell Lines

Mentor: Mithat A. Bozdayi, Ph.D.

Biology, B.S., Ankara University Science Faculty, Ankara, Turkey

RESEARCH AND PROFESSIONAL EXPERIENCE:

Assistant Professor, 2018-present

Division of Nutritional Sciences, Cornell University, Ithaca, NY

Assistant Research Professor, 2016–2018

Center for Nutritional Sciences, Food Science and Human Nutrition Department, University of Florida, Gainesville, Florida

Postdoctoral Associate, 2011–2016

Nutritional Genomics Laboratory, Center for Nutritional Sciences, Food Science and Human Nutrition Department, University of Florida, Gainesville, Florida

Graduate Assistant, 2006–2011

University of Florida College of Medicine, Biochemistry and Molecular Biology, Gainesville Florida/ Nutritional Genomics Laboratory, Center for Nutritional Sciences, University of Florida, Gainesville, Florida

Biological Scientist, 2004–2006

Nutritional Genomics Laboratory, Center for Nutritional Sciences, University of Florida, Gainesville, Florida.

Student Trainee, 2002–2004

Laboratory of Biochemical Pharmacology, Emory University, VA Medical Center, Atlanta, Georgia.

TEACHING EXPERIENCE:

NS 3450, Introduction to Physiochemical and Biological Aspects of Foods, 2019

Cornell University, Division of Nutritional Sciences

HUN 2201, Fundamentals of Human Nutrition, 2018

University of Florida, Food Science and Human Nutrition Department

Guest Lecture

Nutrition and Immunity

Section: Zinc and Immunity

University of Florida, Food Science and Human Nutrition Department

PROFESSIONAL SOCIETIES:

2010– Member, American Society for Nutrition

2010– Member, American Society for Biochemistry and Molecular Biology

2011–2019 Member, Sigma Xi

PUBLICATIONS:

Peer-Reviewed Research Articles

1. Gheller M, Bender M, Vermeulen F, **Aydemir TB**, Thalacker-Mercer A. (2020). Tolerance to graded-doses of histidine supplementation in healthy human adults. *The American Journal of Clinical Nutrition*. Under Review
 2. Lin M, Colon-Perez L, Sambo D, Miller D, Lebowitz J, Jimenez-Rondan F, Cousins RJ., Horenstein, N., **Aydemir, TB.**, Febo, M. and Khoshbouei, H. (2019). Mechanism of manganese dysregulation of dopamine neuronal activity. *J Neurosci*. Under Review
 3. **Aydemir TB***, Thorn TL, Ruggiero C, Pompilus M, Febo M, Cousins RJ. (2020). Intestine-specific deletion of metal transporter Zip14 (Slc39a14) causes brain manganese overload and locomotor defects of manganism. *Am J Physiol Gastrointest Liver Physiol*. Under Review (Minor revision)
- * Corresponding author**
4. Kim J, **Aydemir TB**, Jimenez-Rondan F, Ruggiero C, Kim MH, Cousins RJ. (2020). Deletion of metal transporter Zip14 (Slc39a14) produces skeletal muscle wasting, endotoxemia, Mef2c activation and induction of miR-675 and Hspb7. *Scientific Reports*. Under Review
 5. Hendrickx, G., Borra, V. M., Steenackers, E., Yorgan, T. A., Hermans, C., Boudin, E., Waterval, JJ., Jansen, IDC., **Aydemir, TB.**, ... Van Hul, W. (2018). Conditional mouse models support the role of SLC39A14 (ZIP14) in Hyperostosis Cranialis Interna and in bone homeostasis. *PLOS Genetics*, 14(4), e1007321.
 6. Kim MH, **Aydemir TB**, Kim J, Cousins RJ. 2017. Hepatic ZIP14-mediated zinc transport is required for adaptation to endoplasmic reticulum stress. *Proc Natl Acad Sci U S A*, 114:E5805–14. PMC5530682
 7. **Aydemir TB**, Kim MH, Kim J, Colon-Perez LM, Banan G, Mareci TH, Febo M Cousins RJ. 2017. Metal transporter ZIP14 (SLC39A14) deletion in mice increases manganese deposition and produces neurotoxic signatures and diminished motor activity. *J Neurosci*, 37:5996–6006. PMC5481939
 8. **Aydemir TB**, Troche C, Kim MH, Cousins RJ. 2016. Hepatic ZIP14-mediated zinc transport contributes to endosomal insulin receptor trafficking and glucose metabolism. *J Biol Chem*, 291:23939–51. PMCID: PMC5104920

9. **Aydemir TB**, Troche C, Kim J, Kim MH, Teran OY, Leeuwenburgh C, Cousins RJ. 2016. Aging amplifies multiple phenotypic defects in mice with zinc transporter Zip14 (Slc39a14) deletion. *Exp Gerontol*, 85:88–94. PMID: PMC5101137
10. Kim MH, **Aydemir TB**, Cousins RJ. 2016. Dietary zinc regulates apoptosis through the p-eIF2 α /ATF4/CHOP pathway during pharmacologically induced endoplasmic reticulum stress in livers of mice. *J Nutr*, 146:2180–6. PMID: PMC5086795
11. Troche C, **Aydemir TB**, Cousins RJ. 2016. Zinc transporter Slc39a14 regulates inflammatory signaling associated with hypertrophic adiposity. *Am J Physiol Endocrinol Metab*, 310(4): E258–68. PMID: PMC4971811
12. Guthrie GJ, **Aydemir TB**, Troche C, Martin AB, Chang SM, Cousins RJ. 2015. Influence of ZIP14 (slc39A14) on intestinal zinc processing and barrier function. *Am J Physiol Gastrointest Liver Physiol*, 308(3): G171–8. PMID: PMC4312952
13. Martin AB, **Aydemir TB**, Guthrie GJ, Samuelson DA, Chang SM, Cousins RJ. 2013. Gastric and colonic zinc transporter ZIP11 (Slc39a11) in mice responds to dietary zinc and exhibits nuclear localization. *J Nutr*, 143(12):1882-8. PMID: PMC3827636
14. **Aydemir TB**, Chang SM, Guthrie GJ, Maki AB, Ryu MS, Cousins RJ. 2012 Zinc transporter ZIP14 functions in hepatic zinc, iron and glucose homeostasis during the innate immune response (endotoxemia). *PLoS One*, 7(10): e48679. doi:10.1371/journal.pone. PMID: PMC3480510
15. **Aydemir TB**, Sitren HS, Cousins RJ. 2012. The zinc transporter Zip14 influences c-Met phosphorylation and hepatocyte proliferation during liver regeneration in mice. *Gastroenterology*, 142:1536–46. PMID: PMC3635537
16. Ryu MS, Guthrie GJ, Maki AB, **Aydemir TB**, Cousins RJ. 2012. Proteomic analysis shows the up-regulation of erythrocyte dematin in zinc-restricted human subjects. *Am J Clin Nutr*, 95:1096–102. PMID: PMC3325834
17. **Aydemir TB**, Liuzzi JP, McClellan S, Cousins RJ. 2009. Zinc transporter ZIP8 (SLC39A8) and zinc influence IFN-gamma expression in activated human T cells. *J Leukoc Biol*, 86:337–48. PMID: PMC2726764
18. **Aydemir TB**, Blanchard RK, Cousins RJ. 2006. Zinc supplementation of young men alters metallothionein, zinc transporter, and cytokine gene expression in leukocyte populations. *Proc Natl Acad Sci U S A*, 103:1699–704. PMID: PMC1413653
19. Liuzzi JP, Lichten LA, Rivera S, Blanchard RK, **Aydemir TB**, Knutson MD, Ganz T, Cousins RJ. 2005. Interleukin-6 regulates the zinc transporter Zip14 in liver and contributes to the hypozincemia of the acute-phase response. *Proc Natl Acad Sci U S A*, 102:6843–8. PMID: PMC1100791
20. Pai SB, Bozdayi AM, Pai RB, **Beker T**,* Sarioglu M, Turkyilmaz AR, Grier J, Yurdaydin C, Schinazi RF. 2005. Emergence of a novel mutation in the FLLA region of hepatitis B virus during lamivudine therapy. *Antimicrob Agents Chemother*, 49:2618–24. PMID: PMC1168680
21. Pai SB, Pai RB, Xie MY, **Beker T**, Shi J, Tharnish PM, Chu CK, Schinazi RF. 2005. Characterization of hepatitis B virus inhibition by novel 2'-fluoro-2', 3'-unsaturated beta-D- and L-nucleosides. *Antivir Chem Chemother*, 16:183–92.

Reviews:

1. **Aydemir TB***, Cousins RJ. 2017. The multiple faces of the metal transporter ZIP14 (SLC39A14). *The Journal of Nutrition*, 148(2), 174–184.

*** Corresponding author**

2. Cousins RJ, **Aydemir TB**, Lichten LA. 2010. Plenary Lecture 2: Transcription factors, regulatory elements and nutrient-gene communication. *Proc Nutr Soc*, 69:91–4. PMID: PMC3790273

Chapters:

1. Ryu MS, **Aydemir TB***. 2019. Chapter 23. Zinc. *Present Knowledge in Nutrition: Basic Nutrition and Metabolism*, Eleventh Edition. Elsevier

*** Corresponding author**