ELAD TAKO

Contact Information

USDA-ARS, Robert W. Holley Center
for Agriculture and Health, Cornell University,
538 Tower Road Ithaca, NY, 14853
Country of citizenship: United States

Office: 607.255.5434
Mobile: 607.339.6542
Fax: 607.255.1132
Email: et79@cornell.edu;
elad.tako@ars.usda.gov

Employment History, Professional and Academic Experience

Lead Scientist Physiologist, (10/15-Present)
Employer: USDA-ARS, Robert W. Holley Center for Agriculture and Health, Ithaca, NY.
Research emphasis: Mineral Nutrition and Absorption (*in vivo* and *in vitro* models), Iron and Zinc Dietary Bioavailability, Zinc Biomarkers, Molecular Biomarkers, Gastro Intestinal Development, Intestinal Microbiome, functional phytochemicals, Intestinal Physiology, Nutrigenomics.

Research Associate Physiologist, (10/10-10/15)
Employer: USDA-ARS, Robert W. Holley Center for Agriculture and Health, Ithaca, NY.
Research emphasis: Mineral Nutrition and Absorption (*in vivo* and *in vitro* models), Iron and Zinc Dietary Bioavailability, Zinc Biomarkers, Molecular Biomarkers, Gastro Intestinal Development, Intestinal Microbiome, Intestinal Physiology, Nutrigenomics.

Research associate, (04/08-10/10)
Employer: Department of Food Science, Cornell University, Ithaca, NY.
Research emphasis: Mechanisms and Pathways that Involved with Iron and Zinc Dietary Bioavailability and Intestinal Absorption (*in vivo*/*in vitro* Models), in vivo assessment of dietary iron and zinc bioavailability from staple food crops.

Post-doctoral research fellow, (04/05-04/08)
Employer: Department of Food Science, Cornell University, Ithaca, NY.
Research emphasis: Micronutrients Bioavailability Assessment in Staple Food by using in *vitro and in vivo* Models, Development of Molecular Biomarkers to assess Iron and Zinc Bioavailability in vivo, Effect of Iron Deficiency on the Intestinal Microbiome.

Scientific Consultant, (05/03-03/05)
Employer: AvianTech LTD., Tel Aviv, Israel.
Part of the leading scientists' team that provided and supervised the research aimed to develop optimal nutritional solution to be used intra amniotically and to enhance the growth rate, development and post hatch survival rate of broiler chicken embryo and hatchling.

Visiting Scholar, (07/03-09/03), *Baron de Hirsch* foundation
Host Institution: Department of Poultry Science, North Carolina State University, Raleigh NC.
Research emphasis: The Effect of Zinc-Methionine on the Digestive Tract Functionality and Development in the Late Term Chicken Embryo.

Visiting Scholar, (06/02-09/02), *Baron de Hirsch* foundation
Host Institution: Department of Poultry Science, North Carolina State University, Raleigh NC.

Research emphasis: The Effect of *in ovo* Feeding on Pectoral Muscle Fibers Proliferation and the Digestive Tract Functionality in the Chick (*Gallus gallus*) Embryo.

University Education

The Faculty of Agriculture, Food and Environment of the Hebrew University of Jerusalem, (May 2005)
Ph.D. - Animal Science (Nutrition, Physiology), with honors (*cum laude*)
Thesis Dissertation Title: Enhancement of Development and Growth of Broilers (*Gallus gallus*) By "*In Ovo* Feeding": Energetic Status, Cellular and Molecular Parameters of The Intestine.

The Faculty of Agriculture, Food and Environment of the Hebrew University of Jerusalem, (January 2001)
M.S. - Master of Science in Agriculture, field of Animal Science (Physiology), with honors (*cum laude*)
Thesis Dissertation Title: The Effects of Acute and Chronic Heat Stress on the Laying Hen (*Gallus gallus*) Ovarian Functionality: Molecular, Hormonal and Laying Performance Parameters.

The Faculty of Agriculture, Food and Environment of the Hebrew University of Jerusalem, (October 1998)
B.S. – Bachelor of Science in Agriculture, field of Animal Science.

Academic appointments

Graduate field faculty member, (05/14-Present)
Field of Food Science and Technology, College of Agriculture and Life Sciences, Cornell University, Ithaca NY.

1. Graduate Field Committee member: Xi Zhang, PhD Candidate, Department of Food Science, Cornell University.
2. Research Committee Member: Marija Knez, PhD Candidate, Flinders University Adelaide, Australia.
3. Research Committee Member: Zhongyuan Guo, PhD Candidate, Binghamton University, Binghamton, NY.
4. Nicholas Bursi, MPS 2015, Department of Food Science, Cornell University.
5. Amrutha Aanadaraman, MPS 2015, Department of Food Science, Cornell University.
6. Graduate Field Committee member: Michelle Duong, PhD Candidate, Department of Food Science, Cornell University.
7. Research Committee Member: Fabiola Moreno Olivas, MsC Candidate, Department of Bio-Engineering, Binghamton University, Binghamton, NY.
8. Qiaoye Wang, MPS 2016, Department of Food Science, Cornell University.
9. Research Committee Member: Fabiola Moreno-Olivas, PhD Candidate, Binghamton University, Binghamton, NY.
10. Naveena Lakashmanan, MPS 2018, Department of Food Science, Cornell University.

Courtesy assistant professor, (08/12-Present)
Cornell University, Department of Food Science and Technology, College of Agriculture and Life Sciences, Ithaca NY.

Courtesy assistant professor, (03/16-Present)
Cornell University, Division of Nutritional Sciences, College of Agriculture and Life Sciences, Ithaca NY.

Undergraduate students mentor and academic advisor, (08/12-Present)
Department of Food Science and Technology, College of Agriculture and Life Sciences, Cornell University, Ithaca NY.

1. Nadia Putri, Cornell University, 2015
2. Ivania Hartanto, Cornell University, 2016
3. Isabella Riley, Cornell University, 2017
4. Jessica Kwong, Cornell University, 2018
5. Sriya Sunil, Cornell University, 2019
6. Eli Rothstein, Cornell University 2020

Undergraduate students' research mentor, (08/10-Present)
College of Agriculture and Life Sciences, Cornell University, Ithaca NY.

1. Anna Denis-Rohr, Food Science, CALS, Cornell University, 2011
2. Gretchen Siem, Nutritional Sciences, CALS, Cornell University, 2012
3. Cedric Ahn, Food Science, CALS, Cornell University, 2013
4. Jessica Budiman, Food Science, CALS, Cornell University, 2013
5. Spenser Reed[1], Nutritional Sciences, CALS, Cornell University, 2014
6. Karen Hartono, Nutritional Sciences, CALS, Cornell University, 2014
7. Nadia Putri, Food Science, CALS, Cornell University, 2015
8. Sarina Pacifici, Animal Science, CALS, Cornell University 2016
9. Ivania Hartanto, Food Science, CALS, Cornell University, 2016
10. Jaehong Song, Biological Science, CALS, Cornell University 2017
11. Sybil Sha, Nutritional Sciences, CALS, Cornell University 2017
12. Esu Obu, Food Science, CALS, Cornell University, 2017
13. Cathy Zhang, Nutritional Sciences, CALS, Cornell University 2018
14. Julia Deutsch, Nutritional Sciences, CALS, Cornell University 2018
15. Nichelle Ma, Nutritional Sciences, CALS, Cornell University 2018
16. Yeon Hee Kim, Nutritional Sciences, CALS, Cornell University 2018

[1]Spenser Reed received the 2014 SUNY Chancellor's Award for Student Excellence by Cornell University's College of Agriculture & Life Sciences and the State University of New York (SUNY). He was also awarded the CALS Morley Research Scholarship.

Graduate students mentor and academic advisor, (05/14-Present)
Department of Food Science and Technology, College of Agriculture and Life Sciences, Cornell University, Ithaca NY.

1. Nicholas Bursi, MPS 2015; "EVIDENCE OF THE PREBIOTIC ABILITY OF PECTIN EXTRACTED FROM COCOA POD HUSK AND GUT FLORA RESPONSE TO PECTIN WITH VARYING DGREES OF METHYLATION".
2. Amrutha Anandaraman, MPS 2015; "FLAVONOIDS IN IRON BIOFORTIFIED RED MOTTLED RWANDAN BEAN MAY LIMIT THE PHYSIOLOGICAL BENEFIT PROVIDED BY INCREASED IRON CONCENTRATION".
3. Qiaoye Wang; " RAFFININOSE AND STACHYOSE AS PREBIOTICS", MPS 2016
4. Naveena Lakashmanan; "EFFECTS OF INTRA-AMNIOTIC ADMINISTRATION OF BEAN PREBIOTIC EXTRACTS ON THE GUT MICROBIOTA, BRUSH BORDER MEMBRANE FUNCTIONALITY AND IRON METABOLISM RELATED GENES IN THE Gallus gallus MODEL", MPS 2018

Visiting scholars/graduate students, (05/14-Present)

1. Marija Knez, 2014 and 2016 visiting fellow, Flinders University Adelaide, Australia
2. Tao Hou, 2016-2017 visiting fellow, Food Science and Technology, Huazhong Agricultural University.
3. Desiree Morais Dias, 2017-2018 visiting fellow, University of Vicosa, Brazil.
4. Xuan Wang, 2017-2018 visiting fellow, China Agricultural University, Beijing, China.
5. Jesse Beasley, 2017-2018 visiting fellow, University of Melbourne, Australia.

Course Instructor, (12/11- Present)
College of Agriculture and Life Sciences, Cornell University, Ithaca NY.

1. AEM/FDSC 3290, Cornell Agribusiness Fellows Program - Improving the Understanding of Evolving Agricultural and Food Systems in a Global Marketplace, coordinating and co-leading the following student study trips:
   - Israel, 2013 (hosted by the Faculty of Agriculture, Food and Environment, Hebrew University).
   - England, 2015 (hosted by Newcastle University).
   - Chile, 2017 (hosted by Talca University).
2. FDSC 4990, Undergraduate Research in Food Science.
3. FDSC 5000, Master of Professional Studies (Agriculture) Project.
4. BIOG 2990, Introduction to Research Methods in Biology.
5. FDSC 6970, Graduate Individual Study in Food Science.

Program Mentor, (08/12-Present)
College of Agriculture and Life Sciences, Cornell University, Ithaca NY.

1) Authentic Science Research program at Byram Hills High School (Intel Science Talent Search) in Armonk, New York (2012-2014) and Briarcliff High School, New York (2014-2016):
- Cornell Summer Scholar (2013): Julia Deutsch (now Cornell University, Nutritional Sciences 2018)
- Cornell Summer Scholar (2015): Jessica Cho

2) Biology Research Fellowship program (BioRes, summer 2013):
- Spenser Reed, Nutritional Sciences, CALS, Cornell University, 2014

3) Hunter R. Rawlings III, Cornell Presidential Research Scholars program (2012-2014):
- Spenser Reed, Nutritional Sciences, CALS, Cornell University, 2014

4) Cornell University (Department of Food Science) undergraduate summer scholar program (Since 2013):
- Larrisa Pereira Gonçalves, summer 2013 (Universidade de Brasilia)
- Hannah Acheson-Field, 06-08/13 (Brown University)
- Naa Ayikarkor Ankrah, 06-08/14 (Mount Holyoke College)
- Marriah Green, summer 06-08/15 (University of California, San Diego)
- Yiling Ke, summer 06-08/16 (Oklahoma State University, Tulsa)

5) NSF Biology Research Fellowship undergraduate students program (06-09/13):
Spenser Reed, Nutritional Sciences, Cornell University, 2014.

6) Wallace-Carver Fellowship, Justine Frerichs (Davidson College North Carolina, summer 2016).

Graduate Research/Teaching Assistant, Hebrew University of Jerusalem, Faculty of Agriculture, Food and Environment, Rehovot, Israel: Physiology, Anatomy, Histology, Biology of Reproduction, Zoology and Nutrition (October 1998-April 2005).

Laboratory Lecturer, Hebrew University of Jerusalem, Faculty of Agriculture, Food and Environment, Rehovot, Israel: Vertebrates Zoology (October 2003-April 2005).

Lecturer, Hebrew University of Jerusalem, Faculty of Agriculture, Food and Environment, (The Division for External Studies), Rehovot, Israel: Nutrition, Ecology (September 2000-March 2005).

Professional service

Member of the editorial board of the Journal of Chemistry: http://www.hindawi.com/91353624/; International journal of food science: http://www.hindawi.com/journals/ijfs/; International Journal of Nutrition and Dietetics (IJFS): www.scidoc.org. Associate editor at Frontiers Nutrition Methodology;http://journal.frontiersin.org/journal/nutrition/section/nutrition-methodology#editorial-board. Guest editor (two special issue) in Nutrients: (i) http://www.mdpi.com/journal/nutrients/special_issues/Fe_deficiency_bioavailbility_absorption (ii) http://www.mdpi.com/journal/nutrients/special_issues/dietary_Zn_human_health ;. 2007-Present, Ad hock reviewer for the following journals (selection): Nutrition Journal, Journal of Chemistry, Journal of Poultry Science, International Journal of Poultry Science, British Journal of Nutrition, Animal Feed Science and Technology, Journal of Food Science, Chemosphere, DovePress, Food and Function, Journal of Agricultural and Food Chemistry, American Journal of Experimental Agriculture, GENE, American Journal of Experimental Agriculture, Journal of Food and Chemical Toxicology, Archives of Agronomy and Soil Science, Nutrients, Plant Foods for Human Nutrition, Biological Trace Element Research, Genetica, International Journal of Food Science and Nutrition, International Journal for Vitamin and Nutrition Research, European Journal of Nutrition, Frontiers-Nutrition, Journal of Food Chemistry.

Professional awards and accomplishments

Tilman Family Award - Hebrew University award for major achievements in the field of agriculture (February 2005).
Koffolk Award - Israeli poultry industry award for research accomplishments (April 2004).
Baron de Hirsch Foundation Award (May 2003).
Baron de Hirsch Foundation Award (May 2002).
Koffolk Award - Israeli poultry industry award for research accomplishments (April 2002).
Koffolk Award - Israeli poultry industry award for research accomplishments (May 2001).
Koffolk Award - Israeli poultry industry award for research accomplishments (April 2000).

Membership in Professional Societies

American Society for Nutrition (ASN)
World's Poultry Science Association (WPSA)
North American Poultry Science Association (PSA)
American Society of Animal Science (ASAS)
The New York Academy of Science
"*HarvestPlus*" initiative
Micronutrients forum
American Society of Biochemistry and Molecular Biology

Professional Presentations - International Scientific Meetings (Selection, 2005-present)

1. **Elad Tako**, K Yasuda, R P Glahn, R M Welch, X Lei, and D D Miller. Dietary inulin upregulates the expression of iron and zinc membrane transporters in intestinal enterocyte in the pig. Experimental Biology annual meeting, San Fransisco, CA, 2006. *FASEB J.* 2006 20:LB97

2. Siow Ying Tan, **Elad Tako**, Chi Kong Yeung, Raymond P Glahn, Ross Welch, Xingen Lei, and Dennis D Miller. Red and white beans provide equivalent amounts of bioavailable iron to weanling piglets. Experimental Biology meeting, San Fransisco, CA, 2006. *FASEB J.* 2006 20:LB88.

3. **Elad Tako**, R.P Glahn, R. Welch, X. Lei, K.H Paul, and D.D Miller. Dietary inulin upregulates the expression of intestinal iron transporters, increases villus surface area, and alters microflora in iron deficient and adequate rats. Experimental Biology meeting 2007. *FASEB J.* 2007 21:355.4. Washington DC.

4. **Elad Tako**, R. P. Glahn, R. Welch, X. Lei, D. D. Miller. Supplemental microbial phytase effects the expression of intestinal and liver mineral transporters in the iron/zinc deficient pig. 2007, Poultry Science – Dairy Science- Animal Science associations joint meeting, San Antonio, TX.

5. Kapsokefalou M., Argyri, K, **Tako E.**, Glahn R., Miller D. Effect of milk peptides that enhance iron uptake by Caco-2 cells on the expression of DMT-1 and on iron dialyzability from meals. Experimental Biology meeting, *FASEB J.* 2008 22:lb673, San-Diego, CA, 2008.

6. **Tako E.**, Lappara, M., Glahn , R., Lei X., Welch, R and Miller D. Fe and Zn bioavailability from red (merlot) and white (great northern) bean-based (Phaseolus vulgaris L.) diets fed to anemic young pigs. Experimental Biology meeting, San- Diego, CA, 2008. *FASEB J.* 2008 22:304.

7. Lappara M., **Tako, E.**,Glahn, R., Miller, D. Inulin and Mucins in the Intestine can reduce Iron uptake from dissociable sources. Experimental Biology meeting, San- Diego, CA, 2008. *FASEB J.* 2008 22:lb745.

8. Lappara M., **Tako, E.**,Glahn, R., Miller, D. Glycosaminoglycans isolated from fish muscle enhance iron uptake by Caco-2 cells. Experimental Biology meeting, San-Diego, CA, 2008. *FASEB J.* 2008 22:694.5.

9. **Tako E**. and Glahn R.P. Using the domestic chicken as an in vivo screening tool for iron bioavailability. Experimental Biology meeting, New Orleans, LO, 2009. *FASEB J.* 2009 23:921.14.

10. **Tako, E** and Glahn, RP. The use of the broiler (Gallus gallus) as an in vivo screening tool for Fe bioavailability. Poultry Science annual meeting, Raleigh, NC, 2009.

11. Hoekenga O., Lung'aho M., **Tako E.**, Kochian L., Glahn, R. Iron biofortification of maize grain. Plant andAnimal Genome XVIII meeting 2010, San Diego, CA.

20. **Tako E.**, Lung'hao M., Kochian, L, Hoekenga O., Glahn R. Iron bioavailability from maize based diets fed to iron deficient broiler chickens. Experimental Biology meeting 2010, Anaheim, CA.

12. Lungaho M, Hoekenga O, **Tako E**, Glahn R. Enhancing iron Bioavailability of maize using a Caco2 cell/quantitative trait loci model Enhancing iron bioavailability of maize using a Caco2 cell / quantitative trait loci model. Experimental Biology meeting 2010, Anaheim, CA.

13. **Elad Tako**, Mercy Lung'aho, Leon V. Kochian, Owen A. Hoekenga and Raymond P. Glahn. Use of the broiler (Gallus gallus) as an in vivo screening tool for Fe bioavailability in maize-based diets. Poultry Science-Dairy Science- Animal Science Joint meeting 2010, Denver, CO.

14. **Elad Tako**, Leon V. Kochian, Owen A. Hoekenga and Raymond P. Glahn. Development of high bioavailable iron maize using Caco-2 cells and broiler chickens. Bioavailability 2010 meeting, Pacific Grove, CA.

15. **Elad Tako** and Raymond P. Glahn. White beans provide more bioavailable iron than red beans: studies in poultry and in vitro digestion/Caco 2 model. Bioavailability 2010 meeting, Pacific Grove, CA.

16. Hoekenga OA, Lung'aho MG, **Tako E**, Kochian LV, and Glahn RP. Iron biofortification of maize grain**.** Bioavailabilty 2010 meeting, Pacific Grove, CA.

17. Hoekenga OA, Lung'aho MG, **Tako E**, Kochian LV, and Glahn RP. Iron biofortification of maize grain. 2010 international symposium on genomics of plants. Bologna, Italy.

18. Hoekenga OA, Lung'aho MG, **Tako E**, Kochian LV, and Glahn RP. Iron biofortification of maize grain. ASA, CSSA and SSSA 2010 international meeting, Long Beach, CA.

19. **Tako E**, Hoekenga OA, Lung'aho MG, Kochian LV, and Glahn RP. Screening food crops for iron bioavailability**.** Biofortification-the first global conference 2010, Washington D.C.

20. **Tako Elad**, Vandenberg A, Thavarajah D, Thavarajah P, Glahn R. Iron bioavailability in lentil based diets: Studies in poultry and in vitro digestion/Caco-2 model. Experimental Biology 2011, Washington, DC.

21. **Tako Elad**, Vandenberg A, Thavarajah D, Thavarajah P, Glahn R. Iron bioavailability in lentil based diets: Studies in poultry and in vitro digestion/Caco-2 model. Poultry Science Association annual meeting 2011, St. Louis, MI.

22. **Tako Elad** and Raymond P. Glahn. Intra amniotic administration and dietary inulin affect the iron status and intestinal functionality of iron deficient broiler chickens. Poultry Science Association annual meeting 2011, St. Louis, MI.

23. **Tako Elad**. Caco-2 cell and animal model studies are effective at screening and developing staple food crops with improved Fe bioavailability". Embrapa Food Technology, the 4th Annual Biofortification Meeting 2011, Teresina, Brazil.

24. **Tako E**, Hoekenga OA, Lung'aho MG, Kochian LV, and Glahn RP. Screening food crops for iron bioavailability**.** Biofortification-the first global conference 2010, Washington D.C.

25. Attended the "International farm management association" (IFMA 18) 2011 international meeting, Methven/Christchurch, New Zealand.

26. **Tako Elad**, Vandenberg A, Thavarajah D, Thavarajah P, Glahn R. Iron bioavailability in lentil based diets: Studies in poultry and in vitro digestion/Caco-2 model. Experimental Biology 2011, Washington, DC.

27. **Tako Elad**, Vandenberg A, Thavarajah D, Thavarajah P, Glahn R. Iron bioavailability in lentil based diets: Studies in poultry and in vitro digestion/Caco-2 model. Poultry Science Association annual meeting 2011, St. Louis, MI.

28. **Tako Elad** and Raymond P. Glahn. Intra amniotic administration and dietary inulin affect the iron status and intestinal functionality of iron deficient broiler chickens. Poultry Science Association annual meeting 2011, St. Louis, MI.

29. **Elad Tako**, Matthew W. Blair and Raymond P. Glahn. Biofortified red mottled beans (*Phaseolus vulgaris* L.) in a maize and bean diet provide more bioavailable iron than standard red mottled beans: Studies in poultry (*Gallus gallus*) and an in vitro digestion/Caco 2 model. Experimental Biology 2012, San Diego, CA.

30. Gretchen Siem, Cedric Ahn, Mary Bodis, **Elad Tako**, Dennis Miller, Raymond Galhn, Sera Young. The concentration of iron in Zanzibari geophagic earth is high but its in vitro bioavailability is low and inhibita the bioavailability of dietary iron in an in viro digestion/Caco 2 cell model. Experimental Biology 2012, San Diego, CA.

31. **Elad Tako**, Owen A. Hoekenga, Leon V. Kochian, and Raymond P. Glahn. Biofortified maize (*Zea mays* L.) provides more bioavailable iron than standard maize: Studies in poultry (*Gallus gallus*) and an in vitro digestion/Caco-2 model. Experimental Biology 2012, San Diego, CA.

32. **Elad Tako**, Diane M. Dellavalle, Owen A. Hoekenga, Leon V. Kochian and Raymond P. Glahn. Caco-2 cell and animal model studies are effective at screening and developing staple food crops with improved Fe bioavalability. 16th international symposium on iron nutrition and interaction in plants 2012, Amherst, MA.

33. Gretchen Siem, Cedric Ahn, Mary Bodis, **Elad Tako**, Dennis Miller, Raymond Glahn, Sera Young. The concentration of iron in Zanzibari geophagic earth is high but it's in vitro bioavailability is low and inhibita the bioavailability of dietary iron in an in viro digestion/Caco 2 cell model. The 16th international symposium on iron nutrition and interaction in plants 2012, Amherst, MA.

34. **Elad Tako**, Owen A. Hoekenga, Leon V. Kochian and Raymond P. Glahn. Biofortified maize (*Zea mays L.*) provides more bioavailable iron than standard maize: studies in poultry (Gallus gallus) and an in vitro digestion/Caco 2 model. Poultry Science Association annual meeting 2012, Athens, GA.

35. **Elad Tako**, Matthew W. Blair and Raymond P. Glahn. Biofortified red mottled beans (*Phaseolus vulgaris L.*) in maize and bean diet provide more bioavailable iron than standard red mottled beans: Studies in poultry (*Gallus gallus*) and an in vitro digestion/Caco 2 model. Poultry Science Association annual meeting 2012, Athens, GA.

36. **Elad Tako,** Raymond Glahn, Miaoqing Shen, Jon Hart and Owen A. Hoekenga. Metabolomic characterization of iron biofortified maize grain. The 54th annual maize genetic conference 2012, Portland, OR.

37. Owen A. Hoekenga, **Elad Tako**, Leon V. Kochian, and Raymond P. Glahn. Plant and animal genomes XIX conference 2012, San Diego, CA.

38. **Elad Tako**, Steve Beebe, Spenser Reed, Erick Boy, Raymond P. Glahn. Biofortified Black Beans (*Phaseolus vulgaris* L.) in a Maize and Bean Diet Provide More Bioavailable Iron to Chickens (*Gallus gallus*) Than Standard Black Beans. Experimental Biology 2013, Boston, MA.

39. **Tako Elad**, Hoekenga OA, Kochian LV, Glahn RP. High bioavailability maize (*Zea Mays* L.) developed through molecular breeding provides more bioavailable iron in vitro (*Caco-2*) and in vivo (*Gallus gallus*).The 20th international congress of nutrition 2013, Granada, Spain.

40. **Elad Tako** and Raymond P.Glahn. Caco-2 and animal model studies (*Gallus gallus*) are effective at screening and developing staple food crops with improved iron bioavailability. The 20th international congress of nutrition 2013, Granada, Spain.

41. **Elad Tako**, Steve Beebe, Spenser Reed, Erick Boy, Raymond P. Glahn. Biofortified black bean (*Phaseolus vulgaris* L.) based diet provides more bioavailable iron *in vitro* (*Caco 2*) and in vivo (*Gallus gallus*). 20th international congress of nutrition 2013, Granada, Spain.

42. **Elad Tako**, Binu Cherian, Spenser Reed, Jessica Budiman, and Raymond P. Glahn. Biofortified pearl millet (*Pennisetum glaucum* L.) provides more bioavailable iron than standard pearl millet: studies in poultry (*Gallus gallus*) and an in vitro digestion/Caco-2 model. Experimental Biology 2014, San Diego, CA.

43. Spenser Reed, Xia Qin, Rinat Ran-Ressler, J. Thomas Brenna, Raymond P. Glahn, and **Elad Tako**. Dietary zinc deficiency affects blood linoleic acid: dihomo-γ-linolenic acid (LA:DGLA) ratio; a sensitive physiological marker of zinc status in vivo (*Gallus gallus*). Experimental Biology 2014, San Diego, CA.

44. Spenser Reed, Xia Qin, Rinat Ran-Ressler, J. Thomas Brenna, Raymond P. Glahn, and **Elad Tako**. Dietary zinc deficiency affects blood linoleic acid: dihomo-γ-linolenic acid (LA:DGLA) ratio; a sensitive physiological marker of zinc status in vivo (*Gallus gallus*). Micronutrient Forum 2014, Addis Ababa, Ethiopia.

45. **Elad Tako**, Binu Cherian, and Raymond P. Glahn. Biofortified pearl millet (*Pennisetum glaucum* L.) provides more bioavailable iron than standard pearl millet: studies in vivo (*Gallus gallus*) and an in vitro digestion/Caco-2 model. Micronutrient Forum 2014, Addis Ababa, Ethiopia.

46. **Tako E**., Beebe S., Glahn R.P. Polyphenolic compounds appear to limit the nutritional benefit of biofortified high iron black beans (*Phaseolus Vulgaris* L.). Bioavailability meeting 2014, Iguassu Falls, Brazil.

47. **Elad Tako**, Binu Cherian, and Raymond P. Glahn. Biofortified pearl millet (*Pennisetum glaucum* L.) provides more bioavailable iron than standard pearl millet: studies in vivo (*Gallus gallus*) and an in vitro digestion/Caco-2 model. Bioavailability meeting 2014, Iguassu Falls, Brazil.

48. Spenser Reed, Xia Qin, Rinat Ran-Ressler, J. Thomas Brenna, Raymond P. Glahn, and **Elad Tako**. Dietary zinc deficiency affects blood linoleic acid: dihomo-γ-linolenic acid (LA:DGLA) ratio; a sensitive physiological marker of zinc status in vivo (*Gallus gallus*). Bioavailability 2014 meeting, Iguassu Falls, Brazil.

49. **Elad Tako** and Raymond P. Glahn. Assessment of iron bioavailability and iron biofortification of staple food crops: guiding the breeding approach with in vitro and in vivo screening tools. Bioavailability meeting 2014, Iguassu Falls, Brazil.

50. **Elad Tako** and Gretchen Mahler. Use of Physiologically-Based in vitro Models of the Gastrointestinal Tract to Study TiO-2 and SiO-2 Nanoparticle Interactions with Mineral Absorption. 2014 Biomedical Engineering Society (BMES) Annual Meeting, San Antonio, Texas.

51. Zhongyuan Guo, **Elad Tako** and Gretchen Mahler. Nanoparticle Ingestuion Anlers Nutrient Absorption in Physiologically-Based In Vitro Model of the Gastrointestinal Tract. 54th SOT 2015 Annual Meeting, San Diego, CA.

52. Zhongyuan Guo, **Elad Tako** and Gretchen Mahler. Nanoparticle Ingestion Alters Iron and Zinc Absorption in the Small Intestine. The Biomedical Engineering Society (BMES) 2015 Annual Meeting, Tampa, Florida.

53. Fabiola Moreno Olivas, **Elad Tako** and Gretchen Mahler. (β)-Cytotoxic Effects of Zno Nanoparticles in an (In Vitro) Human Intestine Epithelium Model. The Biomedical Engineering Society (BMES) 2015 Annual Meeting, Tampa, Florida.

54. Spenser Reed, Omry Koren, Hadar Newman and **Elad Tako**. Chronic zinc deficiency alters gut microbiota structure and function. 12th European Nutrition Conference, (FENS) 2015, Berlin, Germany. Ann Nutr Metab 2015;67(suppl 1):1–601. DOI: 10.1159/000440895

55. **Elad Tako** and Raymond P. Glahn. Caco-2 Cell and Animal Model Studies (*Gallus gallus*) Are Effective at Screening and Developing Staple Food Crops with Improved Fe Bioavailability. Symposium--Improving Pulse Crops for Nutrition and Health. ASA, CSSA, and SSSA Annual Meeting 2015, Minneapolis, MN.

56. **Elad Tako**. Studies of Cream Seeded Carioca Beans (*Phaseolus vulgaris* L.) from a Rwandan Efficacy Trial: In Vitro and In Vivo (including effects on intestinal microbiome) Screening Tools Reflect Human Studies and Predict Beneficial Results from Iron Biofortified Beans. Experimental Biology 2016, San Diego, CA.

57. Sarina Pacifici, Jaehong Song, Cathy Kexin Zhang, Qiaoye Wang, and **Elad Tako**. Evaluating the influence of various plant origin prebiotics (*Raffinose* and *Stachyose*) on iron status, intestinal functionality and intestinal bacterial populations. Experimental Biology 2016, San Diego, CA.

58. **Elad Tako** and Omry Koren. Chronic Zinc Deficiency Alters Chick (*Gallus gallus*) Gut Microbiota Structure and Function. Experimental Biology 2016, San Diego, CA.

59. Zhongyuan Guo, **Elad Tako**, Gretchen Mahler. Ingested Nanoparticles Alter Gastrointestinal Tract Enzyme Function and Mineral Absorption. Biomedical Engineering Society (BMES) Annual Meeting 2016, Minneapolis, MN.

60. Marija Knez, James C.R. Stangoulis, Manja Zec, Zoran Pavlovic, Jasmina D. Martacic, Mirjana Gurinovic, **Elad Tako**, Maria Glibetic. An initial evaluation of newly proposed biomarker of zinc status in humans - linoleic acid: dihomo-γ-linolenic acid (LA:DGLA) ratio. Micronutrient Forum 2016, Cancun, Mexico.

61. **Elad Tako**, Steve E. Beebe, Raymond P. Glahn. Studies of Cream Seeded Carioca Beans (Phaseolus vulgaris L.) from a Rwandan Efficacy Trial: In Vitro and In Vivo (including effects on intestinal microbiome) Screening Tools Reflect Human Studies and Predict Beneficial Results from Iron Biofortified Beans. Micronutrient Forum 2016, Cancun, Mexico.

62. Spenser Reed, Omry Koren, Hadar Neuman, and **Elad Tako**. Chronic Zinc deficiency alters chick (Gallus gallus) gut microbiota structure and function. Micronutrient Forum 2016, Cancun, Mexico.

63. **Elad Tako**, Haim Bar, and Raymond P. Glahn. The Combined Application of the Caco-2 Cell Bioassay Coupled with In Vivo (Gallus gallus) Feeding Trial Represents an Effective Approach to Predicting Fe Bioavailability in Humans. Experimental Biology 2017, Chicago, IL.

64. Jason Wiesinger, Karen Cichy, **Elad Tako**, Jonathan Hart, and Raymond Glahn. The Manteca Yellow Bean: A Genetic Resource of Fast Cooking and High Iron Bioavailability Phenotypes for the Next Generation of Andean Dry Beans (Phaseolus vulgaris L.). Experimental Biology 2017, Chicago, IL.

65. Raymond Glahn, Karen Cichy, **Elad Tako**, and Jason Wiesinger. Cooking Time and Iron Bioavailability: The USDA-ARS Approach to Bean Fe Biofortification. Experimental Biology 2017, Chicago, IL.

66. Desirrê Morais Dias, Nikolai Kolba, Jon J. Hart, and **Elad Tako**. Carioca beans (Phaseolus vulgaris L.) prebiotic extracts affect the gut microbiota and iron related brush border membrane protein expression in vivo (Gallus gallus). American Society of Nutrition 2018, Boston, MA.

67. Desirrê Morais Dias, Hércia Stampini Duarte Martino, Raymond P. Glahn, and **Elad Tako**. Carioca beans (Phaseolus vulgaris) target for biofortification combine with other staple food crops (food basket) increased the iron bioavailbility in vitro. American Society of Nutrition 2018, Boston, MA.

68. Jesse T. Beasley, Nikolai Kolba, Alexander A. T. Johnson, Raymond P. Glahn and **Elad Tako**. Intra-Amniotic Administration (Gallus gallus) of Nicotianamine and Triticum aestivum Extracts Affects Iron Status, Hypertension and Intestinal Functionality. American Society of Nutrition 2018, Boston, MA.

69. Jesse T. Beasley, Jonathan J. Hart, Alexander A. T. Johnson, and **Elad Tako**, and Raymond P. Glahn. Nicotianamine Is a Stronger Promoter of Iron Uptake than Ascorbic Acid, 2'-Deoxymugenic Acid and Epicatechin and Reduces Iron Uptake Inhibition by Myricetin in Caco-2 Cells. American Society of Nutrition 2018, Boston, MA.

70. **Elad Tako**. The Combined Application of the Caco-2 Cell Bioassay Coupled with In Vivo (*Gallus gallus*) Feeding Trial Represents an Effective Approach to Predicting Fe Bioavailability in Humans. The 19th International Symposium on Iron Nutrition and Interactions in Plants (ISINIP), (special session: "Iron interaction with other organisms"), 2018, Taipei, Taiwan.

Professional Presentations - Invited Speaker

1. Hebrew University of Jerusalem, Institute of Biochemistry, Food Science and Nutrition (10/14): Fighting Hidden Hunger (I): The Iron and Zinc Dietary deficiency Challenge.

2. Hebrew University of Jerusalem, Institute of Biochemistry, Food Science and Nutrition (12/14): Fighting Hidden Hunger (II): Updates on the Iron and Zinc Dietary deficiency Challenge.

3. Cornell University, Division of Nutritional Sciences, guest lecturer (11/12): Iron absorption and metabolism.

4. Teresina, Brazil (07/11): Caco-2 cell and animal model studies are effective at screening and developing staple food crops with improved Fe bioavailability. Embrapa Food Technology, the 4th annual Biofortification international meeting.

5. The Volcani Research Center, Rehovot, Israel (02/09): Iron and zinc bioavailabilities in maize and beans; studies using in vitro and in vivo models.

6. Cornell University, Department of Food Science (03/08): Evaluation of Fe and Zn absorptions in anemic/Fe deficient subjects under different dietary conditions.

7. Hebrew University of Jerusalem, The Institute of Biochemistry, Food Science and Nutrition School of Nutritional Sciences, Faculty of Agricultural, Food and Environmental Quality Sciences (02/08): Evaluating Fe and Zn absorption in anemic subjects under different dietary conditions: mechanisms and tools.

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8. Cornell University, Department of Food Science, Food microbiology laboratory (04/07): Microbial analysis of anemic pig intestinal content, using the PCR technique.

9. Cornell University, Department of Food Science (08/04): The effect of in ovo Feeding on the broiler's embryo gastro intestinal development.

10. ASA, CSSA, and SSSA Annual Meeting 2015, Minneapolis, MN. *Caco-2* Cell and Animal Model Studies (*Gallus gallus*) Are Effective at Screening and Developing Staple Food Crops with Improved Fe Bioavailability. Symposium--Improving Pulse Crops for Nutrition and Health.

11. Cornell University symposium "Biofortification to alleviate micronutrient malnutrition: A symposium honoring 2016 World Food Prize Laureates". October 2016. Title: Innovative approaches to study dietary Fe and Zn bioavailability.

12. Crop Science Society of America (CSSA) meeting "Symposium--the Bridge from Biofortification to Bioavailability". October 2017. Title:" Nutrigenomic/Microbiome Approaches for Assessing Zn Bioavailabiilty".

13. Invited speaker (05/2017): USDA-ARS, Beltsville Human Nutrition Research Center (BHNRC Seminar Series): "Innovative approaches to study dietary iron and zinc bioavailability, absorption and deficiency status".

Professional Presentations - Other

1. Cornell University, Department of Food Science (08/12): Use of poultry (*Gallus gallus*) as an in vivo model to develop foods with improved mineral bioavailability.

2. Hebrew University of Jerusalem, Department of Biochemistry and Food Science (05/08): Dietary strategies to enhance iron absorption in iron deficient populations.

3. Cornell University, Department of Food Science (03/07): Biofortification and inulin; strategies to battle dietary iron deficiency.

4. Robert W. Holley Center for Agriculture and Health, Ithaca, NY (11/06): Using *In vitro* and *in vivo* models to investigate iron absorption pathways. HarvestPlus forum.

5. Hebrew University of Jerusalem, Department of Animal Science (01/05): In ovo feeding procedure and its effects on chicken embryos and hatchlings intestinal development.

6. North Carolina State University, Department of Poultry Science (07/04): Intestinal development in the late term broiler embryo; molecular and morphological parameters.

7. Hebrew University of Jerusalem, the University's senate and board of trustees, presenting the "In ovo Feeding Technique" (01/04).

Publications - Journal Articles (peer-reviewed)

1. Sklan D., Geyra A., **Tako E**., Gal-Garber O., Uni Z. (2003).Ontogeny of brush border carbohydrate digestion and uptake in the chick. British Journal of Nutrition. Jun;89(6):747-53.

2. Uni Z., **Tako E**. , Gal-Garber O., Sklan D.(2003)**.** Morphological, molecular, and functional changes in the chicken small intestine of the late-term embryo. Journal of Poultry Science. Nov;82(11):1747-54.

3. **Tako E**., Ferket P., Uni Z (2004). Effects of in ovo feeding of carbohydrates and beta-hydroxy-beta-methylbutyrate on the development of chicken intestine. Journal of Poultry Science. Dec;83(12):2023-8.

4. Uni Z., Ferket P., **Tako E.**, Kedar O. (2005). In Ovo feeding improves energy status of late term chicken embryos. Journal of Poultry Science. May;84(5):764-70.

5. **Tako E**., Ferket P., Uni Z. (2005). Changes in chicken intestinal zinc exporter mRNA expression and small intestinal functionality following intra-amniotic zinc-methionine *administration*. Journal of Nutritional Biochemistry. Jun;16(6):339-46.

6. Smirnov A., **Tako E**., Ferket P., Uni Z.(2006). Mucin gene expression and mucin content in the chicken intestinal goblet cells are affected by in ovo feeding of carbohydrates**.** Journal of Poultry Science. Apr;85(4):669-73.

7. Rozenboim I., **Tako E**. , Gal Garber O., Praudman J. and Uni Z.(2007). The effect of heat stress on ovarian function of laying hens. Journal of Poultry Science. Aug:86(8): 1760-5

8. **Tako E.** , R. P. Glahn, R. M. Welch, X. Lei, K. Yasuda and D. D. Miller.(2007) Dietary inulin affects the expression of intestinal enterocyte iron transporters, receptors and storage protein and alters the microflora in the pig intestine. British Journal of Nutrition, Sep 10: 1- 9.

9. J. M., Laparra , **E. Tako** , R.P.Glahn, and D.D. Miller. Inulin affects iron dialyzability from FeSO4 and FeEDTA solutions but does not alter Fe uptake by Caco-2 cells (2008). Journal of Agricultural and Food Chemistry, Apr 55 (8): 2846-2851.

10. S. Y. Tan, **Tako E.,** R. P. Glahn, R. M. Welch, X. Lei and D. D. Miller. Iron Bioavailability to Piglets from Red and White Common Beans (*phaseolus vulgaris* L.) (2008). Journal of Agricultural and Food Chemistry, Jul 56(13): 5008-5014

11. J. M. Laparra, **E. Tako**, R. P. Glahn, D. D. Miller. Isolated Glycosaminoglycans from Cooked Haddock Enhance Nonheme Iron Uptake by Caco-2 cells (2008). Journal of Agricultural and Food Chemistry, Jul 56(13): 5008-5014.

12. **E. Tako**, J. M. Laparra, R. P. Glahn , R. M. Welch, X. Lei[C], S. Beebe, and D.D.Miller. Biofortified black beans (*Phaseolus vulgaris* L.) in a maize/bean diet provide more bioavailable iron to piglets than standard black beans (2009). Journal of Nutrition. Feb; 139 (2):305-309.

13. Argyri, K . **Tako, E**. Miller, D. Glahn, R. Komaitis, M. Kapsokefalou, M (2009). Milk peptides increase iron dialyzability in water but do not affect DMT-1 expression in Caco-2 cell (2009). Journal of Agricultural and Food Chemistry. Feb 25, 57(4):1537-1543.

14. **E. Tako** , R. P. Glahn, J. M. Laparra, R. M. Welch, X. Lei, J.D. Kelly, M.A Rutzke and D.D.Miller. Iron and zinc bioavailabilities to pigs from red and white beans (*Phaseolus vulgaris* L.) are similar (2009). Journal of Agricultural and Food Chemistry. *Apr 22, 57(8)-3134-3140*

15. **Tako E.**, Rutzke M. A. and Glahn R. P. Using the domestic chicken (*Gallus gallus*) as an *in vivo* model for Fe bioavailability (2010).Journal of Poultry Science. Mar, 89:514-521.

16. **Elad Tako** and R.P Glahn. Iron status of the late term broiler (*Gallus gallus*) embryo and hatchling. International Journal of Poultry Science (2011). 10(1):42-48.

17. **Elad Tako** and R. P. Glahn. White beans provide more bioavailable iron than red beans: Studies in poultry (*Gallus gallus*) and an in vitro digestion/Caco-2 model. International Journal for Vitamin and Nutrition Research (2011). 81(1): 1-14

18. O.A Hoekenga, M.G. Lungaho, **E. Tako**, L.V. Kochian, Glahn, R.P. Iron biofortification of maize grain. Plant Genetic Resources: Characterization and Utilization (2011). 1 : 1-3.

19. **Elad Tako**, Matthew W. Blair and Raymond P. Glahn. Biofortified red mottled beans (*Phaseolus vulgaris L.*) in a maize and bean diet provide more bioavailable iron than standard red mottled beans: studies in poultry (Gallus gallus) and an in vitro digestion/ Caco-2 model. Nutrition Journal (2011). 14;10:113

20. Gretchen J. Mahler, Mandy B. Esch, **Elad Tako**, Teresa L. Southard, Shivaun D. Archer, Raymond P. Glahn and Michael L. Shuler. Oral exposure to polystyrene nanoparticles affects iron absorption. Nature Nanotechnology (2012). 12;7(4):264-71. doi:10.1038/nnano.2012.3.

21. **Elad Tako** and R. P. Glahn. Intra amniotic administration and dietary inulin affect the iron status and intestinal functionality of iron deficient broiler chickens (*Gallus gallus*). Journal of Poultry Science (2012). Jun;91(6):1361-70.

22. Zhiqiang Cheng, **Elad Tako**, Andrew Yeung, Ross M. Welch, and Raymond P. Glahn. Evaluation of metallothionein formation as a proxy for zinc absorption in an In Vitro digestion/Caco-2 cell culture model. Food and Function (2012). DOI: 10.1039/c2fo10232c.

23. **Elad Tako**, Leon V. Kochian, Owen A. Hoekenga and Raymond P. Glahn. High bioavailable iron maize (*Zea mays* L.) provides more absorbable iron than standard maize to poultry (*Gallus gallus*) and a Caco-2 cell model. Nutrition Journal (2013). Jan 4;12(1):3. doi: 10.1186/1475-2891-12-3.

24. Paula A. Pebsworth , Gretchen Seim , Michael A.. Huffman, Raymond. P, Glahn, **Elad Tako** Sera L. Young. Geophagic earth consumed by chacma baboons is low in bioavailable iron. Journal of Chemical Ecology (2013). DOI 10.1007/s10886-013-0258-3.

25. Seim GL, Ahn CI, Bodis MS, Luwedde F, Miller DD, Hillier S, **Tako E**, Glahn RP, Young SL. Bioavailability of iron in geophagic earths and clay minerals, and their effect on dietary iron absorption using an in vitro digestion/Caco-2 cell model. Food and Function (2013). DOI: 10.1039/C3FO30380B.

26. Spenser Reed, Xia Qin, Rinat Ran-Ressler, J. Thomas Brenna, Raymond P. Glahn, and **Elad Tako**. Dietary zinc deficiency affects blood linoleic acid: dihomo-γ-linolenic acid (LA:DGLA) ratio; a sensitive physiological marker of zinc status in vivo (*Gallus gallus*). Nutrients (2014), 6(3), 1164-1180; doi:10.3390/nu6031164 (Special Issue "Nutrient: Gene Interactions").

27. **Elad Tako**, Steve E Beebe, Spenser Reed, Jonathan J Hart and Raymond P Glahn. Polyphenolic compounds appear to limit the nutritional benefit of biofortified higher iron black bean (*Phaseolus vulgaris* L.). Nutrition Journal (2014), 13:28 doi:10.1186/1475-2891-13-28.

28. Ying Lv, Shuntang Guo, **Elad Tako**, Raymond Glahn. Hydrolysis of Soybean Protein Improves Iron Bioavailability by Caco-2 Cell. Journal of Food and Nutrition Research (2014), 2 (4), 162-166.

29. **Elad Tako**, Raymond P. Glahn, Marija Knez and James C.R. Stangoulis. The effect of wheat prebiotics on the gut bacterial population and iron status of iron deficient broiler chickens. Nutrition Journal (2014), 13;13(1):58. doi: 10.1186/1475-2891-13-58.

30. **Elad Tako**, Spenser Reed, Jessica Budiman, Jonathan Hart, and Raymond P. Glahn. Polyphenolic compounds appear to limit the nutritional benefit of biofortified higher iron pearl millet (*Pennisetum glaucum* L.) Nutrition Journal (2015), Jan 23;14:11. doi: 10.1186/1475-2891-14-11.

31. Karen Hartono, Spenser Reed, Naa Ayikarkor Ankrah, Raymond P. Glahn.a and **Elad Tako**. Alterations in gut microflora populations and brush border functionality following intra-amniotic daidzein administration. RSC Advances, (2015), 5, 6407-6412. DOI: 10.1039/C4RA10962G

32. Jonathan J. Hart, **Elad Tako**, Leon V. Kochian, and Raymond P. Glahn. Identification of Black Bean (*Phaseolus vulgaris* L.) Polyphenols that Inhibit and Promote Iron Uptake by Caco-2 Cells. Journal of Agricultural and Food Chemistry. 2015 Jul 1;63(25):5950-6. doi: 10.1021/acs.jafc.5b00531.

33. **Elad Tako**, Amrutha Anandraman, Spenser Reed, Steve Bebee, Raymond Glahn. Studies of Brown Carioca Beans (*Phaseolus Vulgaris* L.) from a Rwandan efficacy trial: In vitro and In vivo screening tools reflect human studies and predict beneficial results from iron biofortified beans. PLoS One. 2015 Sep 18;10(9):e0138479. doi: 10.1371/journal.pone.0138479.

34. Spenser Reed, Hadar Neuman, Sharon Moscovich, Raymond P. Glahn, Omry Koren, and **Elad Tako.** Chronic Zinc Deficiency Alters Chick Gut Microbiota Composition and Function. Nutrients. 2015 Nov 27;7(12):9768-84. doi: 10.3390/nu7125497.

35. Kurniawan R Trijatmiko, Conrado Duenas, Lina Torrizo, Norman Oliva, Perigio Francisco, Felichi Mae Arines, Cheryl Adeva, Jeanette Balindong, Ma. Veronica Sapasap, Enzo Lombi,James Stangoulis, Alexander Johnson, **Elad Tako**, Gerard Barry, Inez H Slamet-Loedin. Field Grown Biofortified Rice Supplies Sufficient Fe and Zn to Have Biological Impact on the Human Diet. Scientific Reports- Nature. 2016 Jan 25, 6:19792. doi: 10.1038/srep19792

36. Gretchen L. Seim, **Elad Tako**, Cedric Ahn, Raymond P. Glahn, Sera L. Young. A novel in vivo model for assessing the impact of geophagic earth on iron status. Nutrients. 2016 Jun 13;8(6). doi: 10.3390/nu8060362.

37. Raymond P. Glahn, **Elad Tako**, Jason Wiesinger. The Cotyledon Cell Wall of the Common Bean (*Phaseolus vulgaris*) Resists Digestion in the Upper Intestine and Thus May Limit Iron Bioavailability. Food and Function. 2016 Jun 21.

38. Elad Tako and Omry Koren. Chronic zinc deficiency alters gut microbiota structure and function. 12th European Nutrition Conference, (FENS) 2015, Berlin, Germany. Ann Nutr Metab 2015;67(suppl 1):1–601. DOI: 10.1159/000440895

39. Jason A Wiesinger, Karen A. Cichy, Raymond P. Glahn, Mike A. Grusak, Mark A. Brick, Henry J. Thompson, **Elad Tako**. Demonstrating A Nutritional Advantage to the Fast Cooking Dry Bean (*Phaseolus vulgaris* L.). Journal of Agricultural and Food Chemistry. 2016 Nov 16;64(45):8592-8603.

40. **Tako E**, Bar H, Glahn RP. The Combined Application of the Caco-2 Cell Bioassay Coupled with In Vivo (*Gallus gallus*) Feeding Trial Represents an Effective Approach to Predicting Fe Bioavailability in Humans. Nutrients. 2016 Nov 18;8(11). pii: E732. Review.

41. Zhongyuan Guo, Nicole Martucci, Fabiola Moreno Olivas, **Elad Tako**, Gretchen Mahler. Titanium Dioxide Nanoparticle Ingestion Alters Nutrient Absorption in an In Vitro Model of the Small Intestine. Nanoimpact, 2017 January, http://dx.doi.org/10.1016/j.impact.2017.01.002.

42. Sarina Pacifici, Jaehong Song, Cathy Zhang, Qiaoye Wang, Raymond P. Glahn, Nikolai Kolba and **Elad Tako.** Intra Amniotic Administration of Raffinose and Stachyose Affects the Intestinal Brush Border Functionality and Alters Gut Microflora Populations. Nutrients, 2017, 9(3), 304; doi:10.3390/nu9030304.

43. Hart JJ, **Tako E**, Glahn RP. Characterization of Polyphenol Effects on Inhibition and Promotion of Iron Uptake by Caco-2 Cells. Journal of Agricultural and Food Chemistry. 2017 Apr 12. doi: 10.1021/acs.jafc.6b05755

44. Desirrê Morais Dias, Neuza Maria Brunoro Costa, Marilia Regini Nutti, **Elad Tako**, Hércia Stampini Duarte Martino. Advantages and limitations of in vitro and in vivo methods of iron and zinc bioavailability evaluation in the assessment of biofortification program effectiveness. Critical Reviews in Food Science and Nutrition, 2017. 2017 Apr 17:0. doi: 10.1080/10408398.2017.1306484.

45. Raymond P. Glahn, **Elad Tako**, Jonathan Hart, Jere Haas, Mercy Lung'aho, Stephan Beebe. Iron bioavailability studies of the first generation of iron-biofortified beans released in Rwanda. Nutrients, 2017, 9(7), 787; doi:10.3390/nu9070787

46. Tao Hou, Nikolai Kolba, Raymond P. Glahn, and **Elad Tako**. Intra-Amniotic Administration (*Gallus gallus*) of Cicer arietinum and Lens culinaris Prebiotics Extracts and Duck Egg White Peptides Affects Calcium Status and Intestinal Functionality. Nutrients, 2017, 9(7), 785; doi:10.3390/nu9070785

47. Spenser Reed, Hadar Neuman, Raymond Glahn, Omry Koren, and **Elad Tako**. Characterizing the Gut (*Gallus gallus*) Microbiota Following the Consumption of an Iron Biofortified Rwandan Cream Seeded Carioca (*Phaseolus Vulgaris* L.) Bean-based Diet. PLoS One, 2017, Aug 10;12(8):e0182431. doi: 10.1371/journal.pone.0182431.

48. Marija Knez, James C.R. Stangoulis, Maria Glibetic, and **Elad Tako.** The LA:DGLA ratio - an emerging biomarker of Zn status. Nutrients (special issue: *Dietary zinc and human health*), 2017, Aug 1;9(8). pii: E825. doi: 10.3390/nu9080825. Review.

49. Marija Knez, **Elad Tako**, Raymond P Glahn, Nikolai Kolba, Emma de Courcy Ireland, James CR Stangoulis. The linoleic acid: dihomo-γ-linolenic acid ratio predicts the efficacy of Zn biofortified wheat in chicken (*Gallus gallus*). Journal of agricultural and food chemistry, 2018, Feb 6. doi: 10.1021/acs.jafc.7b04905.

50. Fabiola Moreno-Olivas, **Elad Tako**, and Gretchen J. Mahler. ZnO Nanoparticles Affect Intestinal Function in an In Vitro Model. Food and Function. 2018, Feb 20. doi: 10.1039/C7FO02038D

51. Rajib Podder, Robert T. Tyler, Raymond P. Glahn, **Elad Tako**, Albert Vandenberg. Relative bioavailability of iron in Bangladeshi traditional meals prepared with iron-fortified lentil dal. Nutrients (special issue: Fe Deficiency, Dietary Bioavailbility and Absorption). 2018, 15;10(3). pii: E354. doi: 10.3390/nu10030354.

52. Tao Hou and **Elad Tako**. The In Ovo Feeding Administration (*Gallus Gallus*)—An Emerging In Vivo Approach to Assess Bioactive Compounds with Potential Nutritional Benefits. Nutrients 2018, 10, 418; doi:10.3390/nu10040418. Review.

53. Zhongyuan Guo, **Elad Tako**, Gretchen Mahler. Silicon dioxide nanoparticle exposure affects small intestine function in an in vitro model. Nanotoxicology 2018 Apr 18:1-24. doi: 10.1080/17435390.2018.1463407.

54. Spenser Reed, Marija Knez, Atara Uzan, James Stangoulis, Omry Koren, and **Elad Tako**. Alterations in the gut (*Gallus gallus*) microbiota following the consumption of zinc biofortified wheat (Triticum aestivum) - based diet. Journal of agricultural and food chemistry, 2018, June 6. Doi: 10.1021/acs.jafc.8b01481

Publications - Books

1. **Elad Tako** (Ed.) Dietary Zn and Human Health (This book is a printed edition of the Special Issue Dietary Zn and Human Health that was published in *Nutrients*). ISBN 978-3-03897-019-4; https://doi.org/10.3390/books978-3-03897-020-0 (registering DOI). Published: June 2018.

Publications- Gene sequences (National Institutes of Health's National Center for Biotechnology Information Gene Bank (http://www.ncbi.nim.nih.gov/)

1. **Tako, E**., Ferket, P.R., Uni Z. Gallus gallus partial mRNA for zinc transporter ZnT-1 (ZNT-1 gene). gi|54109718|emb|AJ619980.1|[54109718].

2. **Tako, E.,** and D.D Miller., Sus scrofa partial mRNA for cytochrome b reductase (CYTB gene), tissue type duodenum. gi|105295521|emb|AM268434.1|[105295521].

3. **Tako, E** and D.D Miller. Sus scrofa partial mRNA for divalent metal transporter 1 (DMT1 gene)gi|86197473|emb|AM183784.1|[86197473].

4. Hakim,Y., Harpaz, S., Argov, N., **Tako, E**. and Uni, Z. Lates calcarifer partial mRNA for aminopeptidase (ap gene) gi|84617653|emb|AJ888375.1|[84617653].

5. Uni, Z., Smirnov, A., Sklan, D. and **Tako, E**. Meleagris gallopavo partial mRNA for mucin protein (muc gene) gi|60491018|emb|AJ862328.1|[60491018].

6. Sklan, D, Yitshak, O and **Tako, E**. Oreochromis niloticus partial mRNA for amylase gi|30314893|emb|AJ555243.2|[30314893].

7. **Tako, E** and Glahn R.P., *Gallus gallus* partial mRNA for cytochrome b reductase (CYTB gene), tissue type duodenum. gi|219943161|gb|FJ222588.1|[219943161].

8. Reed, S and **Tako E**., *Gallus gallus* partial mRNA for Hepatic delta-5 fatty acid desaturase. Under review.

9. **Tako E**., Gg-CalbindD9k Chicken intestine day 1 post-hatch Gallus gallus cDNA 5- similar to calbindinD9k, intestinal, mRNA sequence. PubMed ID 28754012

Additional Publications

1. **Elad Tako**. Enhancement of the Development and Growth of Broilers by in ovo Feeding: Energetic Status, Cellular and Molecular Parameters of the Intestine (2005, PhD thesis)

2. **Elad Tako**. Chronic zinc deficiency alters gut microbiota composition and function. Ann Nutr Metab 2015;67 (suppl 1):1–601. DOI: 10.1159/000440895.

3. **Elad Tako**, Binu Cherian, Spenser Reed, Jessica Budiman, and Raymond Glahn. Biofortified pearl millet (Pennisetum glaucum L. provides more bioavailable iron than standard pearl millet: studies in poultry (Gallus gallus) and an in vitro digestion/Caco-2 model (1042.3). FASEB J April 2014 28:1042.3.

4. **Elad Tako**, Matthew W Blair, and Raymond P Glahn. Biofortified red mottled beans (Phaseolus vulgaris L) in a maize and bean diet provide more bioavailable iron than standard red mottled beans: Studies in poultry (Gallus gallus) and an in vitro digestion/Caco 2 model. FASEB J April 2012 26:365.8.

5. **Elad Tako**, Owen A Hoekenga, Leon V Kochian, and Raymond P Glahn. Biofortified maize (Zea mays L.) provides more bioavailable iron than standard maize: Studies in poultry (Gallus gallus) and an in vitro digestion/Caco-2 model. FASEB J April 2012 26:1019.1.

6. **Elad Tako**, Albert Vandenberg, Dil Thavarajah, Pushparajah Thavarajah, and Raymond P Glahn. Iron bioavailability in lentil based diets: Studies in poultry and in vitro digestion/Caco-2 model. FASEB J April 2011 25:607.8.

7. **Elad Tako**, Mercy Lung'aho, Leon V Kochian, Owen A Hoekenga, and Raymond P Glahn. Iron bioavailability from maize-based diets fed to iron deficient broiler chickens. FASEB J April 2010 24:208.8.

8. **Elad Tako**, Mike A Rutzke, and Raymond P Glahn. Using the domestic chicken (Gallus gallus) as an in vivo screening tool for Fe bioavailability. FASEB J April 2009 23:921.14.

9. Spenser Reed, Xia Qin, Rinat Ran-Ressler, J Brenna, Raymond Glahn, and **Elad Tako**. Dietary zinc deficiency affects blood linoleic acid:dihomo-γ-linolenic acid ratio: a sensitive physiological marker of zinc status in vivo (Gallus gallus) (1043.2). FASEB J April 2014 28:1043.2.

10. **Elad Tako**, Steve Beebe, Spenser Reed, Erick Boy, and Raymond Glahn. Biofortified Black Beans (Phaseolus vulgaris L.) in a Maize and Bean Diet Provide More Bioavailable Iron to Chickens (Gallus gallus) Than Standard Black Beans. FASEB J April 9, 2013 27:859.9.

11. Gretchen Seim, Cedric Ahn, Mary Bodis, **Elad Tako**, Dennis Miller, Raymond Glahn, and Sera Young. The concentration of iron in Zanzibari geophagic earth is high but its in vitro bioavailability is low and it inhibits the bioavailability of dietary iron in an in vitro digestion/Caco-2 Cell model. FASEB J April 2012 26:lb282.

12. Mercy Lung'aho, Owen Hoekenga, **Elad Tako**, and Raymond Glahn. Enhancing iron bioavailability of maize using a Caco2 cell/quantitative trait loci model. FASEB J April 2010 24:717.10.

13. Jose Moises Laparra Llopis, **Elad Tako**, Dennis D Miller, and Raymond P Glahn. Inulin and Mucins in the Intestine can reduce Iron uptake from dissociable supplements. FASEB J April 2008 22:745.

14. Maria Kapsokefalou, Konstantina Argyri, **Elad Tako**, Raymond P. Glahn, and Dennis D. Miller. Effect of milk peptides that enhance iron uptake by Caco-2 cells on the expression of DMT-1 and on iron dialyzability from meals. FASEB J April 2008 22:673.

55. **Elad Tako**, R. P. Glahn, R. M. Welch, X. Lei, J. M. Laparra, M. Rutzke, and D. D. Miller. Fe and Zn bioavailability from red (merlot) and white (great northern) bean-based (Phaseolus vulgaris) diets fed to anemic young pigs. FASEB J April 5, 2008 22:304.5

16. Jose Moises Laparra Llopis, **Elad Tako**, Raymond P Glahn, and Dennis D Miller. Glycosaminoglycans isolated from fish muscle enhance iron uptake by Caco-2 cells. FASEB J April 5, 2008 22:694.5.

17. **E Tako**, S Beebe, R Glahn. Polyphenolic compounds appear to lomit the nutritional benefit of biofortified high iron black beans (Phaseolus Vulgaris L.). Nutrire 39 (Suplemento), 51-51, 2014.

18. **E Tako**, B Cherian, R Glahn. Biofortified pearl millet (Pennisetum Glaucum L.) provides more bioavailable iron than standard parl millet: studies in vivo (Gallus gallus) and in vitro digestion/ caco-2 model. Nutrire 39 (Suplemento), 26-26, 2014.

19. **E Tako**, R Glahn. Assessment of iron bioavailability and iron biofortification of staple food crops: guiding the breeding approach with In vitro and in vivo screening tools. Nutrire 39 (Suplemento), 12-12,2014.

20. **E Tako**, RP Glahn. Caco-2 cell and animal model (Gallus gallus) studies are effective at screening and developing staple food crops with improved Fe- bioavailabilty. Annals of Nutrition and Metabolism 63, 1410-1410, 2013.

21. **E Tako**, S Beebe, R Glahn. Biofortified black beans (Phaseolus Vulgaris L.) based diets provide more bioavailable iron in vitro (Caco-2) and in vivo (Gallus gallus). Annals of Nutrition and Metabolism 63, 284-284.

22. **E Tako**, RP Glahn, RM Welch, X Lei, DD Miller. Supplemental microbial phytase effects the expression of intestinal and liver mineral transporters in the iron/zinc deficient pig. Journal of Dairy Science 90, 620-620, 2007.

23. **E Tako**, M Lung'aho, LV Kochian, OA Hoekenga, RP Glahn. Use of the broiler (Gallus gallus) as an in vivo screening tool for Fe bioavailability in maize-based diets. Journal of Dairy Science 93, 497-497, 2010.

24. **Elad Tako** and Raymond P Glahn. Studies of Cream Seeded Carioca Beans (Phaseolus vulgaris L.) from a Rwandan Efficacy Trial: In Vitro and In Vivo (including effects on intestinal microbiome) Screening Tools Reflect Human Studies and Predict Beneficial Results from Iron Biofortified Beans. FASEB J April 2016 30:421.4.

25. **Elad Tako**. Chronic zinc deficiency alters chick (Gallus gallus) gut microbiota structure and function. FASEB J April 2016 30:148.3.

26. Sarina Pacifici, Jaehong Song, Cathy Kexin Zhang, and **Elad Tako**. Evaluating the effect of plant origin prebiotics (Raffinose and Stachyose) on iron status, intestinal functionality and intestinal bacterial populations in vivo. FASEB J April 2016 30:692.17

Publications- Patents

The pioneering efforts in the "*In ovo*" feeding area subsequently led to the awarding of a U.S. Patent (U.S. Patent No. 6,592,878) to the Hebrew University of Jerusalem and North Carolina State University.

Publications - Media Contributions (selection):

1. The Israeli Ministry of Education requested the permission of Dr. Tako to use portions of his "*In ovo* Feeding" research to be included in the "scientific problem" section of the Israeli Biology SAT exam (06/06).
2. USDA*, Agricultural Research Service magazine*; "Better beans mean better health for people everywhere" (April 2010): http://www.flcnortheast.org/2010_summer_07.html.
3."Chicken study questions nano-particle impact" (02/12): http://www.news.com.au/technology/sci-tech/chicken-study-questions-nano-particle-impacts/story-fn5fsgyc-1226269397101.
4. "Nano particles slow iron absorption in the gut" at (02/12): *RSC, advancing the chemical sciences*: http://www.rsc.org/chemistryworld/News/2012/February/nanoparticle-toxicity-nutrient-absorption-chickens.asp
5. "Iron in new maize strain gets absorbed more readily", *Cornell Chronicle* (02/13): http://www.news.cornell.edu/stories/Feb13/IronMaize.html.
6. "Iron in new maize strain readily absorbed: Diet with high iron bioavailability maintained iron status of chickens" at (02/13): Morning Ag Clips: http://www.morningagclips.com/articles/iron-in-new-maize-strain-readily-absorbed/.
7. "(Fe^{+2})eling better: Solving the global iron deficiency crisis through crop biofortification", *The Triple Helix* (The Cornell University issue, Fall 2012), written by Spenser Reed about his research focus.
8. "High school scholar spends summer tackling world nutrition through biofortification" (featuring student research), Cornell *CALS notes* (September 2013): http://cornellcals.tumblr.com/post/60282465705/high-school-scholar-spends-summer-tackling-world.

9. "What I did on my summer vacation: Building better food systems on the hill" (featuring student research), Cornell *periodiCALS* (2013): http://periodicals.cals.cornell.edu/2013-summer/periodiCALS-Summer-2013.pdf
10. "Trip provides insights in Israeli agribusiness" (Featuring student international study trip), Cornell *Chronicle* (05/13): http://news.cornell.edu/stories/2013/05/trip-provides-insights-israeli-agribusiness
11. "New method paves way for better dietary zinc test", Cornell *Chronicle* (04/14): http://www.news.cornell.edu/stories/2014/04/new-method-paves-way-better-dietary-zinc-test
12. "Faculty trio leads 22 students to UK for agribusiness study over break", Cornell *CLAS Notes* (04/15): http://cornellcals.tumblr.com/post/115120197655/faculty-trio-leads-22-students-to-uk-for

Active Research grants (2018)

1. NIH (R15, in collaboration with Dr. Mahler, Department of Bioengineering, Binghamton University, NY): "The effects of engineered nanoparticle ingestion on mineral absorption and small intestinal health and function" ($439,150).
2. NIFA (in collaboration with Drs. Karen Cichy, Raymond P. Glahn): "Optimizing the Convenience, Nutrition, and Taste of Yellow Dry Beans (*Phaseolus vulgaris* L.) to Promote Pulse Consumption in the U.S." ($490,000).
3. NIH (R01, in collaboration with Dr. Mahler, Department of Bioengineering, Binghamton University, NY): "Engineering a Small Intestinal Microbiome to Evaluate Food Additive Exposure". (Approved, official funding support announcement expected by mid-June 2018).