

## CURRICULUM VITAE

### Raymond P. Glahn

Research Physiologist  
United States Department of Agriculture  
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Date of Birth: October 3, 1961  
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#### Education

The Pennsylvania State University 1979-1983 B.S. (Biology)  
The Pennsylvania State University 1984-1986 M.S. (Physiology)  
The Pennsylvania State University 1986-1989 Ph.D. (Physiology)

**M.S. Thesis:** The Dose Response of the Mycotoxin Citrinin on Kidney Function of SCWL Pullets

**Doctoral Dissertation:** Causes and Treatment of Urolithiasis in Single Comb White Leghorns

**Doctoral Dissertation Director:** Dr. Robert F. Wideman, Jr.

#### Career History:

Bethesda Naval Hospital, Bethesda, MD.

Research Associate, Dept. of Critical Care Medicine. July 1983-July 1984.

The Pennsylvania State University, University Park, PA.

Graduate Assistant, Department of Poultry Science. August 1984-December 1989.

The University of Arkansas, Fayetteville, AR.

Research Associate, Dept. of Poultry and Animal Science. January 1989-July 1990.

Mayo Clinic and Foundation, Rochester, MN.

Research Fellow, Nephrology Research Unit, Department of Physiology. August 1990-August 1992.

United States Department of Agriculture, Agriculture Research Service, Ithaca, NY.

Research Physiologist, U.S. Plant, Soil and Nutrition Laboratory, Cornell University.  
September 1992 - 1998.

United States Department of Agriculture, Agriculture Research Service, Ithaca, NY.

Senior Scientist/Research Physiologist, U.S. Plant, Soil and Nutrition Laboratory, Cornell University. June 1998 – present.

#### Major Fields:

Nutritional physiology; intestinal trace mineral absorption and bioavailability; renal and general physiology.

**Honors, Awards and Professional Membership:**

Scholarship, Pennsylvania Poultry Federation, 1986.

Excellence in Research Award, Poultry Science Association, 1987 and 1988.

Annual Award for Excellence in Research, American Physiological Society, Section on Renal Physiology, FASEB, Anaheim, CA 1992.

Member, American Society for the Nutritional Sciences  
May, 1994 - present.

Agricultural Research Service Early Career Scientist of the Year, North Atlantic Area, 1999.

**Patents:**

Ferritin Formation as a Predictor of Iron Availability in Foods. Patent #6,017,713. January 25, 2000. Assignee: The United States of America, as represented by the Secretary of Agriculture, Washington, D.C.

**Teaching Experience:**

Cornell University, Department of Food Science.

Undergraduate student research. 1992- present.

Graduate student research. 1998 – present.

Current Readings in Iron Bioavailability (Food Science 695). 2000 – present.

University of Arkansas, Dept. of Poultry and Animal Science

Animal Science 5954 (Avian Physiology; Invited lecture; Graduate Level), 1989.

University of Arkansas, Dept. of Athletics, 1989-1990.

Tutor of student-athletes (Life Sciences, Mathematics).

The Pennsylvania State University, Dept. of Animal Science, Dept. of Poultry Science

Animal Science 101 (Laboratory), 1984-1985.

Poultry Science 496 (Special Topics), 1984-1989.

American Red Cross, State College, PA.

Advanced First Aid, Emergency Care, and Cardio-pulmonary Resuscitation,  
1984-1987.

**Major Publications (n=103):**

1. Cioffi, G.E., B. Chernow, R.P. Glahn, G.T. Terezhalmly, and C.R. Lake. The hemodynamic and plasma catecholamine response to routine restorative dental care. J. Amer. Dent. Assoc. 1985 111:67-70.

2. Glahn, R.P. The dose response effects of the mycotoxin citrinin on kidney function of SCWL pullets. M.S. Thesis. The Pennsylvania State University 1986.

3. Glahn, R.P., W.J. Mitsos, and R.F. Wideman, Jr. Evaluation of sex differences in embryonic heart rates. Poultry Sci. 1987 66:1316-1325.

4. Glahn, R.P. and R.F. Wideman, Jr. Avian diuretic responses to renal portal infusions of the mycotoxin citrinin. Poultry Sci. 1987 66:1316-1325.

5. Glahn, R.P., R.F. Wideman, Jr., J. Evangelisti, and W.E. Huff. Effects of ochratoxin A alone and in combination with citrinin on kidney function of SCWL pullets. *Poultry Sci.* 1988 67:1034-1042.
6. Glahn, R.P., R.F. Wideman, Jr., and B.S. Cowen. Effect of gray strain infectious bronchitis virus and high dietary calcium on renal function of SCWL pullets at 6, 10, and 18 weeks of age. *Poultry Sci.* 1988 67:1250-1263.
7. Glahn, R.P., R.F. Wideman, Jr., and B.S. Cowen. Effect of dietary acidification and alkalization on urolith formation and renal function in SCWL laying hens. *Poultry Sci.* 1988 67:1694-1701.
8. Glahn, R.P. The causes and treatment of urolithiasis in Single Comb White Leghorns. Doctoral Thesis, The Pennsylvania State University, 128 pages 1989.
9. Wideman, R.F., Jr., W.B. Roush, J.L. Satnick, R.P. Glahn, and N.O. Oldroyd. Methionine hydroxy analog (free acid) reduces avian kidney damage and urolithiasis induced by excess dietary calcium. *J. Nutr.* 1989 119:818-828.
10. Glahn, R.P., R.F. Wideman, Jr., and B.S. Cowen. Order of exposure to high dietary calcium and gray strain infectious bronchitis virus alter renal function and the incidence of urolithiasis. *Poultry Sci.* 1989 68:1193-1204.
11. Glahn, R.P., R. Shapiro, V.E. Vena, R.F. Wideman, Jr., and W.E. Huff. Effects of chronic ochratoxin A and citrinin exposure on renal function of SCWL pullets. *Poultry Sci.* 1989 68:1205-1212.
12. Stanton, T.S., R.P. Glahn, and R.F. Wideman, Jr. The effects of dietary phosphorous and parathyroid hormone (PTH) infusion rates on the avian phosphaturic response to PTH. *J. Exp. Biol.* 1989 144:521-533.
13. Bottje, W.G., R.P. Glahn, K.W. Beers, H. Nejad, and K. Holmes. Evidence that glutathione may suppress renal cortical perfusion in the rabbit. *Med. Sci. Res.* 1989 17:991-993.
14. Glahn, R.P., K.W. Beers, W.G. Bottje, R.F. Wideman, Jr., and W.E. Huff. Altered renal function in broilers during aflatoxicosis. *Poultry Sci.* 1990 69:1796-1797.
15. Bottje, W.G., R.P. Glahn, K.W. Beers, H. Nejad, and K. Holmes. Indomethacin attenuation of hepatic perfusion and plasma 6-keto PGF<sub>1α</sub> elevations following glutathione depletion in rabbits. *Biochim. Biophys. Acta.* 1991 1073:168-176.
16. Bottje, W.G., R.P. Glahn, K.W. Beers, H. Nejad, and K.R. Holmes. Effects of diethylmaleate on glutathione, hepatic and renal cortical perfusion, and portal 6-ketoPGF<sub>1</sub> and

TxB2 levels in swine. *Comp. Biochem. Physiol.* 1991 101C(1): 125-129.

17. Glahn, R.P., K.W. Beers, W.G. Bottje, R.F. Wideman, Jr., W.E. Huff, and W. Thomas. Aflatoxicosis alters the renal response to phosphate loading in the domestic fowl. *J. Toxicol. Environ. Health* 1991 34:309-321.

18. Wideman, R.F. Jr., R.P. Glahn, W.G. Bottje, and K.R. Holmes. Use of a thermal pulse decay system to assess regional autoregulation of avian renal blood flow. *Am. J. Physiol.* 1991 262: R90-R98.

19. Isaac, J., R.P. Glahn, M.O. Onsgard, T.L. Berndt, F.G. Knox, and T.P. Dousa. Mechanism of dopamine inhibition of renal phosphate transport. *J.A.S.N.* 1992 2:1601-1607.

20. Glahn, R.P., R.F. Wideman, Jr., P. Maynard, W.G. Bottje, and K.R. Holmes. Response of the avian kidney to acute changes in arterial perfusion pressure and portal blood supply. *Am. J. Physiol.* 1992 264:R428-R434.

21. Beers, K.W., R.P. Glahn, W.G. Bottje and W.E. Huff. Aflatoxin and glutathione in domestic fowl (*Gallus domesticus*) II. Effects on hepatic blood flow. *Comp. Biochem. Physiol.* 1992 101(3):463-467.

22. Wideman, R.F. Jr., H. Nishimura, W.G. Bottje, and R.P. Glahn. Reduced renal arterial perfusion pressure stimulates renin release from domestic fowl kidneys. *Gen. Comp. Endocrinol.* 1993 89:405-414.

23. Glahn, R.P., M.J. Onsgard, G. Tyce, S. Chinnow, F.G. Knox, and T.P. Dousa. Autocrine/paracrine regulation of renal Na<sup>+</sup>-phosphate cotransport by dopamine. *Am. J. Physiol.* 1993 264:F618-F622.

24. Glahn, R.P. Mycotoxins and the avian kidney: assessment of physiological function. *World's Poultry Science Journal.* 1994 49:242-250.

25. Glahn, R.P., D.R. Van Campen, and T.P. Dousa. Aflatoxin B<sub>1</sub> reduces Na<sup>+</sup>-P<sub>i</sub> cotransport in proximal renal epithelium: studies in opossum kidney (OK) cells. *Toxicology* 1994 92:91-100.

26. Wien, E.M., Glahn, R.P., and Van Campen, D. Functional characterization and specificity of iron uptake in rat intestinal brush border membrane vesicles. *J. Nutr. Biochem.* 1994 5:571-577.

27. Glahn R.P., Gangloff M.B., Miller D.D., Van Campen D.R., Norvell W.A., and Wien E.M. Bathophenanthroline disulfonic acid and sodium dithionite effectively remove surface-bound iron from Caco-2 cell monolayers. *J. Nutr.* 1995 125:1833-1840.

28. Gangloff, M.B., Glahn, R.P., Miller D.D., and Van Campen D.R. Assessment of iron

availability using combined in vitro digestion and Caco-2 cell culture. *Nutrition Research* 1996 16:479-487.

29. Glahn R.P., Wien E.M., Van Campen D.R. and Miller D.D. Caco-2 cell iron uptake from meat and casein digests parallels in vivo studies: use of a novel in vitro method for rapid estimation of iron bioavailability. *J. Nutr.* 1996 126:332-339.

30. Gangloff M.B., Lai C., Van Campen D.R., Miller, D.D., Norvell W.A. and Glahn, R.P. Ferrous Iron Uptake But Not Transfer is Down-Regulated in Caco-2 Cells Grown in High Iron Serum-Free Medium. *J. Nutr.* 1996 126:3118-3127.

31. Glahn R.P. and Van Campen, D.R. Cysteine and Reduced Cysteinyl-Glycine Enhance Iron Uptake By Caco-2 Cell Monolayers. *J. Nutr.* 1997 127:642-647.

32. Glahn R.P., Lai, C., Hsu, J., Thompson, J.F. and Van Campen D.R. Decreased Citrate Improves Iron Availability From Infant Formula: Application of an In Vitro Digestion/Caco-2 Cell Culture Model. *J. Nutr.* 1998 128:257-264.

33. Glahn, R.P., Lee, O.A., Yeung, A., Goldman, M.I., and Miller, D.D. Caco-2 Cell Ferritin Formation Predicts Nonradiolabeled Food Iron Availability in an In Vitro Digestion/Caco-2 Cell Culture Model. *J. Nutr.* 1998 128:1555-1561.

34. Van Campen, D.R. and Glahn, R.P. Micronutrient Bioavailability Techniques: Accuracy, Problems and Limitations. *Field Crops Research* 1999 60:93-113.

35. Glahn, R.P., Lee, O.A. and Miller, D.D. In Vitro Digestion/Caco-2 Cell Culture Model to Determine Optimal Ascorbic Acid to Fe Ratio In Rice Cereal. *J. Food Sci.* 1999 64:925-928.

36. Johnson, C.F., R.W. Langhans, L.D. Albright, G.F. Combs, Jr., R.M. Welch, L. Heller, R.P. Glahn, R.M. Wheeler, G.D. Goins Spinach: Nitrate Analysis of an Advanced Life Support (ALS) crop cultured under ALS candidate artificial light sources (SAE, International Controlled Environment Systems proceedings - SAE International, CD ROM, 1999 ICES Proceedings paper No. 1999-01-2107 1999.

37. Glahn, R.P., Rassier, M.E., Goldman, M.I., Lee, O.A., and Cha, J. A Comparison of Iron Availability From Commercial Iron Preparations Using an In Vitro Digestion/Caco-2 Cell Culture Model. *J. Nutr. Biochem.* 2000 11: 62-68.

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39. Yeung, A.C., Glahn, R.P., and Miller, D.D Effects of Iron Source on Iron Availability from Casein and Casein Phosphopeptides. *Journal of Food Science* 2002 67:1271-1275.

40. Yeung, A.C., Glahn, R.P., and Miller, D.D. Comparison of the availability of various iron fortificants in bread and milk using an in vitro digestion/Caco-2 cell culture method. *Journal of Food Science* 2002 67:2357-2361.
41. Glahn, R.P., Wortley, G.M., South, P.K. and Miller, D.D. Inhibition of Iron Uptake by Phytic Acid, Tannic Acid and ZnCl<sub>2</sub>: Studies Using An In vitro Digestion/Caco-2 Cell Model. *Journal of Agricultural and Food Chemistry* 2002 50:390-395.
42. Glahn, R.P., Cheng, Z., Welch R.M., and Gregorio, G.B. A Comparison of Iron Bioavailability From 15 Rice Genotypes: Studies Using An In Vitro Digestion/Caco-2 Cell Culture Model. *Journal of Agricultural and Food Chemistry* 2002 50:3586-3591.
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44. Yeung, C.K., Glahn, R.P., Wu, X., Liu, R.H., and Miller D.D. In Vitro Iron Bioavailability and Antioxidant Activity of Raisins. *Journal of Food Science* 2002 68: 701-705.
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46. Yeung, C.K., Glahn, R.P., and Miller, D.D. Iron Bioavailability from Common Raisin-containing Foods Assessed with an In Vitro Digestion/Caco-2 Cell Culture Model: Effects of Raisins. *Journal of Food Science* 2003 68:1866-1870.
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50. Oikeh, S.O., Menkir, A., Maziya-Dixon, B., Welch, R.M. Gauch, H.G. and Glahn, R.P. Environmental stability of iron and zinc concentration in grain of early-maturing tropical maize genotypes grown under field conditions. *Journal of Agricultural Science* 2004 142(5): 543-551.
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- iron bioavailability from 20 elite late-maturing tropical maize varieties using an in vitro digestion/Caco-2 cell model. *Journal of the Science of Food and Agriculture* 2004 84:1202-1206.
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59. Rutzke, Corinne J.; Glahn, Raymond P.; Rutzke, Michael A., et al. Bioavailability of iron from spinach using an in vitro/human Caco-2 cell bioassay model *Habitation* 2004 10 (1) : 7-14.
60. Wortley, G., Leusner, S. Good, C., Gugger, E., and Glahn, R.P. Iron bioavailability of a fortified processed wheat cereal: a comparison of fourteen iron forms using an in vitro digestion /human colonic adenocarcinoma (CaCo-2) cell model. *British Journal of Nutrition* 2005 93:65-71.
61. Yeung, C.K., Miller, D.D., Cheng, Z., and Glahn, R.P. Bioavailability of elemental iron powders in bread assessed with an in vitro digestion/Caco-2 cell culture model. *Journal of Food Science* 2005 70:199-203.
62. Yeung, C.K., Glahn, R.P. , and Miller, D.D. Inhibition of iron uptake from iron salts and chelates by divalent metal cations in intestinal epithelial cells. *Journal of Agricultural and Food Chemistry* 2005 53:132-136.

63. Yeung, C.K., Glahn, R.P., Welch, R.M. and Miller, D.D. Prebiotics and Iron Bioavailability – Is There a Connection? *Journal of Food Science* 2005 70:R88-R92.
64. Etcheverry, P., Wallingford, J.C., Miller, D.D. and Glahn, R.P. The effect of calcium salts, ascorbic acid and peptic pH on calcium, zinc and iron bioavailabilities from fortified human milk using an in vitro digestion/Caco-2 cell model. *International Journal for Vitamin and Nutrition Research* 2005 75 (3): 171-178.
65. Engle-Stone, Reina; Yeung, Andrew; Welch, Ross, and Glahn, R.P. Meat and ascorbic acid can promote Fe availability from Fe-phytate but not from Fe-tannic acid complexes. *Journal of Agricultural and Food Chemistry* DEC 28 2005 53 (26) : 10276-10284.
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Journal of Agricultural and Food Chemistry 2006 Oct 4;54(20):7929-34.
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American Journal of Clinical Nutrition AUG 2007 Volume 86: 388-396.
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Journal of Agricultural and Food Chemistry 2007 Dec 12;55(25):10221-5.
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J Nutr. 2007 Oct;137(10):2329 author reply 2330.
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Journal of Agricultural and Food Chemistry 2007 Sep 19;55(19):7950-6.
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Journal of Agricultural and Food Chemistry 2008 56(8); 2846-2851.
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Food Chemistry, Volume 109, Issue 1, 1 July 2008, Pages 122-128.
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Journal of Agricultural and Food Chemistry 2008 56 (13), 5008–5014.
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British Journal of Nutrition, Volume 99, Issue 03, Mar 2008, pp 472-480.
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J. Agric. Food Chem. Aug 2008 56(16):6881-5.

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