Lin Yan, Ph.D.

Position: Research Nutritionist

Education:

Ph.D. Human Nutrition, Texas Tech University, Lubbock, TX, 1990.
M.S. Human Nutrition, Texas Tech University, Lubbock, TX, 1986.
B.S. Medicine, Qingdao Medical College, Qingdao, P.R. China, 1980.

Professional Experience:

1990-1992 Post-doctoral Associate, Department of Biological Sciences, Rutgers University Newark, NJ.
1992-1994 Senior Research Associate, Creighton University School of Medicine, Department of Biomedical Sciences, Omaha, NE.
1994-1999 Research Associate Professor, Creighton University School of Medicine, Department of Biomedical Sciences, Omaha, NE.
1999-2002 Senior Nutrition Scientist, Nutrition Department, Du Pont Protein Technologies, St. Louis, MO.
2002-2006 Director, Cancer Research, Nutrition Department, The Solae Company (formally DuPont Protein Technologies), St. Louis, MO.
2007-Present Research Nutritionist, Grand Forks Human Nutrition Research Center, USDA-ARS, Grand Forks, ND.

Grants and Awards:

1994-1995 The Health Futures Foundation (Omaha, NE), Effect of selenium on osteosarcoma cell adhesion and invasion, Principal Investigator, $9,000.
1995-1996 The health Futures Foundation (Omaha, NE), Effect of dietary soy supplementation on murine pulmonary metastasis. Principal Investigator, $10,000.
1996-1997 Nebraska Soybean Board, Chemopreventive and antimetastatic effect of high selenium soybeans, Principal Investigator, $35,691.
1996-1997 The State of Nebraska Department of Health Cancer and Smoking-Related Diseases Program, Dietary selenium supplementation and cancer metastasis, Principal Investigator, $20,000.
1997-1998 The State of Nebraska Department of Health, Prevention of cancer metastasis by dietary soybeans, Principal Investigator, $30,000.
1997-1998 The State of Nebraska Department of Health Cancer and Smoking-Related Diseases Program, Dietary phytoestrogens and prevention of cancer metastasis, Principal Investigator, $79,314.
1998-1999 The State of Nebraska Department of Health, Antimetastatic effect of high-selenium soybeans, Principal Investigator, $30,000.
1998-2000 American Institute for Cancer Research, Antimetastatic and anticarcinogenic effect of high-selenium soybeans, Principal Investigator, $132,000.
2008-2009 Nebraska Soybean Board, Anti-cancer effects of high-selenium soybeans, Principal Investigator, $10,000.
2008-2010 USDA CSREES grant with Washington State University, Developing wheat varieties for organic agriculture, co-investigator, $11,000.
2010-2013 USDA CSREES grant with Washington State University, Developing wheat varieties for organic agriculture, co-investigator, $14,000.
2010-2013 USDA CSREES grant with Washington State University, Mineral quantification of wheat varieties for organic agriculture, co-investigator, $6,800.

Peer-Reviewed Publications:

1. **Yan L**, Boylan LM and Spallholz JE. Effect of dietary selenium and magnesium on human mammary tumor growth in athymic nude mice. *Nutr Cancer* 16:239-248, 1991.
2. **Yan L**, Yee JA, Boylan LM and Spallholz JE. Effect of selenium compounds and thiols on the human mammary tumor cells. *Biol Trace Element Res* 30:145-162, 1991.
3. **Yan L** and Frenkel GD. Inhibition of cell attachment by selenite. *Cancer Res* 52:5803-5807, 1992.
4. **Yan L** and Spallholz JE. Generation of reactive oxygen species from the reaction of selenium compounds with thiols and mammary tumor cells. *Biochem Pharmacol* 45:429-437, 1993.
5. Yee JA, **Yan L**, Domingues JD, Allan EH and Martin TJ. Plasminogen-dependent activation of latent transforming growth factor beta (TGF-beta) by growing cultures of osteoblast-like cells. *J Cellular Physiol* 157:528-534, 1993.
6. **Yan L** and Frenkel GD. Protein Synthesis is not required for the inhibitory effect of selenite on cell colony formation and RNA synthesis. *Biol Trace Element Res* 40:181-187, 1994.
7. **Yan L** and Frenkel GD. Effect of selenite on cell surface fibronectin receptor. *Biol Trace Element Res* 46:79-89, 1994.
8. **Yan L**, Yee JA, McGuire MH and Graef GL. Effect of dietary supplementation of selenite on pulmonary metastasis of melanoma cells in mice. *Nutr Cancer* 28(2):165-169, 1997.
9. **Yan L**, Yee JA, McGuire MH and Graef GL. Effect of dietary supplementation of soybeans on experimental metastasis of melanoma cells in mice. *Nutr Cancer* 29(1):1-6, 1997.
10. **Yan L**, Yee JA, Li D, McGuire MH and Thompson LU. Dietary flaxseed supplementation and experimental metastasis of melanoma cells in mice. *Cancer Lett* 124:181-186, 1998.
11. Li D, Yee JA, McGuire MH, Murphy PA, and **Yan L**. Soybean isoflavones reduce experimental metastasis in mice. *J Nutr* 129(5):1075-1078, 1999.
12. **Yan L**, Yee JA, Li D, McGuire MH and Graef GL. Dietary supplementation of selenomethionine reduces metastasis of melanoma cells in mice. *Anticancer Res* 19:1337-1342, 1999.
13. Li D, Yee JA, Thompson LU and **Yan L**. Dietary supplementation with secoisolariciresinol diglycoside (SDG) reduces experimental metastasis of melanoma cells in mice. *Cancer Lett* 142(1):91-96, 1999.
14. **Yan L** and Kerr PS. Genetically engineered crops: their potential use for improvement of human nutrition. *Nutr Rev* 60(5):135-141, 2002.
15. **Yan L,** Li D, and Yee JA. Dietary supplementation with isolated soy protein reduces metastasis of mammary carcinoma cells in mice. *Clin Exp Metastasis* 19(6):535-540, 2002.
16. Li D, Graef GL, Yee JA and **Yan L**. Effect of dietary supplementation with high-selenium soy protein on pulmonary metastasis of melanoma cells in mice. *J Nutr* 134(6):1536-1540, 2004.
17. **Yan L** and Spitznagel EL. A meta-analysis of soyfoods and risk of breast cancer in women. *Int J Cancer Prev* 1(4):281-293, 2004.
18. **Yan L** and Spitznagel EL. Meta-analysis of soy food and risk of prostate cancer in men. *Int J Cancer* 117(4):667-669, 2005.
19. **Yan L** and Spitznagel EL. Soy consumption and prostate caner risk: a revisit to meta-analysis. *Am J Clin Nutr* 89(4):1155-1163, 2009.
20. **Yan L**, Graef GL, Reeves PG and Johnson LK. Selenium bioavailability from soybean protein isolate and tofu in rats fed a Torula yeast-based diet. *J Agric Food Chem* 57(24):11575-11580, 2009.
21. **Yan L**, Spitznagel EL and Bosland MC. Soy consumption and colorectal cancer risk in humans: a meta-analysis. *Cancer Epid Biomarkers Prev* 19(1):148-158, 2010.

22. **Yan L**, Reeves PG and Johnson LK. Assessment of selenium bioavailability from naturally produced high-selenium soy foods in selenium-deficient rats. *J Trace Elements Med Biol* 24(4):223-229, 2010.
23. **Yan L** and DeMars LC. Effects of dietary fat on spontaneous metastasis of Lewis lung carcinoma in mice. *Clin Exp Metastasis* 27(8):581-590, 2010.
24. **Yan L** and Johnson LK. Selenium bioavailability from naturally produced high-selenium peas and oats in selenium-deficient rat. *J Agric Food Chem* 59(11):6305-6311, 2011.
25. **Yan L,** Combs GF Jr, DeMars LC and Johnson LAK. Effects of physical forms of the diet on food intake, growth and body composition changes in mice. *J Am Assoc Lab Animal Sci* 50(4):588-594, 2011.
26. Zeng HW, **Yan L**, Cheng WH and Uthus EO. Dietary selenomethionine increases Exon-specific DNA methylation of the p53 gene in rat liver and colon mucosa. *J Nutr* 141(8): 1464-1468, 2011.
27. **Yan L** and DeMars LC. Effects of non-motorized voluntary running on experimental and spontaneous metastasis in mice. *Anticancer Res* 31(10):3337-3344, 2011.
28. Murphy KM, Hoagland LA, **Yan L**, Colley M and Jones SS, Genotype × environment interactions for mineral concentration in grain of organically grown spring wheat. *Agronomy J* 103(6):1734-1741, 2011.
29. **Yan L** and DeMars LC. Dietary supplementation with methylseleninic acid, but not selenomethionine, reduces spontaneous metastasis of Lewis lung carcinoma in mice. *Int J Cancer* 131(6):1260-1266, 2012.
30. **Yan L**, DeMars LC and Johnson LK. Long-term voluntary running improves diet-induced adiposity in young adult mice. *Nutr Res* 32:458-465, 2012.
31. **Yan L**. Dietary supplementation with curcumin enhances metastatic growth of Lewis lung carcinoma in mice. *Int J Cancer* 132(2):269-275, 2013.
32. Zeng H, Liu J, Jackson MI, **Yan L** and Combs GF. Fatty liver accompanies an increase in Lactobacillus species in the hind gut of C57BL/6 mice fed a high-fat diet. *J Nutr* 143(5):627-631, 2013.
33. **Yan L,** Yee JA and Cao J. Curcumin reduces trabecular and cortical bone in naïve and Lewis lung carcinoma-bearing mice, *Anticancer Res* 33(8):3153-3161, 2013.
34. **Yan L**, Graef GL, Claycombe KJ and Johnson LK. Effects of voluntary running and soy supplementation on diet-induced metabolic disturbances and inflammation in mice. *J Agric Food Chem* 61(39):9373-9379, 2013.
35. **Yan L** and Combs GF Jr. Consumption of a high-fat diet abrogates inhibitory effects of methylseleninic acid on spontaneous metastasis of Lewis lung carcinoma in mice, *Carcinogenesis* 35(10):2308-2313, 2014.
36. **Yan L** and DeMars LC. Effects of a high-fat diet on spontaneous metastasis of Lewis lung carcinoma in plasminogen activator inhibitor-1 deficient and wild-type mice. *PLoS One* 9(10):e110869, 2014.
37. **Yan L**, Graef GL, Nielsen FH, Johnson LK and Cao J. Soy protein is beneficial but high-fat diet and voluntary running are detrimental to bone structure in mice. *Nutr Res* 35(6):523-531, 2015.
38. **Yan L**, Nielsen FH, Sundaram S and Cao J. High-fat diet enhances and plasminogen activator inhibitor-1 deficiency attenuates bone loss in mice with Lewis lung carcinoma. *Anticancer Res* 35(7):3839-3847, 2015.
39. Sundaram S, Bukowski MR, Lie WR, Picklo MJ and **Yan L**. High-fat diets containing different amounts of n3 and n6 polyunsaturated acids modulate adipokine production in mice. *Lipids* 51(5):571-582, 2016.
40. Walters H, Carpenter-Boggs L, Desta K, **Yan L**, Matanguihan J and Murphy K. Effect of irrigation, intercrop and cultivar on agronomic and nutritional characteristics of quinoa.

Agroecology and Sustainable Food Systems 40(8):783-803, 2016. doi:10.1080/21683565.2016.1177805.

41. **Yan L** and Sundaram S. Monocyte chemotactic protein-1 deficiency reduces spontaneous metastasis of Lewis lung carcinoma in mice fed a high-fat diet. *Oncotarget* 7(17):24792-24799, 2016. doi:10.18632/oncotarget.8364.
42. Sundaram S and **Yan L**. Time-restricted feeding reduces adiposity in mice fed a high-fat diet. *Nutr Res* 36(6):603-611, 2016. doi: 10.1016/j.nutres.2016.02.005.
43. Sundaram S and **Yan L**. Dietary energy restriction reduces high-fat diet-enhanced metastasis of Lewis lung carcinoma in mice. *Oncotarget* 7(40):65669-65675, 2016. doi: 10.18632/oncotarget.11598.
44. Sundaram S and **Yan L**. High-fat diet enhances primary mammary tumorigenesis and pulmonary metastasis in MMTV-PyMT mice. *Anticancer Res* 36(12):6279-6287, 2016.
45. **Yan L**, Nielsen FH, Sundaram S and Cao J. Monocyte chemotactic protein-1 deficiency attenuates and high-fat diet exacerbates bone loss in mice with Lewis lung carcinoma. *Oncotarget* 8(14):23303-23311, 2017. doi: 10.18632/oncotarget.15055**.**
46. **Yan L,** Sundaram S, and Forrest H. Nielsen. Voluntary running of defined distances reduces body adiposity and its associated inflammation in C57BL/6 mice fed a high-fat diet. *Appl Physiol Nutr Metab* 42(11):1179-1184, 2017. doi: 10.1139/apnm-2017-0285.
47. Sundaram S and **Yan L**. Dietary supplementation with methylseleninic acid inhibits mammary tumorigenesis and metastasis in male MMTV-PyMT mice. *Biol Trace Element Res* 184(1):186-195, 2018. doi: 10.1007/s12011-017-1188-7.
48. Krout D, Roemmich J, Garcia R, Bundy A, **Yan L**, and Claycombe K. Paternal exercise is required to protect mouse offspring from high-fat diet-induced type 2 diabetes risk. *J Nutr Biochem* 57(7):35-44, 2018. doi:1016/jnutbio.2018.03.013.
49. Sundaram S, Žáček, P, Bukowski MR, Mehus AA, **Yan L**, Picklo MJ. Lipidomic impacts of an obesogenic diet upon Lewis lung carcinoma in mice. *Front Oncol* 8:134, 2018. doi: 10.3389/fonc.2018.00134
50. **Yan L** and Sundaram S. A high-sucrose diet does not enhance spontaneous metastasis of Lewis lung carcinoma in mice. *Nutr Res* 58:55-61, 2018. doi.org/10.1016/j.nutres.2018.07.001
51. Sundaram S and **Yan L**. Time-restricted feeding mitigates high-fat diet-enhanced mammary tumorigenesis in MMTV-PyMT mice. *Nutr Res* 59:72-79, 2018. doi.org/10.1016/j.nutres.2018.07.014
52. Sundaram S and **Yan L**. Adipose-specific monocyte chemotactic protein-1 deficiency reduces pulmonary metastasis of Lewis lung carcinoma in mice. *Anticancer Res* 39(4):1729-1738, 2019. doi: 10.21873/anticanres.13279
53. **Yan L**, Sundaram S, Mehus AA, and Picklo MJ. Time-restricted feeding attenuates high-fat diet-enhanced spontaneous metastasis of Lewis lung carcinoma in mice. *Anticancer Res* 39(4):1739-1748, 2019. doi: 10:21873/anticanres.13280
54. **Yan L**, Nielsen FH, Sundaram S, and Cao J. Dietary selenium supplementation does not attenuate mammary tumorigenesis-mediated bone loss in male MMTV-PyMT mice. *Biol Trace Element Res* 194(1):221-227, 2020. doi: 10.1007/s12011-019-01767-7 (ARS log no 363672)
55. Sundaram S and **Yan L**. Adipose monocyte chemotactic protein-1 deficiency reduces high-fat diet-enhanced mammary tumorigenesis in MMTV-PyMT mice. *J Nutr Biochem* 77:108313, 2020. doi.org/10.1016/j.jnutbio.2019.108313 (ARS log no 363669)
56. Sundaram S, Johnson LK, and **Yan L**. High-fat diet alters circadian rhythms in mammary glands of pubertal mice. *Front Endocrinol* 11:349, 2020, doi:10:3389/fendo.2020.00349 (ARS log no 369678)

57. **Yan L**, Rust BM, and Picklo MJ. Plasma metabolomic changes in mice with time-restricted feeding-attenuated spontaneous metastasis of Lewis lung carcinoma. *Anticancer Res* 40(4):1833-1841, 2020. doi: 10.21873/anticanres.14137 (ARS log no 372167)
58. **Yan L**, Sundaram S, Rust BM, Picklo MJ, and Bukowski MR. Metabolome of mammary tumors differs from normal mammary glands but is not altered by time-restricted feeding under obesogenic conditions. *Anticancer Res* 40(7):3691-3699, 2020. doi: 10.21873/anticanres.14358 (ARS log no 374547)
59. Mehus AA, Rust BM, Idso JP, Hanson B, Zeng HW, **Yan L**, Bukowski MR, and Picklo MJ. Time-Restricted Feeding Mice a High-fat Diet Induces a Unique Lipidomic Metabolic Profile. *J Nutr Biochem* 88:108531, 2021. doi: 10.1016/j.jnutbio.2020.108531 (ARS log no 374037)
60. **Yan L**, Nielsen FH, Sundaram S, and Cao J. Voluntary running of defined distances alters bone microstructure in C57BL/6 mice fed a high-fat diet. *Appl Physiol Nutr Metab* 46(11):1337-1344, 2021. doi: 10.1139/apnm-2021-0061 (ARS log no 381565)
61. **Yan L**, Sundaram S, Rust BM, Picklo MJ, and Bukowski MR. Mammary tumorigenesis and metabolome in male adipose specific monocyte chemotactic protein-1 deficient MMTV-PyMT mice fed a high-fat diet. *Front Oncol* 11:667813, 2021. doi: 10.3389/fonc.2021.667843 (ARS log no 382187)
62. **Yan L**, Sundaram S, Rust BM, Picklo MJ, and Bukowski MR, Metabolomes of Lewis lung carcinoma metastases and normal lung tissue from mice fed different diets. *J Nutr Biochem* 107:109051, 2022. doi: 10.1016/j.jnutbio.2022.109051 (ARS log no 390141)
63. **Yan L**, Rust BM, Sundaram S, Picklo MJ, and Bukowski MR, Alteration in plasma metabolome in high-fat diet-fed monocyte chemotactic protein-1 knockout mice bearing pulmonary metastasis of Lewis lung carcinoma. *Nutr Metab Insights* 15:1-11, 2022. doi: 10.1177/11786388221111126 (ARS log no 392298)
64. **Yan L**, Sundaram S, Rust BM, Palmer DG, Johnson LK, and Zeng HW, Consumption of a high-fat diet alters transcriptional rhythmicity in liver from pubertal mice. *Front Nutr* 9:1068350, 2023. doi: 10.3389/fnut.2022.1068350 (ARS log no 399198)
65. **Yan L**, Rust BM, Sundaram S, and Bukowski MR, Metabolomic alteration in mammary glands of pubertal mice fed a high-fat diet. *Nutr Metab Insights* 16:1-10, 2023. doi: 10.1177/11786388221148858 (ARS log no 399549)
66. Rust BM, Picklo MJ, **Yan L**, Mehus AA, and Zeng HW, Time-restricted feeding modifies the fecal lipidome and the gut microbiota. *Nutrients 15*(7):1562, 2023; doi: 10.3390/nu15071562 (ARS log no 402622)
67. **Yan L**, Rust BM, and Palmer DG, Time-restricted feeding restores metabolic flexibility in adult mice with excess adiposity. *Front Nutr* (Status: 10/19/2023 waiting for Center Director approval before journal submission)

Invited Presentations:

1. "Effect of dietary supplementation of flaxseeds on experimental metastasis of melanoma cells in mice," at the 57th Flax Institute of the United States, Fargo, North Dakota, April 1998.
2. "Health benefits of isolated soy protein," at ILSI Soyfoods and Health Workshop, Beijing, China, November 1999.
3. "Health benefits of isolated soy protein," at World Conference and Exhibition on Oilseed Processing and Utilization, Cancun, Mexico, November 2000.
4. "Soy protein and reduced risk of cancer – a health claim petition to the U.S. FDA," at United Soybean Board/American Soybean Association, Chesterfield, Missouri, April 2004.
5. "High-selenium soy protein and cancer metastasis," at University of Nebraska – Lincoln, Lincoln, Nebraska, April 2004.
6. "Soy protein and reduced risk of cancer – a health claim petition to the U.S. FDA," at the Annual Meeting of the American Dietetic Association, Chicago, Illinois, May 2004.

7. "Soy protein and reduced risk of cancer," at Soy Protein Health Benefits Media Workshop, Tokyo, Japan, June 2004.
8. "Soy protein and reduced risk of cancer," at Miki Corporation, Osaka, Japan, June 2004.
9. "Soy protein and reduced risk of certain cancers," at Workshop to media, customers and Korea FDA, Seoul, Korea, June 2004.
10. "Soy protein and reduced risk of cancer," at Health Foundation of Millenary Love, Taipei, Taiwan, June 2004.
11. "Soy protein and reduced risk of cancer," at Uni-President Company, Tainan, Taiwan, June 2004.
12. "Soy protein and reduced risk of cancer," at Amway Company, Guangzhou, China, June 2004.
13. "Soy protein and reduced risk of cancer," at United Soybean Board Scientific Advisory Panel, Chesterfield, Missouri, May 2005.
14. Soy protein and reduced risk of cancer," at 2005 Institute of Food Technologies Annual Meeting + Food Expo, New Orleans, LA., July 2005.
15. "Soy consumption and prostate cancer risk," at Doctors' Forum (a bi-weekly tele-conference program for member physicians of Physicians Committee for Responsible Medicine), sponsored by Physicians Committee for Responsible Medicine, Washington, DC, May 7th 2009.
16. "Dietary supplementation with methylseleninic acid, but not selenomethionine, reduces spontaneous metastasis of Lewis lung carcinoma in mice," at Experimental Biology 2012, San Diego, CA, April 2012.
17. "Effects of high-fat diets composed of different oils on adipokine production in mice" at Canadian Nutrition Society Lipid Nutrition and Metabolism Workshop in Human Health, Winnipeg, Manitoba, Canada, May 31st, 2015.
18. "Adipokines contributes to high-fat diet enhanced metastasis in animal studies" at EMD Millipore Corp., R&D Department, St Charles, MO, October 19, 2015.
19. "Adipokines contributes to high-fat diet enhanced metastasis in animal studies" at Creighton University School of Medicine, Department of Biomedical Sciences, Omaha, NE, October 20, 2015.
20. "Changes in body adiposity and its associated inflammation affect metastasis of Lewis lung carcinoma in mice" at Experimental Biology 2017, Chicago, IL, April 2017.

Current Research Collaborators

Dr. Satchidananda Panda, The Salk Institute

National Advisory Activities:

2000-2005	Reviewer, National Cancer Institute Special Emphasis Panels: Cancer Prevention Research Small Grant Program and Small Grant Program for Cancer Epidemiology. (total 10 reviews)
2015	Reviewer, National Cancer Institute Special Emphasis Panel, ZCA RPRB-M M2 2, Omnibus R03 & R21 SEP-6 Review Committee.

Editorial Board:

2014 – Present	Member of editorial board, *Biol Trace Element Res*
2016 – Present	Deputy Editor-in-Chief, *Nutrition & Metabolic Insights*

Invited Reviews:

2010 *Nutrient, Clin Exp Metastasis*
2011 *Clin Exp Metastasis, J Nutr, Int J Cancer, Mol Carcinogenesis*

2012 *Biol Trace Element Res, Cancer Biomarkers, Mol Nutr Food Res*
2013 *Cancer Biomarkers, Am J Clin Nutr*
2014 *J Am Assoc Lab Anima Sci, Biol Trace Element Res*
2015 *Biol Trace Element Res, Mol Nutr Food Res, J Am Coll Nutr, Food & Function, Nutr Cancer, Lung Cancer: Targets & Therapy*
2016 *Biol Trace Element Res, Nutrients, Nutr Res, Mol Nutr Food Res, Nutr Cancer, Animal Nutrition, J Agric Food Chem, Oncotarget, J Food Biochem, Scientific Reports*
2017 *Biol Trace Element Res,*
2018 *Biol Trace Element Res,*
2019 *Biol Trace Element Res, Nutrition & Metabolic Insights, Lipids*
2020 *Biol Trace Element Res*
2021 *Biol Trace Element Res*
2022 *Biol Trace Element Res, J Nutr Biochem, Front Nutr, Front Physiol*
2023 *Biol Trace Element Res, J Nutr*