

Curriculum Vitae

Wei Xu, Ph.D.

Contact Information:

Department of Oncology
McArdle Laboratory for Cancer Research
University of Wisconsin-Madison
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Education:

1987-1991 Beijing University	B.S., Chemistry
1991-1994 Institute of Biophysics	M.S., Biophysics, Academic Sinica, China
1994-1999 University of Iowa	Ph.D. program, Biochemistry
1999- 2005 The Salk Institute	Postdoctoral research associate

Positions Held:

2005-2011 Assistant Professor, Department of Oncology, University of Wisconsin-Madison
2011-2014 Associate Professor, Department of Oncology, University of Wisconsin-Madison
2014- Professor, Department of Oncology, University of Wisconsin-Madison

Award and Honors:

My paper "A transcriptional switch mediated by co-factor methylation" published in *Science* is recommended by David Allis to **Faculty of 1000**, 2002.
David and Lucille Packard scholarship from the Keystone Symposia, 2002.
FASEB MARC program travel award, 2003.
Endocrine Society Travel award, 2003.
Nuclear Receptor Keystone meeting: Orphan Brothers Travel Award, 2004.
Susan G. Komen Breast Cancer Foundation; BCTR0600953 (2006-2009)
NIH R01 CA125387 4/1/2008-3/30/2013
Elsa U. Pardee Foundation 12/31/06-12/30/07
Susan Komen Breast Cancer Foundation Spotlight, 2008
Shaw Scientist Award, 2008
Markos Family Breast Cancer Research Grant from Wisconsin Women's Health Foundation, 2010
DOD ERA of HOPE Scholar, 2010
Rush Basic Research Award from UW Comprehensive Cancer Center Retreat, 2011
Villas Associate of University of Wisconsin, 2012
Society of Toxicology Achievement Award, 2013
Villas Distinguished Achievement Professor, 2014
Member of the Scientific Advisory Committee on Alternative Toxicological Methods (SACATM) of NIEHS, 2014

Professional Society Memberships:

American Association for Cancer Research (AACR), Endocrinology Society, Society of Toxicology, Chinese Biological Investigators Society (CBIS)

Professional Service (national):

Member, Post-doctoral Fellowship Review Committee, Susan Komen Breast Cancer Foundation, Nov. 2005
Member, Idea and Synergistic Award Review Committee, Department of Defense, August 2006
Member, Investigator Initiated Grant Review Committee, Department of Defense, January 2008
Member, Pre- and Post-doctoral Fellowship Review Committee, Department of Defense, May 2009, May 2010, Feb. 2013
Florida Department of Health Review Committee, March 2008, 2009, 2010, 2013
Cancer Care Manitoba, Canada, external reviewer, 2008
Breast Cancer Campaign/UK Grant Review Committee, September 2008
Reviewer for Lilly Endocrine Scholars Award, Endocrinology Society, 2009, 2010
Reviewer for National Natural Science Foundation of China, 2010
Reviewer for Italian Ministry of Health, 2010, 2013
Reviewer for MRC, UK, 2011, 2012, 2013
Reviewer for NIH, CBSS, 2011, regular member since July, 2012
Reviewer for Special Emphasis Panel/Scientific Review Group 2012/05 ZRG1 OBT-A (55) R
Member of the Scientific Advisory Committee on Alternative Toxicological Methods (SACATM) of NIEHS, 2013
Member, NIEHS Transition to Independent Environmental Health Research (TIEHR) Career Development Award (K22) study session, March, 2014
Reviewer for National Science Center, Poland, April, 2014
Member, Programmatic Review for Breakthrough Awards, Department of Defense, May 2015

Editorial Board Member, *PPAR research*, 2006-
Editorial Board Member, *Current BioData Epigenetic Regulators*, 2006-present
Editorial Board Member, *Chemical Research in Toxicology*, 2009-present
Editorial Board Member, *American Journal of Cancer Research*, 2011-present
Editorial Board Member, *PLOS One*, 2013-

Ad hoc reviewer for Journals: *PPAR research*, *Medicinal Research Reviews*, *Biochemical Journal*, *Trends in Endocrinology and Metabolism*, *Biomedical Reports*, *JBC*, *Cellular Molecular Endocrinology*, *Bioorganic and Medical Chemistry*, *Chemical Research in Toxicology*, *Advanced Drug Delivery Review*, *Biochemical Pharmacology*, *Recent Patents on Endocrine, Metabolic & Immune Drug Discovery*, *PLOS One*, *Molecular Cellular Biology*, *FEBS Letter*, *Cancer Letters*, *Journal for Cellular and Molecular Medicine*, *American Journal Pathology*, *Cell Report*, *Nucleic Acid Research*, *Science Signaling*, *eLife science*.

Professional Service (University):

New Assistant Professor Search Committee, McArdle Laboratory, 2005
Cellular Molecular Biology Admission Committee, 2006-2009
McArdle Seminar committee, member, 2010-2011
McArdle Seminar committee, chair, 2012-
Molecular Environmental Toxicology Center Training Grant Committee, 2010-
University Committee on Honorary Degree, 2011-
New Assistant Professor Search Committee, McArdle Laboratory, 2011
Reviewer for the MIR/WID & UWCCC Pilot Grant Program, 2012
Reviewer for UWCCC ICTR grant program, 2012

Committee on Honorary Degree, 2011, 2012, 2013, 2014
Advisory committee for Small Molecule Screening and Synthesis Facility, 2012-
School of Medicine and Public Health Faculty Advisory Committee, 2013-2016.
Co-PI of NIEHS T32 ES007015, 2013-
UWCCC director search committee, 2014-
Graduate School's Biological Sciences Fellowship Committee, 2015-
Faculty senator on behalf of Department of Oncology, 2015-

Publications:

- Wang, L., Zeng, H., Wang, Q., Zhao, Z., Boyer T. G., Bian, X., and **Xu, W.** (2015) MED12 methylation by CARM1 sensitizes human breast cancer cells to chemotherapy drugs. *Science Advances*, in press
- Shanle E., Onitilo A.A., Huang, W., Kim, K. M., Zang, C., Engel, J., Wisinski, K. B., and **Xu, W.** (2015) Prognostic significance of full-length estrogen receptor beta expression in Stage I-III triple negative breast cancer. *Am J Transl Res*, in press
- Shlensky, D., Mirrielees, J. A., Zhao, Z., Wang, L., Mahajan, A., Yu, M., Sherer, N. M., Wilke, L. G., and **Xu, W.** Differential CARM1 Isoform Expression in Subcellular Compartments and Among Malignant and Benign Breast Tumors. *PLoS One*, 10(6): e0128143, 2015.
- Charoensuksai, P., Kuhn, P., Wang, L., Sherer, N., **Xu, W.** (2015) O-GlcNAcylation of co-activator-associated protein arginine methyltransferase 1 regulates its substrate specificity. *Biochem J.* 466(3): 587-99.
- Brinkman, A.M., Wu, J., Ersland K., **Xu, W.** (2014) Estrogen receptor α and aryl hydrocarbon receptor independent growth inhibitory effects of aminoflavone in breast cancer cells. *BMC Cancer*, 14(1): 344.
- Zhao, Z., Wang, L., **Xu, W.** (2014) IL-13R α 2 mediates PNR-induced migration and metastasis in ER α -negative breast cancer. *Oncogene*, 34(12): 1596-1607.
- Gao, J., Sabat, G., Valdivia, H., **Xu, W.**, Shi, N. (2014) Disrupting KATP channels diminishes the estrogen-mediated protection in female hearts against ischemia. *Clinical Proteomics*, 11(1): 19.
- Wang, L., Zhao, Z., Meyer, M. B., Saha, S., Yu, M., Guo, A., Wisinski, K. B., Huang, W., Cai, W., Pike, J. W., Yuan, M., Ahlquist, P., **Xu, W.** (2014) CARM1 methylates chromatin remodeling factor BAF155 to enhance tumor progression and metastasis. *Cancer Cell*, 25: 1-16.
- Zhao, Z., Wang, L., Wen, Z., Ayaz-guner S., Wang, Y., Ahlquist, P., **Xu, W.** (2013) Systematic analysis of the cytotoxic effects of compound 11a, a putative synthetic agonist of photoreceptor-specific nuclear receptor (PNR), in cancer cell lines. *PLOS ONE*, 8(9): e75198.
- Shanle, E., Zhao, Z., Hawse, J., Wisinski, K., Keles, S., Yuan, M., **Xu, W.** (2013) Global identification of estrogen receptor beta target genes in triple negative breast cancer cells. *Molecular Endocrinology*, 27(10): 1762-1775.
- Wang L., Charoensuksai P., Watson N., Wang X., Zhao Z., Coriano C. G., Kerr L., **Xu W.**, (2013) CARM1 automethylation is controlled at the level of alternative splicing, *Nucleic Acid Research*, 41(14): 6870-6880.
- Zeng. H., Wu, J., Bedford M. T., Sbardella G., Hoffmann, F. M., Bi K., **Xu, W.**, (2013) TR-FRET based functional assay for screening activators of a protein methyltransferase, *ChemBioChem*, 14(7): 827-35 * selected as cover for April issue 7 of *ChemBioChem*.
- Sievers, C.K., Shanle, E., Bradfield, C. and **Xu, W.** (2013) Differential action of monohydroxylated polycyclic aromatic hydrocarbons with estrogen receptors alpha and beta, *Toxicological Science*, 132(2): 359-367.
- James G. Yarger, Robert E. Babine, Michael Bittner, Erin Shanle, **Xu, W.**, Hershberger P., Nye. S.H. (2013) Structurally similar estrogen analogs uniquely alter the regulation of intracellular signalling pathways. *J. Molecular Endocrinology*, 50(1): 43-57.

- Wu, J. and **Xu, W.** (2012) Histone H3R17me2a mark recruits human PAF complex to activate transcription. *Proc. Natl. Acad. Sci. USA*, 109: 5675-80.
- Powell, E., Shanle, E., Brinkman, A., Li J., Keles, S., Wisinski K.B., Huang, W., **Xu, W.** (2012) Identification of estrogen receptor α/β heterodimer selective ligands reveals growth-inhibitory effects on cells co-expressing ER α and ER β . *Plos One*, 7(2):e30993.
- Wen, Z., Pyeon, D., Wang, Y., Lambert, P., **Xu, W.***, and Ahlquist, P*. (2012) Orphan nuclear receptor PNR/NR2E3 stimulates p53 functions by enhancing p53 acetylation. *Mol. Cell. Biol.*, 32: 26-35. * co-corresponding author.
- Shanle E., Hawse J., **Xu, W.** (2011) Generation of stable reporter breast cancer cell lines for the identification of ER subtype selective ligands. *Biochemical Pharmacology*, 82:1940-1949.
- Al-Dhaheri, M., Wu, J., Skliris, G. P., Li, J., Higashimoto, K., Wang, Y., White, K. P., Lambert, P., Zhu, Y., Murphy, L., and **Xu, W.** (2011) CARM1 Is an Important Determinant of ER α -Dependent Breast Cancer Cell Differentiation and Proliferation in Breast Cancer Cells. *Cancer Res.*, 71: 2118-2128.
- Chumanov R., Kuhn, P., **Xu, W.**, Burgess, R. (2011) Expression and purification of full-length CARM1 from transiently transfected HEK293T cells using Halo-Tag. *Protein Expression and Purification*, 76 (2): 145-153.
- Kuhn, P., Chumanov, R., Wang, Y., Burgess R. R., **Xu, W.** (2011) Automethylation of CARM1 allows coupling of transcription and mRNA splicing. *Nucleic Acid Research*, 39(7):2717-26.
- Yang, Y., Espejo A., Wu, J., **Xu, W.**, Lu, Y., Liang, S., and Bedford M. (2010) TDRD3 is an effector molecule for arginine methylated histone Marks. *Molecular Cell*, 40: 1016-1023.
- Huang, S. X., Powell, E., Rajsiki, S.R., Zhao, L., Jiang, C., Duan, Y., **Xu, W.**, Shen, B. (2010) Discovery and total synthesis of a novel estrogen receptor heterodimerizing actinopolymorphol A from *Actinopolymorpha rutilus*. *Organic Letters*, 12: 3525-3527.
- Charoensuksai, P. and **Xu, W.** (2010) PPARs and the biological clock: reciprocal regulation and role in energy homeostatis. *PPAR research*, Vol. 2010, Article ID 243643.
- Shanle, E., **Xu, W.** (2010) Selectively targeting estrogen receptors for cancer treatment. *Advanced Drug Delivery Reviews*, 62(13):1265-76.
- Shanle, E., **Xu, W.** (2011) Endocrine disrupting chemicals targeting estrogen receptor signalling: Identification and mechanisms of action. *Chemical Toxicology Research*, 24: 6-19. * selected as cover for January 2011 issue of *Chemical Research of Toxicology*
- Powell, E., Huang, S. X., Xu, Y., Rajsiki, S. R., Wang, Y., Peters, N., Guo, S., Xu, E., Hoffmann, M., Shen, B., and **Xu, W.** (2010) Identification and Characterization of a Novel Estrogenic Ligand Actinopolymorphol A. *Biochemical Pharmacology*, 80:1221-1229.
- Powell, E., Xie, W., **Xu, W.** (2010) Molecular Players and Cellular Pathways in Estrogen-Modulated Breast Cancer, *Female sex hormones and cancers*, Chapter 2, pp. 25-62. New York: Nova Science Publishers, Inc., 2010.
- Powell E., Wang Y., Shapiro D.J., **Xu, W.** (2010) Differential requirements of Hsp90 and DNA for the formation of estrogen receptor homodimers and heterodimers. *J. Biological Chemistry*, 285: 16125-16134. **F1000 Cell Biology recommended article by Len Neckers and Mehdi Mollapour, NCI**
- Kuhn, P., Xu, Q., Cline, E., Zhang, D., Ge, Y. and **Xu, W.** (2009) Delineating Anaphelus Gambiae Coactivator Associated Arginine Methyltransferase 1 (AgCARM1) Automethylation Using Top-Down High Resolution Tandem Mass Spectrometry. *Protein Science*, 18: 1272-1280.
- Kuhn, P., **Xu, W.** Nuclear receptor coregulators and beyond. (2009) Book Chapter: *Progress in Molecular Biology and Translational Science*, Volume 87, 297-340.
- Nofsinger, R. R., Li, P., Hong, S.-H., Jonker, J. W., Barish, G. D., Ying, H., Cheng, S.-y., LeBlanc, M., **Xu, W.**, Pei, L., Kang, Y.-J., Nelson, M., Downes, M., Yu, R. T., Olefsky, J. M., Lee, C.-H., and Evans, R. M. (2008) SMRT Repression of Nuclear Receptors Controls the Adipogenic Set Point and Metabolic Homeostasis. *Proc. Natl. Acad. Sci. USA*, 105: 20021-20026.

- Powell E., **Xu, W.** (2008) Intermolecular interactions identify ligand-selective activity of estrogen receptor α/β dimers. *Proc. Natl. Acad. Sci., USA*, 105: 19012-19017.
- Zhu, Y., Zhu, Y., **Xu, W.** (2008) EzArray: a web-based highly automated Affymetrix expression array data management and analysis system *BMC Bioinformatics*, 9:46.
- Higashimoto, K., Kuhn, P., Desai, D., Cheng, X., and **Xu, W.** (2007) Phosphorylation-mediated Inactivation of Coactivator-associated Arginine Methyltransferase 1. *Proc. Natl. Acad. Sci., USA*, 104: 12318-12323.
- Powell, E., Kuhn, P. and **Xu, W.** (2007) Nuclear Receptor Cofactors in PPAR γ -Mediated Adipogenesis and Adipocyte Energy Metabolism *PPAR research, Article* 53843
- Yao, T, Song, L, **Xu, W.**, DeMartino G. N., Florens, L., Swanson, S.K., Washburn, M.P., Conaway, R.C., Conaway, J.W., and Robert E. Cohen (2006) Proteasome recruitment and activation of the Uch37 deubiquitinating enzyme by Adrm1. *Nature Cell Biology*, 8 (9): 994-1002.
- Xu, W.** (2005) Nuclear receptor coactivators: the keys to unlock chromatin. *Biochemistry and Cell Biology* 83: 1-11.
- Xu, W.**, Cho, H., Kadam, S., Banayo, E., Anderson, S., Yates III, J. R., Emerson, B. M. and Evans, R. M. (2004) A Methylation-mediator complex unifies two nuclear hormone signalling pathways. *Genes & Development* 18: 144-156.
- Louie, M. C., Yang, H. Q., Ma, A. H., **Xu, W.**, Zou, J. X., Kung, H. J. and Chen, H. W. (2003) Androgen-induced recruitment of RNA polymerase II to a nuclear receptor- p160 coactivator complex. *Proc. Natl. Acad. Sci.*, 100 (5): 2226-2230.
- Xu, W.**, Cho, H. and Evans, R. M. (2003) Acetylation and methylation in nuclear receptor gene activation. *Methods in Enzymology*, 364: 205-223.
- Demarest, S. J., Martinez-Yamout, M., Chung, J., Chen, H., **Xu, W.**, Dyson, H. J., Evans, R. M. and Wright, P. E. (2002) Mutual synergistic folding in recruitment of CBP/p300 by p160 nuclear receptor coactivators. *Nature*, 415: 549-553.
- Xu, W.**, Chen, H., Du, K., Asahara, H., Tini, M., Emerson, B. M., Montminy, M. and Evans, R. M. (2001) A transcriptional switch mediated by cofactor methylation. *Science*, 294: 2507-2511.
- Lam, Y.A., **Xu, W.**, DeMartino, G., and Cohen, R. E. (1997) Editing of ubiquitin conjugates by an isopeptidase in the 26S proteasome, *Nature* 385: 737-740
- Xu, W.**, Shen, X., Tang, L. X., Zhang, J. (1994) Study on the reaction of ferryl radical with linoleic acid, *Acta Biophysica Sinica* 10 (3), 507-512.
- Xu, W.**, Shen, X., Tang, L. X., and Li, X. Y. (1994) Direct observation of the ferryl radical, *Acta Biophysica Sinica* 10 (2), 312-316.

Manuscript under revision

1. Zeng H. and Xu, W. Ctr9 drives ER α -positive breast cancer cell growth via global modulation of estrogen signaling, *Genes & Development*, under revision.

Oral Presentations:

Invited speaker at Biology Department of Beijing University and Institute of Biophysics, Chinese Academy of Science, July 2002

Title: Chromatin, physiology and nuclear hormone receptors

Hot Topics in Endocrinology, October 2003, Coronado Island in San Diego, CA

Title: A methylation-Mediator Cascade in Hormone Signaling

Invited speaker at Department of Biochemistry, New York University, (host: Warren Jelinek) September 2004

Title: Regulation of nuclear hormone receptor signaling by chromatin modifiers

Transcriptional regulation by chromatin and RNA polymerase II in Granlibakken, Lake Tahoe
Oct. 29th-Nov. 1st, 2004

Title: Identification of CARM1-associated histone methyltransferase complex

Cancer Genetics Retreat, Madison, WI April 23, 2005.

Title: Epigenetic transcriptional control in breast cancer: role of estrogen receptor co-activator CARM1

The Second Great Lake Nuclear Receptor Conference, Madison, WI Oct. 14-15, 2005

Title: The physiological function of CARM1 in PPAR γ -dependent lipid metabolism

FASEB summer research conference Biological Methylation, Saxtons River, Vermont, June 24-29, 2006

Title: Biological function of histone methyltransferase CARM1 in breast cancer and regulation of CARM1 activity by phosphorylation

FASEB summer research conference Biological Methylation, Carefree, Arizona, June 1-6, 2008

Title: Transcriptional regulation of ER by histone methyltransferase CARM1 in breast cancer

University of Wisconsin, Endocrinology & Reproductive Physiology Program, January 29th, 2009 Title: ER α and ER β dimers as new targets for breast cancer drug discovery.

University of California, Davis, Department of Biochemistry and Molecular Medicine, March 5th, 2009 Title: Interplay of ER β and CARM1 in ER α transcriptional network

University of Illinois at Urbana-Champaign, Department of Biochemistry, March 20th, 2009 Title: Regulation of ER α transcriptional network by ER β and CARM1

University of Texas M.D. Anderson Cancer Center, Science Park-Research Division, March 30th, 2009 Title: Regulation of ER α transcriptional network by ER β and CARM1

The 17th Annual Workshop on Steroid Hormones and Brain Function, April 1-4, Breckenridge, Colorado, 2009
Title: Epigenetic mechanism in brain function

METC annual retreat, University of Wisconsin, May 27th, 2009, Title: Environmental factors in breast cancer.

91th Annual Meeting Endo 09, June 10-13, Washington DC. 2009 Title: Role of CARM1 in Estrogen Receptor - Dependent Gene Regulation and Cellular Processes

2009 BIT's 2nd World Cancer Congress, Beijing, Invited Speaker and session chair, June 20-24, 2009 Title: ER β is a novel target for breast cancer

National Institute of Biological Science, Beijing, July 9th, 2009 Title: Role of CARM1 in Estrogen Receptor - Dependent Gene Regulation and Cellular Processes

Tulane University, Department of Structural and Cellular Biology, October 29th, 2009 Title: Regulation of ER α transcriptional network by ER β and CARM1

Cancer Pharmacology seminar, University of Wisconsin Carbone Comprehensive Cancer Center, January 14th, 2010, Title: cancers modulated by environmental and nutritional estrogens

Keystone symposium (X-7) Nuclear Receptors: Signaling, Gene Regulation and Cancer, 2010, March 21-26, Keystone Resort, Colorado, title: “Yin-Yang” Principle for Estrogen Receptor Heterodimers in Breast Cancer: A Targeted Molecular Approach for Therapeutic Development

e. hormone 2010 program, Oct. 20-24, New Orleans, Title: Searching of estrogen receptor ligands.

Promega Inc., January 20th, 2011, Madison, Title: Regulation of ER α transcriptional network by ER β and CARM1

Department of Nutrition, University of Wisconsin, March 3rd, 2011, Title: Breast cancer modulated by environmental and nutritional estrogens

University of Chicago, Department of Pathology, March 17, 2011 Chicago, Regulation of ER α transcriptional activity by ER β and CARM1 in breast cancer therapy.

Northwestern University Breast Cancer Research Seminar Series, March 18, 2011 Chicago, Regulation of ER α transcriptional activity by ER β and CARM1 in breast cancer therapy.

University of Cincinnati, Department of Environmental Health, April 4-5, 2011 Cincinnati, Development of assays for screening environmental estrogens.

Workshop on “How to promote women's career development in cancer research”, Organizer, May 11, 2011, Madison, WI. Invited Nancy Davidson, Director, University of Pittsburgh Cancer Institute, as Keynote Speaker.

2011 McArdle Symposium on Cancer, June 3, 2011, Madison. Title” Epigenetic Transcriptional Control in Breast Cancer”.

Department of Human Oncology, University of Wisconsin, March 15, 2012. Title: Epigenetic control of breast cancer.

Oregon Health & Science University, March 20, 2012. Title: Regulation of estrogen signaling in breast cancer.

World Cancer Congress 2012, Beijing, May 18-21. Title: Targeting estrogen receptor coactivator for breast cancer treatment.

GTC 2nd Cancer Epigenetics, Boston, Nov. 8-9, 2012. Title: Cell-based HTS for Allosteric Activators of the CARM1 Arginine Methyltransferase

University of Wisconsin Comprehensive Cancer Center annual retreat, Feb. 2, 2013, Madison. Title: Advancing estrogen receptors and cofactors to personalized breast cancer management.

University of Texas Health Science Center, Department of Molecular Medicine/Institute of Biotechnology, March 11th, 2013. Title: Advancing estrogen receptors and cofactors to personalized breast cancer management.

Cedars-Sinai Comprehensive Cancer Institute, Los Angeles, March 20th, 2013, Title: Advancing estrogen receptors and cofactors to personalized breast cancer management.

University of Alabama-Birmingham, Department of Biochemistry and Molecular Genetics, April 8th, 2013, Title: The mechanism and regulation of CARM1 in breast cancer

Emory University, Department of Pharmacology, June 18th, 2013 Title: Advancing estrogen receptors and cofactors to personalized breast cancer management

AACR Special Conference on Chromatin and Epigenetics in Cancer, June 19-22, 2013, Title: CARM1 methylates BAF155 and perturbs chromatin remodeling machinery to enhance tumor progression.

Rutgers, the State University of New Jersey, Center for Integrative & Computational Biology, October 24, 2013, Title: Development of assays for screening environmental estrogenic compounds.

Chinese Biological Investigators Society 10th Biennial Meeting, December 23, 2013, Cancun, Mexico, Title “CARM1 methylates chromatin remodeling factor BAF155 to enhance tumor progression and metastasis”.

Sixth Great Lakes Nuclear Receptor Meeting. Madison, WI. October 11th, 2014, Organizer.

University of California-Riverside, Title: Developing *in vitro* and *in vivo* models for probing environmental estrogens' action via estrogen receptor dimers, November 19th, 2014

University of Texas MD Anderson Cancer Center, Title: Advancing estrogen receptors and cofactors to personalized breast cancer management, December 2nd, 2014

UT Southwestern University, Title: Advancing estrogen receptors and cofactors to personalized breast cancer management, December 16th, 2014

Tsinghua University, China, Title: Advancing estrogen receptors and cofactors to personalized breast cancer management, July 29th, 2015

AACR Special Conference on Chromatin and Epigenetics in Cancer, Sept 24-27, 2015, Title: MED12 methylation by CARM1 sensitizes human breast cancer cells to chemotherapy drugs.

Teaching Experience:

- Biochemistry Department, University of Iowa (1994-1999)
Instructed undergraduate students in biochemistry laboratory course for one semester.
Worked as a teaching assistant for Biochemistry course for another semester.
- The Salk Institute for Biological Studies (1999-present)
Supervised several research associates in the lab for molecular biology and biochemistry technologies.
- Oncology 675, University of Wisconsin-Madison
Instructor for cancer biology seminar course (Sept. 2005-June 2006)
- Cancer Biology and Tumorigenesis 703, University of Wisconsin-Madison
Course organizer, 5 lectures describing epigenetic mechanism in cancer (Oct. 2007-) and 4 lectures on breast cancer (Oct. 2009-)
- Nuclear receptor data club, University of Wisconsin-Madison
Supervising students' research presentation and inviting outside speakers in nuclear receptor field. This research club will be converted to formal teaching in the future
- Introduction to Experimental Oncology 401, University of Wisconsin-Madison (Nov. 2008-Nov. 2010)

- 5 lectures on host-tumor relationships
– METC 606 Colloquium in environmental toxicology, one guest lecture on environmental estrogens

Mentored Teaching:

1. Graduate Student/Postdoctoral Training:

Ashley Brinkman, 12/2010-, Ph.D. student in Molecular Environmental Toxicology Center, 2011 Young Investigator of Society of Toxicology in Mid-west schools, recipient of NIH pre-doctoral training grant, 2013 Society of Toxicology Graduate Student Travel Award, 2013 Women in Toxicology SIG Graduate Student Achievement Award

Carlos G. Coriano, 12/2010-, Ph.D. student in Molecular Environmental Toxicology Center. Recipient of Advanced Opportunity Fellowship (AOF), 2012 SciMed Graduate Research Scholar Best Poster Award, 2012 5th Great Lakes Nuclear Receptor Meeting Best Poster Award.

Hao Zheng, 12/2010-, Ph.D. student in Cellular Molecular Biology Program. Recipient of the 5th Great Lakes Nuclear Receptor Meeting Best Oral Presentation Award, 2012, Cellular Molecular Biology Graduate Student Travel Award, 2013.

Zibo Zhao, 12/2011-, Ph.D. student in Cancer Biology.

Fabao Liu, postdoctoral research associate, August 2013-

Shinya Aoyama, postdoctoral research associate, June 2013-

Taryn James, postdoctoral research associate, June 2011-, recipient of NIH post-doctoral training grant, PhRMA Foundation postdoctoral fellowship

Lu Wang, postdoctoral research associate, August 2011-

Qiang Wang, MD, exchanged Ph.D. student from the 3rd Military University, Chong Qing, China, August, 2013-

Past Member:

Purin Charoensuksai, Oncology, 2009-2014, recipient of Thai Government Scholarship

Serife Ayaz Guner, CMB graduate student, 2008-2013, recipient of Turkish Education Ministry PhD Scholarship. Now postdoc in Dr. Ying Ge's lab, UW-Madison

Peter Kuhn, graduate student, 2005-2010, NIH pre-doctoral training grant, recipient of Graduate Student Peer Mentor Award (2010), postdoc in Betty Craig lab at the Department of Biochemistry, University of Wisconsin-Madison. Now Visiting Assistant Professor at Edgewood College, Madison, WI.

Emily Powell, graduate student, 2005-2010, recipient of NIH pre-doctoral training grant and Endocrinology Society Presidential Poster Award (2009), now postdoc at Washington University, St. Louis

Erin Shanle, METC graduate student, 2008-2013, Erin is a recipient of 2009 Young Investigator of Society of Toxicology in Mid-west schools; recipient of 2010 DOD Breast Cancer Program predoctoral fellowship

Mariam Al-Dhaheri, postdoctoral research associate, Feb. 2008-Feb. 2010, Now assistant professor in College of Applied Medical Sciences, Al-Baha University in Saudia Arabia.

Ken Higashimoto, postdoctoral research associate, June 2005-May 2007, Now assistant professor in SAGA University, Japan

Zhi Wen, graduate student, 05/2010-07/2011, recipient of Villas travel grant (2010), Now postdoctoral fellow at University of Texas MD Anderson Cancer Center

Jiacai Wu, postdoctoral research associate, Aug. 2007-2012, Now Professor in Medical College of Gulin, China.

Xin Wang, postdoctoral research associate, July 2011- Dec. 2012

David Shlensky, MD, Shaprio summer research program, May, 2013-August, 2013

2. Undergraduate Student Research Training:

(Independent study/ senior thesis/ minority research/ Hilldale scholar)

Tony Zhu Independent Research Project: 152. Fall 2005

Siang Yun Ang Undergraduate Research Scholar Program: 250. Fall 2005-Spring 2008

Note: Siang Yun receives 2007 College of Agricultural and Life Science Undergraduate Honor and Mary Shine Peterson Scholarship with her proposal of characterization of a novel CARM1 substrate CPSF6. Now she is accepted as a graduate student at UCSF Biomedical Science Program.

Dhaval Desai Independent Research Project: 299. Spring 2006-Spring 2008, now is a MD student in University of Wisconsin Medical School

Erika Cline HHMI Summer Research Program, now is a graduate student in Program in Biomedical Sciences at the University of Michigan

Addison Zhang Independent Research Project: 699 Summer 2007-Fall, 2008. Now is a MD student at American University of Antigua-College of Medicine, Indian

Elizabeth Rommes Lab Assistant, 2007-2008, now in Pharmacy school, Appalachian State College of Pharmacy, Oakwood, VA

Shaun V. Hernandez Independent Research Project: 699 Summer and Fall, 2008, now is a MD student in UW Medical School

Andree Simone LaStrapes Independent Research Project: 699 Summer 2008

Andrea Bertold Undergraduate Research Scholar Program, Fall 2008, Spring 2009

Alexander Katler Independent Research Project: 699 Summer 2009

Diana Shiroky Independent Research Project: 152. Spring 2010

Victoria Laurette Eastlund Independent Research Project: 152. Spring 2010

Casey Drake Spitzer, Pharmacology-Toxicology program: 699. Summer 2010

Chelsea Reiter, Independent Research Project: 699. Fall 2010

Stacey Ruffolo, Independent Research Project: 699. Summer & Fall 2011

Paulina Yarmarkovich, Independent Research Project: 699. Fall 2011

Rogelio Aguirre, Integrated Biological Sciences Summer Research Program, 2012

MacKenzie Thayer, independent Research Project: 699. Spring, 2013

Jung Min Lee, Lab volunteer, Fall 2011

3. Graduate Student Thesis/Certification Committees:

McArdle Lab / active:

Danielle R. Westhoff (B. Sugden), Jessica Reusch (Janet Mertz), Halena Vandeusen (R. Kalejta), Coral Wille (Shannon Kenney), Lina Ding (James Shull), Emily Albright (Rob Kalejta), Ya-Fang Chiu (B. Sugden), Geonyoung Ahn (Elaine Alarid), Nathan Damaschke (David Jarrard), Mark Eichelberg (Michael Gould), Anqi Wang (Eric Johannsen), David Lung (Elaine Alarid), Emmanuel Vazquez-rivera (Chris Bradfield).

McArdle Lab / Graduated

Adam Hume (R. Kalejta), Randy Hill (R. Kalejta), Jiwon Hwang (R. Kalejta), Scott E. Lindner (B. Sugden), Rob Chumanov (Richard Burgess), Travis Schmit (Ahmad Nihal), Jenny Lamberski (Richard Burgess), Stephanie Jo Ellison (E. Alarid), Amy Ellis (Janet Mertz), Amanda Esch (D. Burgess), Kathryn Norby (B. Sugden), Yan Liu (Chris Bradfield), Lily Wong (Linda Schuler), Prahba Shrestha (Bill Sugden), Tawin Iempridee (Janet Mertz), Paul Goetsch (Wes Pike).

Outside / active:

Shannon Reagan-Shaw (Ahmad Nihal), Sohel Shamsuzzaman (Wes Pike), Felipe Burns (Richard Peterson), Conrad Valdez (postdoc, Will Ricke), Jillian Johnson (Lingjun Li/John Kao).

4. Training Program Membership:

Cancer Biology, Cell and Molecular Biology, Molecular and Cellular Pharmacology, Molecular Environmental and Toxicology Program, Endocrinology and Reproductive Physiology Program

Research Support:

Finished:

Start-up Funds, Department of Oncology, University of Wisconsin Comprehensive Cancer Center, UW Medical School, UW Graduate School

Elsa U. Pardee Foundation, Epigenetic control of estrogen receptor (ER)-regulated transcription in breast cancer by CARM1, 12/14/06 to 12/31/07, \$123,685 total costs.

Graduate School, University of Wisconsin-Madison, Exploring Natural Estrogenic Compounds for Breast Cancer Prevention and Treatment, July 1st, 2007 to June 30th, 2008, \$28,647 total costs.

Villas Life Cycle Professorship, University of Wisconsin-Madison, September, 2007- June, 2008, \$20,715 total costs.

Susan Komen Foundation, Regulation of ER Transcriptional Potential by the Chromatin Architectural Factor, HMGB1, 5/1/06 to 4/30/09, \$249,695 total costs (~66,500 DC annually).

Ende Inc. Contract work, 07/2010-11/2010, (Wei Xu, PI) \$69,770
Title: Characterization of two ER β ligands developed by Ende Inc.

University of Wisconsin Paul P. Carbone Comprehensive Cancer Center Investigator-Initiated Trial Application, Personalized therapy of breast cancer for older-aged women via ER β and REST, 4/1/09 to 3/31/11, \$25,000 DC

NIH Roadmap, Solicitation of Assays for High Throughput Screening (HTS) in the Molecular Libraries Probe Production Centers Network (MLPCN) (R03)
(Wei Xu, PI), 11/1/09-10/31/11, \$25,000 DC annually
Identification of ER α /ER β heterodimer specific ligands using high throughput assays
Goal: High throughput screening of ER α /ER β heterodimer specific ligands in the molecular libraries probe production centers network (MLPCN)

University of Wisconsin Medical School Research Committee Award (Wei Xu, PI), 09/2010 \$20,000
Title: Target ER β in triple-negative breast cancer.

Wisconsin Women's Health Foundation (Wei Xu, PI), 12/2010 to 11/2011, \$10,000
Title: ER α / β Heterodimer Is a Novel Target in Breast Cancer Prevention and Treatment

National Institutes of Health/NCI RO1, Transcriptional Regulation of Estrogen Receptor (ER) by CARM1, 4/1/08 to 3/31/13, \$207,000/year direct cost.

Greater Milwaukee Foundation, Shaw Scientist Award, Towards understanding epigenetic routes to endocrine resistance in breast cancer, 7/1/08 to 6/30/13, \$40,000 DC annually

DOD Breast Cancer Research Program (PI: Erin Shanle, Mentor: Xu), Targeting ER β in triple negative breast cancer, 2/1/2011 to 1/31/2014, \$129,000 total.

University of Wisconsin Graduate School Villas Associate Award, 7/1/2012-6/30/2014, \$25,000 total.

Active:

DOD ERA of HOPE Award (PI: Wei Xu), Old receptors, new treatment strategies for breast cancer, 4/1/2011-3/31/2016, \$500,000 annually.

University of Wisconsin Graduate School Villas Life Cycle Professorship, 7/1/2014-6/30/2015, \$30,000

Pending:

BC140386 (Xu, PI) 09/01/15 to 08/31/18 1.2 calendar
Department of Defense \$350,000 total DC requested

Methylation of MED12 by CARM1: predictor of drug resistance

The proposed research will directly address (1) whether MED12 methylation predicts sensitivity of breast cancer cells to commonly used chemotherapies in cell culture and xenograft tumor models; and (2) whether the MED12 R1862, R1912 mutations exist in human breast tumors and correlates with resistance in patients treated with neoadjuvant chemotherapy. The intent is to identify a potential biomarker for predicting response of breast cancer to commonly used chemotherapies and determine novel targets for future therapeutic interventions.

1R01CA194695-01 (Xu, PI) 04/01/15 to 03/31/20 2.4 calendar
NIH/NCI \$250,000 DC requested year 1

Functional dissection of BAF155 methylation in breast cancer

The specific aims of this proposal are: (1) test the hypothesis that me-BAF155 forms distinct subcomplexes from canonical SWI/SNF, thereby gaining specific genomic associations and regulating target gene expression in ER α - breast cancer; and (2) assess the functions of me-BAF155 target genes in growth, migration and metastasis of breast cancer cells in vitro and in vivo; and Aim 3. Implement cell-based, me-BAF155 TR-FRET for high throughput screening (HTS) of 100,000 compounds to identify BAF155 methylation inhibitors.

Received 13%, pending for council meeting

1R21CA196138-01 (Xu, PI) 07/01/15 to 06/30/18 1.2 calendar
NIH/NCI \$175,000 DC requested year 1

Proteome-wide identification of CARM1 substrates

The specific aims of this proposal are: (1) profile the spectrum of protein substrates for CARM1 using BPPM technology; and (2) identify CARM1 target recognition motifs using customized peptide arrays and bioinformatics.

Received 40%, resubmitted in June, 2015

1R01CA195632-01 (Xu, PI) 04/01/15 to 03/31/20 2.4 calendar
NIH/NCI \$250,000 DC requested year 1

Methylation of MED12 as a predictor of chemosensitivity in breast cancer

The aims of this proposal are: (1) test if methylation of MED12 level determines the response to chemotherapy in breast cancer cells; (2) determine if methylated MED12 level is a predictive biomarker for chemosensitivity in patients; and (3) investigate the mechanisms by which methylated MED12 confers chemosensitivity.

Received 45%, resubmitted in July, 2015

1R01ES025469-01 (Xu, PI)

07/01/15 to 06/30/20

2.4 calendar

NIH/NIEHS

\$250,000 DC requested year 1

High throughput analyses of PAH-induced cellular signaling pathways

The specific aims of this proposal are: (1) evaluation of PAHs' activities towards $ER\alpha$, $ER\beta$ and AHR in high throughput reporter assays; (2) test the hypothesis that PAHs activate receptors by inducing receptor interaction; and (3) identify in vivo end points associated with PAH-mediated receptor activation and exposure.

Received 13%, pending for council meeting

(no ref number yet) (Xu, Gong, PIs)

07/01/15 to 06/30/17

0.6 calendar

NIH/NCI

\$150,000 DC requested year 1

Targeting EGFR positive breast cancer using nanoparticles loaded with the anti-cancer drug aminoflavone

The specific aims of this proposal are: 1) examine the cellular uptake and cytotoxicity of AF-loaded and GE11-conjugated unimolecular micelles in an EGFR-overexpressing TNBC cell model and (2) determine the ability of AF-loaded unimolecular micelles to inhibit xenograft and human tumor graft growth in vivo.

Received 3%, pending for council meeting

Laboratory Share of Royalty and Licensing Income:

WISCONSIN ALUMNI RESEARCH FOUNDATION Generation of a rabbit polyclonal CARM1 antibody for biological studies

Award number: MSN119323, \$2100 (7/1/07 to 6/30/33)