

CURRICULUM VITAE

JoEllen Welsh, PhD

PERSONAL DATA:

Present Position: Empire Innovations Professor, Cancer Research Center and Department of Environmental Health Sciences, University at Albany
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ACADEMIC DEGREES:

BA Biological Sciences, 1975, Rutgers University, New Brunswick, NJ
PhD Nutritional Biochemistry, 1980, Cornell University, Ithaca, NY
Thesis project: Interactions between calcium and magnesium in maintenance of bone metabolism

POST-DOCTORAL TRAINING:

1980-1981 Postdoctoral Research Associate, Nutritional Sciences, Cornell University, Ithaca, NY. *Project title:* Stable isotope based methodology for assessment of magnesium absorption in human subjects.
1983-1985 Human Nutrition Research Council of Ontario Postdoctoral Fellow, University of Ottawa, Ontario, Canada. *Project title:* Brown adipose tissue function in genetically obese mice.

ACADEMIC APPOINTMENTS:

1985-1992 Assistant Professor, Department of Biochemistry, University of Ottawa, Canada
1992 - 1994 Associate Professor (tenured), Department of Biochemistry, University of Ottawa
1994 - 1998 Senior Scientist, Adirondack Biomedical Research Institute, Lake Placid, NY
1998 - 2001 Associate Professor, Department of Biological Sciences, University of Notre Dame, Notre Dame, IN
2001- 2007 Professor, Department of Biological Sciences, University of Notre Dame, Notre Dame, IN
2008- present Empire Innovations Professor, Cancer Research Center, Department of Environmental Health Sciences (primary appointment) and Department of Biomedical Sciences (secondary appointment), University at Albany

RECENT HONORS AND AWARDS:

- Scientist in the Spotlight, American Institute for Cancer Research, 2003
- Invited Lecturer, Course on Nutrition Genomics and Proteomics, FDA, Bethesda, MD, 2003
- State of the Art Invited Lecture, American Society for Bone and Mineral Research, 2004
- Kaneb Award for Teaching Excellence, University of Notre Dame, 2005
- Brown University Research Achievement Award, 13th Annual Providence Symposium on Vitamin D, 2005
- Feature On Air Interviews, ABC News with Charles Gibson, *Vitamin D and Breast Cancer*, 2008; *Vitamin D deficiency in Kids*, 2009
- Feature, Good Morning America : Welsh lab on *Vitamin D and Cancer*
- Chair, Program Committee, American Institute for Cancer Research Annual Research Conference, October 21-22, 2010
- Inaugural Member, Vitamin D Workshop Executive Committee, 2011
- Chair, 17th Workshop on Vitamin D, 2014, Chicago, IL

SCIENTIFIC ACTIVITIES:**GRANT REVIEW PANELS**

- *Member*, Chemo-dietary prevention (CDP) NIH Study Section, 2003-2010, 2012-present (ad-hoc)
- *Grant Reviewer*, Susan G. Komen Promise Grants, 2009
- *Member*, Grant Review Panel: Diet, Nutrition and Cancer Treatment, American Institute for Cancer Research, 1996-present
- *Reviewer*, DOD Breast Cancer Research Program, 2003-present
- *Reviewer*, DOD Prostate Cancer Cell Biology Panel, 2004-2005
- *Member*, NCI Special Emphasis Panel, Chemoprevention of ER negative breast cancer, 2002
- *Member*, NCI/NCCAM study section, Developmental Projects in Cancer Complementary and Alternative Medicine, June 2002, Oct 2002
- *Member*, Grant Review Panel: Cell Cycle and Growth Control, American Cancer Society, 1996
- *Member*, NCI Special Emphasis Panel, Insight Awards to Stamp Out Breast Cancer, 1999

OTHER ACTIVITIES

- *Member*, Board of Directors and *Chief Financial Officer*, Vitamin D Workshop (non-profit organization dedicating to dissemination of research on vitamin D)
- *Webmaster*, www.vitamindworkshop.org
- *Chair*, Organizing Committee, American Institute for Cancer Research Annual Meeting, 2010
- *Member*, Program Committee, Vitamin D Workshop, 2000, 2006, 2009
- *Member*, Program Committee, American Institute for Cancer Research Annual Meeting, 2008
- *Chair*, *Minisymposium on Vitamin D Metabolism*, EB2007 Washington DC
- *Member*, External Advisory Committee, Marie Curie Research Training Network Grant, *Systems Biology Approach to Nutrigenomics*, PI: MJ Campbell, University of Birmingham, UK, 2005
- *Consultant*, Bone Care International, Middleton, WI. 2002 - 2005
- *Member*, Internal Advisory Committee, NHLBI Program Project Grant, *Pathophysiologies Involving Hemostasis-related Genes*, PI: FJ Castellino, University of Notre Dame, 2004-2007
- *External Reviewer*, Wake Forest University School of Medicine, 2001 Cancer Biology Program
- *Member*, Organizing Committee, Fifth Annual Brown University Symposium on Vitamin D, "Vitamin D and cancer." Sept. 1997
- *Member*, Organizing Committee, First International Conference on Chemistry and Biology of Vitamin D Analogs, Sept. 1999
- *Editorial Board Member*, Endocrinology, 2013-present

CURRENT FUNDING:

- **CDMRP, FY15 BREAST CANCER RESEARCH PROGRAM, BREAKTHROUGH AWARD, BC151516 (PI: JE Welsh)** 2016-2019 [\$578,708 total costs] “Vitamin K-Mediated Carboxylation in Breast Cancer” This project evaluates the role of vitamin K dependent gamma carboxylation of periostin in breast cancer.
- **USPHS NATIONAL CANCER INSTITUTE, RO1 CA194500 (PI: JE Welsh)** 04/01/15-03/31/20 [\$1,764,521 total costs, parent grant] “Vitamin D and HA signaling in triple negative breast cancer” This project evaluates the role of hyaluronic acid in triple negative breast cancer.
 - **Minority Supplement to RO1 CA194500** Support for Brenda Trevizo (total costs \$232,726) 206-2020
 - **Minority Supplement to RO1 CA194500** Support for Lauren Rose-Boehnlein (total costs \$217,137) 2016-2019
 - **Administrative Supplement to RO1 CA194500** 2017 – 2018 [\$153,113] “Tissue pools of vitamin D3 in relation to tumor burden and dietary intake” This supplemental project will expand the studies described in the parent R01 through direct analysis of tissue vitamin D metabolites in tumor bearing animals. Approved for funding FY2017
- **USPHS, NATIONAL INSTITUTE FOR AGING, R13 AG048689 (PI: JE Welsh)** 06/15/14 – 05/31/19 [\$250,000 direct costs] “Annual Vitamin D Workshops 2014-2018” - conference grant in support of international Vitamin D workshops.

PENDING FUNDING:

- **CDMRP, FY16 BREAST CANCER RESEARCH PROGRAM, BREAKTHROUGH AWARD, BC161665 (PI: JE Welsh)** 2017-2020 [\$577,556 total costs] “Prevention of Cancer-Associated Metabolic Switch” This project seeks to identify natural products that modulate VDR to control cellular metabolism during breast tumorigenesis.

PAST RESEARCH PROJECTS:

- **USPHS, NATIONAL CANCER INSTITUTE, R21 CA166434 (PI: JE Welsh)** 01/01/13-12/31/15 [\$300,000 total costs] “Vitamin D, Metabolic Flux and Breast Cancer” The aims are to study the interactions between vitamin D and energy metabolism in cells and tumor models.
- **USPHS, NATIONAL CANCER INSTITUTE, R01 CA136658 (PI: DS Conklin)** 06/01/09-05/31/14 [\$1,257,000 direct costs] “NR1D1 pathway in breast cancer.” The major goal of this project is to determine the role that NR1D1 control of fat storage contributes to breast cancer. Dr. Welsh’s collaboration for this project is on the use of mouse models for testing interactions between NR1D1 and Her2 in vivo.
- **A SISTER’S HOPE (PI: JE Welsh)** 1/15/09 – 12/31/10 [\$45,000 unrestricted gift] “Vitamin D receptor as a breast tumor suppressor gene.” In support of studies to identify global gene expression patterns induced by vitamin D signaling in multiple breast cancer model systems.
- **USPHS, NATIONAL CANCER INSTITUTE, RC1 CA144963 (PI: JE Welsh)** 9/30/09-8/31/13 [\$671,244 direct costs] “Bioassay for Breast Cancer Prevention” The aims of this ARRA Challenge grant were to establish and validate a mammary gland organ culture system for assessing the effects of nutrients on DNA damage and repair.

- **NEW YORK CAPITAL ALLIANCE (NYCAP) Seed Grant (PI: JE Welsh)** 10/24/12 - 10/23/13 [\$50,000 direct costs] “Control of inflammation-associated cancer by vitamin D and CD14” Pilot studies to explore the interactions between vitamin D and CD14 in colitis-associated colon cancer.
- **USPHS, NATIONAL CANCER INSTITUTE, RO1 CA69700 (PI: JE Welsh)** 1995-2011 [\$956,250 direct costs] “Vitamin D and Mammary Gland” Assess the functional role of CYP27B1 in mammary gland; characterize the metabolism, uptake and transport of vitamin D steroids in mammary epithelial cells and identify molecular mechanisms of VDR signaling in breast cancer cell growth.
 - **Minority Supplement to RO1 CA69700;** 1996-1998 [\$72,002] “Vitamin D, apoptosis and survival of breast cancer cells.” Support for Dr. Carmen J Narvaez
- **USPHS, NATIONAL CANCER INSTITUTE, RO1 CA101114 (PI: JE Welsh, co-PI: Martin Tenniswood)** 2003-2009 [\$1,100,00 direct costs] “Calcium, Vitamin D and prostate cancer” Examination of the role of calcium and vitamin D in development and progression of prostate cancer using transgenic and knockout mouse models.
- **US ARMY MEDICAL RESEARCH PROGRAM, DAMD 17-03-1-0359 IDEA Award (PI: JE Welsh)** 2003-2007 [\$290,930 direct costs] “Novel Functions of VDR in breast cancer” Determination of structural features of VDR required for growth regulation in mammary cells.
- **USPHS, NATIONAL CANCER INSTITUTE, RO3 CA103018 (PI: JE Welsh)** 2003-2006 [\$100,00 direct costs] “Bioactivation of vitamin D in mammary gland” Analysis of CYP27B1 expression and function in mammary gland
- **US ARMY MEDICAL RESEARCH PROGRAM, PROGRAM GRANT SUB-PROJECT DAMD17-02-1-0208 (PI: JE Welsh)** 2002-2004 [\$81,105 direct costs] “Phytoestrogens and Vitamin D” Analysis of phytoestrogen regulation of VDR gene promoter.
- **US ARMY BREAST CANCER RESEARCH PROGRAM DAMD 17-00-1-0644 CONCEPT Award (PI: JE Welsh)** 2001-2002 [\$50,000 direct costs] “Vitamin D Receptor and Mammary Tumorigenesis” Development of MMTV-Neu transgenic mice lacking the VDR.
- **AMERICAN INSTITUTE FOR CANCER RESEARCH (PI: JE Welsh)** 1998-2000 [\$132,000 direct costs] “Effects of vitamin D on breast cancer metastasis.” The aims were to test the efficacy of vitamin D analogs as therapeutics in models of metastatic breast cancer.
- **USDA CSREES PROGRAM (PI: JE Welsh)** 1997-2002 [\$360,000 direct costs/2 awards]. “Regulation of osteoblast apoptosis by vitamin D.” Mechanistic studies on prevention of osteoblast apoptosis by vitamin D.
- **AMERICAN INSTITUTE FOR CANCER RESEARCH (PI: JE Welsh)** 1996-1998 [\$150,000 direct costs] “Vitamin D and active cell death in breast cancer cells.” The aim was to study the role of TGF β in vitamin D mediated apoptosis of breast cancer cells.
- **USPHS, NATIONAL CANCER INSTITUTE, RO1 CA69233 (PI: M Tenniswood, co-PI: JE Welsh)** 1996-2000 [\$600,956 direct costs] “Control of apoptosis by IGF-1 in prostate and breast” Evaluation of IGF signaling during prostate and mammary gland regression.
- **KIDNEY FOUNDATION (PI: J Welsh)** 1993-1995 [\$60,000 direct costs] “Regulation of renal PKC by vitamin D.” Assessment of VDR function in kidney using cellular and animal models.

- **AMERICAN INSTITUTE FOR CANCER RESEARCH (PI: JE Welsh)** 1993-1995 [\$110,000 direct costs] “Vitamin D and active cell death in breast cancer cells.” Mechanistic studies of vitamin D mediated apoptosis in breast cancer.
- **MEDICAL RESEARCH COUNCIL CANADA (PI: J Welsh)** 1992-1995 [\$120,400 direct costs] “1,25(OH)₂D₃ production in rat proximal tubules.” Assessment of vitamin D activation during chronic disease.
- **JUVENILE DIABETES FOUNDATION INTERNATIONAL (PI: J Welsh)** 1991-1993 [\$100,000 direct costs] “Diabetes, intestinal function and vitamin D.” Examination of intestinal vitamin D receptors and actions in rat models of diabetes.
- **KIDNEY FOUNDATION (PI: J Welsh)** 1989-1991 [\$53,000 direct costs] “Renal vitamin D receptors.” Exploring the function of vitamin D receptors in kidney cells and animal models.
- **MEDICAL RESEARCH COUNCIL CANADA (PI: J Welsh)** 1988-1991 [\$104,432 direct costs] “Vitamin D metabolism in experimental diabetes.” Determination of the effect of diabetes on vitamin D metabolism and actions in animal models.
- **NATIONAL SCIENCE AND ENGINEERING RESEARCH COUNCIL CANADA (PI: JWelsh)** 1985-1988 [\$62,080 direct costs] “Vitamin D metabolism in magnesium deficiency.” Exploring the impact of dietary magnesium deficiency on 1,25(OH)₂D₃ production and action.

AWARDS FOR MENTORING OF FELLOWS AND STUDENTS:

- **US ARMY MEDICAL RESEARCH PROGRAM, Pre-Doctoral award for D Matthews, Mentor: JE Welsh** 2010-2014 [\$90,000 direct costs] “Vitamin D Pathway Status and the Identification of Target Genes in the Mouse Mammary Gland”
- **USPHS, NATIONAL CENTER FOR COMPLEMENTARY AND ALTERNATIVE MEDICINE, F31 AT007276 NRSA Award for K Simmons, Mentor: JE Welsh.** 2012 - 2014 [\$57,664 direct costs] “Vitamin D Regulation of CD14 in Mammary Epithelial Cells”
- **US ARMY MEDICAL RESEARCH PROGRAM, Pre-Doctoral award for M Valrance, Mentor: JE Welsh** 2006-2008 [\$90,000 direct costs] “Role of vitamin D receptor functional domains in breast cancer cell growth regulation.”
- **KOMEN FOUNDATION, Post-Doctoral award for M Rowling, Mentor: JE Welsh** 2004-2007 [\$90,000 direct costs] “Vitamin D and wnt/ β -catenin signaling in mammary cells”
- **KOMEN FOUNDATION, Pre-Doctoral award for G Zinser, Mentor: JE Welsh** 2001-2003 [\$30,000 direct costs] “Impact of Vitamin D receptor on mammary carcinogenesis”
- **US ARMY MEDICAL RESEARCH PROGRAM, DAMD 17-03-1-0359, Pre-Doctoral award for B Byrne, Mentor: JE Welsh** 5/1/03-4/31/06 [\$89,000 direct costs] “Role of oxidative stress in vitamin D mediated apoptosis.”
- **US ARMY MEDICAL RESEARCH PROGRAM, BC980037, Pre-Doctoral award for L Flanagan, Mentor: JE Welsh** 1998-2000 [\$44,000 direct costs] “Regulation of growth and metastases in an estrogen independent Breast Cancer Cell Line by Vitamin D Compounds.”

- **US ARMY MEDICAL RESEARCH PROGRAM, BC961128, Pre-Doctoral award for K VanWeelden, Mentor: JE Welsh** 1997-2000 [\$60,000 direct costs] “Vitamin D₃ Mediated Tumor Regression.”
- **US ARMY MEDICAL RESEARCH PROGRAM, BC962168, Post-Doctoral award for CJ Narvaez, Mentor: JE Welsh** 1996-1999 [\$120,000 direct costs] “The Role of VDR Phosphorylation in Vitamin D-Induced Apoptosis.”

RECENT INVITED SEMINARS/PLATFORM PRESENTATIONS:

- *Vitamin D and breast cancer – Basic research with clinical applications.* Upstate NY AACC Annual Spring Meeting, Syracuse, NY May 2016
- *Why Hormones matter in Breast cancer.* To Life! Annual Conference for Breast Cancer Survivors, Latham, NY November 2015
- *Vitamin D Receptor regulation of HA signaling in TNBC.* University of Mississippi Medical Center, Cancer Institute. March 2015
- *Vitamin D and VDR signaling in breast cancer.* Yale Medical School, Endocrinology Grand Rounds, Oct 2014
- *Vitamin D and HA signaling in triple negative breast cancer.* St Louis University School of Medicine, Department of Biochemistry and Molecular Biology, Oct 2014
- *Vitamin D regulation of energy metabolism and insulin sensitivity.* Presented at the 17th Workshop on Vitamin D, Chicago, IL, June 2014
- *Vitamin D signaling in triple negative breast cancer.* Presented at the Fifth International Symposium on Vitamin D and analogs in cancer prevention and therapy, Krefeld, Germany, May 2014
- *Vitamin D and adipose tissue.* Albany Medical College Endocrinology rounds, Nov 2013
- *Gene-environment interactions in colitis and colon cancer.* Presented at the NYCAP symposium, Albany, NY, June 2014
- *Modeling vitamin D actions in triple negative breast cancer.* Presented at the 16th Workshop on Vitamin D, San Francisco, CA, June 2013
- *Emerging Targets of Vitamin D Receptor in Breast Cancer.* Presented at the University of Medicine and Dentistry of NJ, Newark, NJ, May 2013
- *Vitamin D & Breast Cancer: New Research & Recommendations.* Keynote speaker, To Life! Beating the Odds Breast Cancer Conference, Saratoga Springs, NY. August 2012
- *Targeting vitamin D receptor in normal cells for cancer prevention.* Boston Medical Center Endocrinology Grand Rounds, Boston, MA, November 2011
- *Vitamin D and cancer: cellular mechanisms.* Canadian Endocrine Society Annual Meeting, Toronto, ON, October, 2011
- *Emerging role of vitamin D in mammary gland and breast cancer: cytokines and metabolism.* Vitamin D Working Group, San Diego, CA, September 2011
- *Vitamin D receptor in breast cancer: genes, proteins & pathways.* ENDO 2011, 93rd Annual Meeting of the Endocrine Society, Boston, MA, June 2011
- *Role of vitamin D in breast cancer: prevention or treatment?* Fundación Ramón Areces International Symposium: Vitamin D and Cancer, Madrid, Spain, March, 2011
- *Regulation of innate immunity, inflammation and cancer by vitamin D.* Weill-Cornell Medical College, Program for Nutrition and Cancer Prevention, Nov 2010
- *Vitamin D, inflammation and cancer.* American Institute for Cancer Research Annual Meeting, Washington DC, Oct. 2010
- *Vitamin D signaling links bone, energy metabolism and aging.* XXVII REUNIÓN ANUAL de la Asociación Argentina de Osteología y Metabolismo Mineral, Cordoba, Argentina, Sept 2010
- *Genomic vitamin D signaling in breast cancer: insights from animal models and human cells.* Fourteenth Workshop on Vitamin D, Brugge, Belgium. Oct. 2009

- *Diet, Nutrition and Cancer Prevention*. The Hogarty Family Foundation Inaugural Lecture, University at Albany, May 2009
- *Mechanisms of Breast Cancer Chemoprevention by Vitamin D*, Roswell Park Cancer Institute, Buffalo, NY Nov 2008
- *Emerging functions of the vitamin D pathway in adiposity and metabolism*. Department of Nutrition, Iowa State University, Sept 2008
- *Nutrition and Cancer Prevention: The "Vitamin" D Story*. Marshall University School of Medicine Annual Research Day, Huntington, WV, Sept 2008
- *Calcium, vitamin D and the VDR: impact on breast and prostate cancer in preclinical models*. Vitamin D and Cancer: Current Dilemmas/Future Needs, NCI/ODS Conference, NIH Lister Auditorium, May 2007
- *Modulation of hormone dependent cancers by vitamin D regulated pathways*. Department of Surgical Oncology, University of Cincinnati, Cincinnati, OH, Jan 2007
- *VDR targets and vitamin D metabolism in mammary cells*. Contemporary Diagnosis and Treatment of Vitamin D-Related Disorders, NIH/ASBMR Conference, Arlington, VA, Dec 2006
- *Disruption of vitamin D signaling in mouse models: cell cycle, apoptosis, cancer*. NucSys Consortium, University of Kupio, Kupio, Finland, July 2006
- *Modulation of hormone dependent cancers by vitamin D regulated pathways*. 30th Annual Meeting of the American Society of Preventive Oncology, Bethesda, MD, Feb 2006
- *Vitamin D signaling in cancer: implications for prevention and therapy*, Keynote speaker, Annual Research Symposium, St. Vincent's University Hospital, Dublin, Ireland, Dec 2005.
- *The vitamin D signaling pathway in mammary gland development and tumorigenesis*. State of the Art Lecture, American Society for Bone and Mineral Metabolism Annual Meeting, Seattle, WA, Sept 2005
- *VDR signaling in mammary gland development and carcinogenesis*. Invited Platform Presentation, Keystone Symposium on Hormonal Regulation of Tumorigenesis, Feb 2005

UNDERGRADUATE STUDENT RESEARCH MENTORING: I have consistently participated in formal mentoring programs for undergraduates as listed below.

University at Albany Undergraduate Research Program (Academic and Summer Programs)

- *Romae Palmer (2008)* Characterization of mammary specific VDR and CYP27B1 KO mice.
- *Natalia Martinez (2009)* Modulation of radiation induced DNA damage by vitamin D
- *Samantha Chu (2010-2013)* Regulation of immune responses in mammary cells
- *Paul Gavett (2011-2013)* Mammary gland histopathology in vitamin D mutant mice
- *Manga Omasombo (2012)* Regulation of HAS2 in skin
- *Joseph D'Angelo (2014-2015)* Characterization of adipose-specific VDRKO mice.
- *Seamus Balinth (2015-present)* Characterization of breast cancer cells with high hyaluronan production.

Hudson Valley Community College Biotechnology Internship Program

- *Alexandra Bujanow (2012)* Screening botanical extracts for VDR activity
- *Eliza Walker (2013)* Effects of vitamin D on TNBC in vitro.
- *Samantha Robilotto (2014)* HA signaling in TNBC.

Queens University (Canada) Co-op Program - 8 months full time research

- *Thomas Waterfall (1999)* Role of caspases in vitamin D mediated apoptosis.
- *Kevin McEleney (2001)* Characterization of cell lines from VDR knockout mice.
- *Jing Cao (2003)* Interactions between VDR and beta catenin/E-cadherin in mammary cells.
- *Andrea Brunet (2005)* Effects of vitamin D analog EB1089 on mammary tumor growth in vivo.
- *Jennifer Wang (2008)* Vitamin D and the DNA damage response.
- *Michelle Chan (2008)* Role of VDR in adipogenesis.
- *Jackie Brunton (2010)* Vitamin D regulation of human mesenchymal stem cell differentiation.
- *Jennifer Liang (2015)* HAS2 and HA signaling in epithelial mesenchymal transition.

Notre Dame Honors Program – Multi-year Research and Thesis

- *Kelly Smith (2004)* Identification of vitamin D 1-hydroxylase in mammary cells.
- *Nick Nacey (2004)* Effects of vitamin D on early stage prostate cancer.
- *Laurel Miannecki (2005)* Characterization of the *wnt* pathway in normal and transformed mammary cells.
- *Chris Dudley (2008)* Rescue of CYP27B1 knockout mice

NSF Research Experience for Undergraduates Summer Program

- *Michelle Welage, Ohio Dominican College (1999)* Effects of vitamin D and estrogen on primary human osteoblasts.
- *Rebecca Mitsch, University of Notre Dame (1999)* Modulation of prognostic markers by vitamin D analogs in mouse models of breast cancer.
- *Michael McConnell, University of Notre Dame (2000)* Characterization of mammary gland development in VDR knockout mice.
- *Kristina Helquist, University of Notre Dame (2000)* Estrogen responsiveness of vitamin D resistant MCF-7 cells.
- *Christine Walker, Saint Mary's College, Notre Dame, IN (2001)* Resveratrol regulation of breast cancer cell growth.
- *Meggan Valrance, Michigan Technological University, Houghton, MI (2001)* Role of phosphorylation pathways in vitamin D resistance.
- *Kelly Smith, University of Notre Dame (2002)* Identification of vitamin D metabolizing enzymes in mammary cells.
- *Erin Ward, University of Notre Dame (2003)* Regulation of VDR receptor gene in kidney and mammary cells.
- *Anna Acosta, Santa Clara University, Santa Clara, CA (2003)* Characterization of apoptotic pathways in a murine mammary tumor cell line.
- *Gennifer Goode, Tennessee State University, Nashville, TN (2004)* Estrogen signaling in murine mammary tumor cell lines differentially expressing VDR.
- *Kellie Middleton, University of Notre Dame (2004)* Role of oxidative stress in vitamin D mediated apoptosis.
- *Aaron Chapman, Tuskegee University, Tuskegee, AL (2005, 2006)* Signaling through the AKT pathway in vitamin D resistant breast cancer cells.
- *Ravi Patel, University of Notre Dame (2006)*. Cross talk between PXR and VDR pathways.

University of Ottawa (1985-1994)

- *Steven DeSouza, B Med Sci Thesis.* Bone and vitamin D metabolism in diabetes.
- *Lisa Stone, Undergraduate Honors Research.* Tissue-specific regulation of VDR.
- *AnneMarie Gagnon, Undergraduate Honors research.* Calbindin regulation in renal cells.
- *Jolene Jarvis* - Summer fellow funded by the Kidney Foundation

UNDERGRADUATE TEACHING:

- **University of Ottawa (1985-1994)**
 - BCH 4171, Nutrition and Disease (20 students, 2 semesters, 6credits), yearly
 - BCH 3120, General Intermediary Metabolism (45 students, 1 semester, 3credits, taught selected lectures as needed)
 - BCH 3175, Normal Human Nutrition (40 students, 1 semester, 3credits, taught selected lectures as needed)
 - BCH 4155, Biochemical Endocrinology (45 students, 1 semester, 3credits, taught selected lectures as needed)

- **University of Notre Dame (1998-2008)**

- BIOS 435 Molecular and Cellular Basis of Human Disease (60-75 students, Spring semester, 3credits). Developed new course in 1999, taught with one other professor. Spring, 1999-2000
- BIOS 341L Cell Biology Laboratory (60-75 students, 2-3 sections, 1 semester, 1credit). Developed new laboratory course with lab manual. Taught entire course every Fall 2000-2007
- BIOS 424 Tumor Cell Biology (20-25 students, 1 semester, 3credits). Developed new course in Spring 2004. Taught entire course every Spring 2004-2007
- BIOS 241R Molecular Cell Biology Laboratory Mentor 1-2 student lab groups in independent cell biology research project and poster presentation, Spring, yearly

GRADUATE TEACHING:

- **University of Ottawa (1985-1994)**

- BCH 8104, Advanced Topics in Metabolism and Nutrition (8-10 students, 2 credits) Taught with one other professor, every other year

- **University of Notre Dame (1998-2007)**

- BIOS 540 Advanced Cell Biology (15-20 students, 1 semester, 3credits). New course developed and taught Spring, 2001-2003, Fall 2005
- BIOS 570 Topics in Cell Biology: Nuclear Receptors (8 students, 1 semester, 3 credits), New course developed and taught Fall 1999
- BIOS 570 Topics in Cell Biology: Cancer (15 students, 1 semester, 3 credits). New course developed and taught Spring 2000, 2007

- **University at Albany (2008-present)**

- BMS 665 Cancer Biology Journal Club (15 students, Fall, 1 credit) Coordinator
- BMS 622, Cancer Biology, (15-20 students, Spring, 3 credits, biannually) Coordinator
- BMS 535, Environment and Cancer, 10 students, Spring, 3 credits, biannually) Lecturer

GRADUATE STUDENT MENTORING:

Completed Graduate Degrees:

Valerie Weaver: PhD degree, University of Ottawa, 1992. Thesis: Effect of dietary minerals and diabetes on renal vitamin D hydroxylation and calcium homeostasis. MRC Studentship recipient. Present Position: Director, Center for Bioengineering and Tissue Regeneration, University of California San Francisco, San Francisco, CA

Lisa Stone: MSc degree, University of Ottawa, 1992. Thesis: Vitamin D receptors, tissue growth and insulin dependent diabetes. MRC Studentship recipient. Present Position: Conflict Management Consultant, Ottawa, ON Canada

Maura Simboli-Campbell: PhD degree, University of Ottawa, 1993. Thesis: The role of protein kinase C in vitamin D mediated effects in kidney. Present Position: Biomedical Research Consultant, Canadian Marketing Group, Ottawa, Ontario Canada

Debbie Bonell (now Clements): MSc degree, University of Ottawa, 1994. Thesis: The regulation of intestinal epithelial cell proliferation by 1,25-dihydroxyvitamin D and transforming growth factor beta. NSERC studentship recipient. Present Position: Director of Research and Communications, NutriChem, New Brunswick, NS, Canada

AnneMarie Gagnon: PhD degree, University of Ottawa, 1995. Thesis: Regulation of calbindin D-28K by 1,25(OH)₂D₃ in MDBK cells. MRC studentship recipient. Present Position: Research Associate, Loeb Research Institute, Ottawa, Ontario, Canada

Manjula Donepudi: MSc degree, University of Ottawa, 1996. Thesis: The regulation of calbindin D-28K by epidermal growth factor in MDBK cells and the involvement of signal transduction pathways. Present Position: Senior Manager, IP, Ludwig Institute for Cancer Research Ltd, NY, NY

Ian Byrne: PhD degree, Joint Graduate Program between W. Alton Jones Cell Science Center and University College, Dublin, Ireland, 1999. Thesis: Molecular characterization of the vitamin D receptor in a 1,25(OH)₂D₃-resistant human breast cancer cell line and identification of a novel, hormone responsive vitamin D receptor promoter. Present Position: Founder and CEO, Wolfhound Software, Dublin, Ireland

Kathryn Packman (formerly VanWeelden): PhD degree, University of Notre Dame, 2000, Thesis: Induction of apoptosis in MCF-7 human breast cancer cells and xenografts by the vitamin D₃ analog EB1089. DOD Breast Cancer Research Program Predoctoral Traineeship recipient. Present Position: Scientific Director, Oncology Collaborations, Janssen Pharmaceuticals, Boston, MA

Louise Flanagan: PhD degree, Joint Graduate Program between W. Alton Jones Cell Science Center and University College, Dublin, Ireland, 2000. Thesis: Effects of vitamin D on growth and metastasis of estrogen independent breast cancer. DOD Breast Cancer Research Program Predoctoral Traineeship recipient. Present Position: Senior Medical Scientist, National Cancer Screening Service, Dublin, Ireland.

Jennifer Wietzke: PhD degree, University of Notre Dame, 2002. Thesis: Molecular characterization of vitamin D₃ receptor promoter and 1,25-dihydroxyvitamin D₃ action in breast cancer cells. Fisher Fellowship recipient. Present Position: Clinical Communications Specialist, CPE Communications, Chicago, IL

Glendon Zinser: PhD degree, University of Notre Dame, 2003. Thesis: The effect of vitamin D receptor ablation on mammary gland development and tumorigenesis. Komen Foundation Dissertation Award recipient. Present Position: Grants Management Specialist, Susan G Komen Foundation, Dallas, TX

Belinda Byrne: PhD degree, University of Notre Dame, 2006. Thesis: Signaling mechanisms of vitamin D₃ mediated apoptosis in MCF7 breast cancer cells. DOD Breast Cancer Research Program Predoctoral Traineeship recipient. Present Position: Scientific Advisor at Merck Serono, London, UK

Carly Kemmis: PhD degree, University of Notre Dame, 2007. Thesis: Investigation of 1,25D synthesis and vitamin D signaling in human mammary epithelial cells. Fisher Fellowship recipient. Present Position: Associate Professor of Cell & Molecular Biology, Winston-Salem State University, Winston-Salem, NC

Meggan Valrance (now Keith): PhD degree, University of Notre Dame, 2007. Thesis: Role of the VDR in 1,25-dihydroxyvitamin D mediated growth arrest and apoptosis. Clare Booth Luce Graduate Fellowship recipient. US DOD Breast Cancer Research Program Predoctoral Traineeship recipient. Present Position: Scientist, Taconic Farms, Inc, Rensselaer, NY

Kate Simmons: PhD degree, University at Albany, Biomedical Sciences, 2014. Thesis: Vitamin D regulation of cytokines and innate immunity in mammary cells. NIH NCCAM F32 National Research Service Award (NRSA) recipient. Present Position: Clinical Biochemical Fellow, Greenwood Genetic Center, Greenwood, SC

Erika Haupt LaPorta: PhD degree, University at Albany, Biomedical Sciences, 2014. Thesis: Molecular aspects of VDR signaling in breast cancer cells.

Donald Matthews: PhD degree, University at Albany, Biomedical Sciences, 2015. Thesis: Impact of VDR signaling on mouse mammary gland. DOD Breast Cancer Research Program Predoctoral Traineeship recipient. Present Position: Post-Doctoral Fellow, Oregon Health and Science University, Portland, OR

Sarah Beaudin: PhD degree, University at Albany, Biomedical Sciences, 2015. Thesis: Vitamin D regulates metabolic gene expression, glutamate and glutamine utilization, and mitochondrial function in human mammary epithelial cells.

Current Graduate Students:

Lauren Rose-Boehlein: PhD student, University at Albany, Biomedical Sciences, 2014-
Project title: Control of VDR signaling during cellular stress. Carson Carr Fellowship recipient.

Brenda Trevizo: PhD student, University at Albany, Biomedical Sciences, 2015-
Project title: Stat3 and HA in breast cancer. NSF Bridge to Doctorate Fellowship recipient.

POST-DOCTORAL FELLOW SUPERVISION:

Maura Simboli-Campbell, PhD. University of Ottawa (1993-1994). Project title: Vitamin D and apoptosis in breast cancer cells. Present Position: Biomedical Research Consultant, Canadian Marketing Group, Ottawa, Ontario

Zhongjun Luo, PhD University of Kupio, Finland (1995-1997). Project title: Role of calcium in vitamin D mediated apoptosis. Present Position: Wyeth-Ayerst Research

Carmen J. Narvaez, PhD, Rutgers University (1994-2000). Project title: Cellular mechanisms of vitamin D mediated apoptosis in breast cancer cells. American Institute for Cancer Research Post Doctoral Fellowship, 1995; US Army Breast Cancer Program Post Doctoral Fellowship, 1997-2000. Present Position: Senior Research Associate, Anapole Technologies, Burlington, IA

Glendon M. Zinser, PhD University of Notre Dame (2003-2005). Project Title: Effect of VDR on wnt/beta catenin signaling in mammary cells. Susan G. Komen Foundation Fellowship, 2003-2005. Present Position: Grants Management Specialist, Susan G Komen Foundation, Dallas, TX

Mathieu Renouf, PhD Iowa State University (2005-2006). Project Title: PXR-VDR interactions in breast cancer. Present Position: Scientist, Bioavailability Group, Nestle Corporation, Lausanne, Switzerland

Matthew J. Rowling, PhD Iowa State University (2004-2007). Project Title: Uptake and transport of anti-tumorigenic vitamins in mammary gland. Susan G. Komen Foundation Fellowship, 2005-2007. Present Position: Associate Professor, Dept of Nutrition, Iowa State University, Ames, Iowa

David Veselik, PhD Georgetown University (2006-2007). Project Title: Creation and characterization of mammary specific VDR knockout mouse. Present Position: Associate Teaching Professor & Director of Undergraduate Studies, Department of Biological Sciences, University of Notre Dame, Notre Dame, IN

Jean Han, PhD St John's University (2009-2011). Project Title: Development of a bioassay for detection of DNA damage in the mammary gland.

Sarah Beaudin: PhD, University at Albany (2015-present). Project Title: Characterization of gamma-carboxylated proteins in triple negative breast cancer.

RESEARCH PUBLICATIONS:

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 27. **Welsh JE**, Simboli-Campbell M, Narvaez CJ and Tenniswood M (1995) Role of apoptosis in the growth inhibitory effects of vitamin D in MCF-7 cells. *Adv Exp Med Biol* 375:45-52.
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67. Valrance ME, Brunet AH and **Welsh JE** (2007) VDR Dependent Inhibition of Mammary Tumor Growth by EB1089 and UV Radiation in vivo. *Endocrinology*, 148:4887-4894.
68. Rowling M, Gliniak C, **Welsh JE** and Fleet JC (2007) High dietary vitamin D₃ prevents hypocalcemia and osteomalacia in CYP27B1 knockout mice. *J Nutrition* 137:2608-2615.
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INVITED REVIEWS, BOOK CHAPTERS and MULTI-MEDIA PRESENTATIONS:

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