CURRICULUM VITAE
JoEllen Welsh, PhD

PERSONAL DATA:

Present Position:	Empire Innovations Professor, GenNYsis Center of Excellence for Cancer Genomics, Department of Biomedical Sciences, University at Albany
Date, Place of Birth:	May 1, 1954, New York City
Home Address:	45 Lynn Rd, Averill Park, NY 12018
Telephone:	518 591-7232 (office); 518 591-7201 (fax)
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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	Postdoctoral Research Associate, 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, GenNYsis Center of Excellence for Cancer Genomics, Department of Biomedical Sciences, 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
- Invited Platform Presentation, Keystone Symposium on Hormonal Tumorigenesis, 2005
- Brown University Research Achievement Award, 13th Annual Providence Symposium on Vitamin D, 2005
- Feature On Air Interview, ABC News with Charles Gibson, Vitamin D and Breast Cancer, 2008

SCIENTIFIC ACTIVITIES:

GRANT REVIEW PANELS

- *Member,* Metabolic Pathology (MEP), now Chemo-Dietary Prevention (CDP) NIH Study Section 2002-present
- *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, Nov, 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*, Program Committee, American Institute for Cancer Research Symposium, 2008
- *Member*, Program Committee, Vitamin D Workshop, Inc, 2000, 2006, 2009
- *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 Medical School, UK, 2005-present
- *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
- *Reviewer,* NURSA (Nuclear Receptor Signaling Atlas), 2004-present
- *External Reviewer*, Wake Forest University School of Medicine, 2001 Cancer Biology Annual Retreat
- *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
- *Ad hoc Manuscript reviewer:* Molecular and Cellular Biology, J. Biological Chemistry, Biochemistry and Cell Biology, Cancer Research, Journal of Laboratory and Clinical Medicine, Experimental Cell Research, *In Vitro*, Journal of Molecular Endocrinology, Oncology Research, International Journal of Cancer, Endocrinology, Breast Cancer Research and Treatment, Oncogene, J. Cell Biochemistry

CURRENT RESEARCH FUNDING:

- **USPHS, NATIONAL CANCER INSTITUTE, RO1 CA69700 (PI: JE Welsh)** 7/1/95-6/30/10 [$956,250 direct costs/5years] "Vitamin D and Mammary Gland" The aims for the next five year period are to demonstrate a functional role for the vitamin D 1α-hydroxylase in mammary gland, to examine metabolism, uptake and transport of vitamin D steroids in mammary epithelial cells and to identify molecular mechanisms of VDR signaling in breast cancer cell growth.

- **USPHS, NATIONAL CANCER INSTITUTE, RO1 CA101114 (PI: JE Welsh, co-PI: Martin Tenniswood)** 6/1/03-5/31/09 [$1,100,00 direct costs/5years] "Calcium, Vitamin D and prostate cancer" The aim is to examine the role of calcium and vitamin D in development and progression of prostate cancer using transgenic and knockout mouse models.

SELECTED COMPLETED RESEARCH PROJECTS:

- **US ARMY MEDICAL RESEARCH PROGRAM, DAMD 17-03-1-0359, 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"

- **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" The goal of this project is to define features of the VDR required for growth regulation in mammary cells.

- **USPHS, NATIONAL CANCER INSTITUTE, RO3 CA103018 (PI: JE Welsh)** 8/1/03-7/31/06 [$100,00 direct costs/3years] "Bioactivation of vitamin D in mammary gland"

- **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/3 years] "Role of oxidative stress in vitamin D mediated apoptosis."

- **US ARMY MEDICAL RESEARCH PROGRAM, PROGRAM GRANT SUB-PROJECT DAMD17-02-1-0208 (PI: JE Welsh)** 2002-2004 [$81,105 direct costs/2 years] "Phytoestrogens and Vitamin D"

- **KOMEN FOUNDATION, Pre-Doctoral award for G Zinser, Mentor: JE Welsh** 2001-2003 [$30,000 direct costs/2 years] "Impact of Vitamin D receptor on mammary carcinogenesis"

- **US ARMY BREAST CANCER RESEARCH PROGRAM CONCEPT Award (PI: JE Welsh)** 2001-2002 [$50,000 direct/1year] "Vitamin D Receptor and Mammary Tumorigenesis"

- **USDA CSREES PROGRAM** (**PI: JE Welsh)** 1997-2002 [$360,000 direct in two awards/5 years]. "Regulation of osteoblast apoptosis by vitamin D."

- **AMERICAN INSTITUTE FOR CANCER RESEARCH (PI: JE Welsh)** 1992-2001 [$392,000 direct in three awards/6 years] "Effects of vitamin D analogs on breast cancer". The aims were to test the efficacy of vitamin D analogs as therapeutics in nude mouse models of breast cancer.

RECENT INVITED SEMINARS/PLATFORM PRESENTATIONS:

- *Mechanisms of Breast Cancer Chemoprevention by Vitamin D*, Roswell Park Cancer Institute, Buffalo, NY Nov 2008
- *Vitamin D: Defense Against Cancer.* U Albany Day, Oct 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, WVa., Sept 2008
- *Nutrigenomics: Vitamin D Receptor and Breast Cancer,* Department of Biochemistry, Marshall University School of Medicine, Huntington, WVa. 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
- *Nutrigenomics: vitamin D receptor and breast cancer.* Department of Biomedical Sciences and the Gen*NY*Sis Center for Excellence in Cancer Genomics, University at Albany, Albany, NY, April 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
- *Role of vitamin D in breast cancer prevention and treatment,* Indiana Academy of Sciences Seminar Series, Bethel College, South Bend, IN, Sept 2006
- *Disruption of vitamin D signaling in mouse models: cell cycle, apoptosis, cancer.* NucSys Consortium, University of Kupio, Kupio, Finland, July 2006
- *Vitamin D signaling in mammary gland – what have we learned?* Thirteenth Workshop on Vitamin D, Victoria, BC April 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
- *Mouse models of breast cancer*, 7th Annual Amelia Project Retreat, Catherine Peachey Foundation, Indianapolis, IN, 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.
- *Vitamin D signaling in mammary gland.* Thirteenth Annual Providence Symposium on Vitamin D, Brown University, Providence, RI, Sept 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 routinely mentor U Albany undergraduate Biology majors in research projects in my laboratory every semester. In addition, I have consistently participated in formal mentoring programs for undergraduates as listed below.

University at Albany Summer Research Program

- *Romae Palmer (2008)* Characterization of mammary specific VDR and CYP27B1 KO mice.

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

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 Mianecki (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.

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) Coordinator

GRADUATE STUDENT MENTORING:

Completed Graduate Degrees:

Valerie Weaver: PhD 1992 University of Ottawa
Project title: Regulation of renal vitamin D hydroxylation. MRC Studentship recipient.
Present Position: Associate Professor & Director, Center for Tissue Engineering, UCSF Department of Surgery

Lisa Stone: MSc 1992 University of Ottawa
Project title: Vitamin D receptors in experimental diabetes. MRC Studentship recipient.
Present Position: Coordinator, Cooperative Education Program, University of Ottawa, Ottawa, Ontario

Maura Simboli-Campbell: PhD 1993 University of Ottawa
Project title: Vitamin D receptor mediated actions in renal (MDBK) cells.
Present Position: Biomedical Research Consultant, Canadian Marketing Group, Ottawa, Ontario

Debbie Bonell: MSc 1994 University of Ottawa
Project title: Interactions between vitamin D and TGFB in intestinal cell differentiation. NSERC Studentship recipient.
Present Position: Nutrition Consultant, Claremont Communications, New Brunswick, Canada

AnneMarie Gagnon: PhD 1995 University of Ottawa
Project title: Calbindin D-28K regulation in renal (MDBK) cells. MRC Studentship recipient.
Present Position: Research Associate with Dr. Alex Soritsky, Loeb Institute, Ottawa, Ontario

Manjula Donepudi: MSc 1996 University of Ottawa
Project title: Modulation of growth factor signaling by vitamin D in renal cells.
Present Position: Ludwig Institute for Cancer Research, Memorial Sloan Kettering Cancer Center, NYC

Ian Byrne: PhD October 1999 Joint graduate program with University College, Dublin, Ireland
Project title: Molecular Regulation of the vitamin D receptor in breast cancer cells.
Present Position: Systems engineer, Dublin, Ireland

Kathryn Packman (formerly VanWeelden): PhD 2000, University of Notre Dame, Biological Sciences
Project title: Vitamin D mediated apoptosis during breast tumor regression *in vivo*.
US Army Breast Cancer Program, Pre-Doctoral Fellowship recipient, 1997-2000.
Present Position: Principal Scientist and Head, *In Vivo* Tumor Biology Division, Hoffman-LaRoche, Nutley, NJ

Louise Flanagan: PhD 2000, Joint graduate program with University College, Dublin, Ireland
Project title: Effects of vitamin D on growth and metastasis of estrogen independent breast cancer.
US Army Breast Cancer Research Program, Pre-Doctoral Fellowship recipient, 1999-2001
Present Position: Senior Scientist, Breast Check Ireland, Dublin, Ireland

Jennifer Wietzke: PhD 2003, University of Notre Dame, Biological Sciences
Project title: Cell specific regulation of vitamin D receptor gene.
Fisher Fellowship recipient
Present Position: Clinical Communications Specialist, CPE Communications, Chicago, IL

Completed Graduate Degrees, continued

Glendon Zinser: PhD 2003, University of Notre Dame, Biological Sciences
Project title: Mammary gland function in vitamin D receptor knockout mice.
Susan G. Komen Dissertation Award recipient, 2000-2003.
Present Position: Assistant Professor of Research, Dept of Cell and Cancer Biology, University of Cincinnati

Belinda Byrne: PhD 2006, University of Notre Dame, Biological Sciences
Project title: Vitamin D mediated apoptosis in breast cancer cells.
US Army Breast Cancer Research Program, Pre-Doctoral Fellowship recipient, 2003-2006
Present Position: Product Development Scientist, Cell Signaling Technology, Boston, MA

Carly Kemmis: PhD 2007, University of Notre Dame, Biological Sciences
Project title: Vitamin D hydroxylases in mammary epithelial cells.
Fisher Fellowship recipient, 2005
Present Position: Post-Doctoral Fellow with Dr. Diane Wagner, Bio-Engineering, University of Notre Dame

Meggan Valrance: PhD 2007, University of Notre Dame, Biological Sciences.
Project title: Role of VDR non-genomic signaling in breast cancer.
Clare Booth Luce Graduate Fellowship recipient, 2002-2006
US Army Breast Cancer Research Program, Pre-Doctoral Fellowship recipient, 2006-2007
Present Position: Post-Doctoral Fellow, GenNYsis Cancer Center, University at Albany

Current Graduate Students:

Donald Matthews: PhD student, University at Albany, Biomedical Sciences, 2005-
Project title: Characterization of mammary gland pathology in CYP27B1 knockout mice..

Erika Haupt LaPorta: PhD student, University at Albany, Biomedical Sciences, 2008-
Project title: Molecular aspects of VDR signaling in breast cancer cells.

Lei Li: PhD student, University at Albany, Environmental Health Sciences, 2008-
Project title: Cytochrome P450 expression and action in mammary cells.

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, GenNYsis Center for Excellence in Cancer Genomics, University at Albany, Rensselaer, NY

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: Assistant Professor, Dept of Cancer and Cell Biology, University of Cincinnati

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: Assistant 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 model.
Present Position: Professional Specialist in Charge of Cell Biology Teaching Laboratories, University of Notre Dame, Notre Dame, IN

RESEARCH PUBLICATIONS:

1. **Jones JE,** Schwartz R and Krook L (1980) Bone pathology and calcium homeostasis in magnesium deficient rats. *Calc Tissue Int* 31:231-238
2. **Welsh JE,** Schwartz R and Krook L (1981) Bone pathology and parathyroid gland activity in hypocalcemic, magnesium deficient chicks. *J Nutrition* 111:514-524
3. **Welsh JE** (1983) Vitamin D resistant rickets. *Can Med Assoc J.* 128:571-576
4. Schwartz R, Spencer H and **Welsh JE** (1984) Magnesium absorption in human subjects from leafy vegetables intrinsically labelled with stable Mg. *Am J Clin Nutrition* 39:571-576
5. **Welsh JE,** Narbaitz R and Begin-Heick N (1985) Metabolic effects of dietary manganese supplementation in ob/ob mice. *J Nutrition* 115:919-928
6. Begin-Heick N and **Welsh JE** (1988) The regulation of adenylate cyclase in liver membranes of lean and obese mice. *Mol Cell Endocrinol* 59:187-194
7. **Welsh JE** and Weaver VM (1988) Adaptation to low dietary calcium in magnesium deficient rats. *J Nutrition* 118:729-734
8. Weaver VM and **Welsh JE** (1989) Vitamin D metabolism in magnesium deficient chicks. *Nutrition Res* 9:1363-1369
9. Weaver VM and **Welsh JE** (1990) Role of 1,25 dihydroxycholecalciferol and dietary calcium in genesis of hypocalcemia in magnesium deficiency. *Magnesium Res* 3:171-177
10. Weaver VM, Franks DJ and **Welsh JE** (1991) Activation of protein kinase C modulates dihydroxycholecalciferol synthesis in rat renal proximal tubules. In: Vitamin D: Gene Regulation Structure-Function Analysis and Clinical Application (AW Norman, R. Bouillon and Thomasset, eds). W. de Gruyter, Berlin, 275-276
11. Stone LA, Weaver VM, Bruns ME, Christakos S and **Welsh JE** (1991) Vitamin D receptors and compensatory tissue growth in spontaneously diabetic BB rats. *Ann Nutrition Metab* 35:196-202
12. Stone LA, Weaver VM, Bruns ME and **Welsh JE** (1991) Vitamin D receptors in intestine, kidney and thymus of streptozotocin diabetic rats. *Diabetes Res* 15:165-172
13. Simboli-Campbell M, Franks DJ and **Welsh JE** (1992) $1,25(OH)_2D_3$ increases membrane associated protein kinase C in MDBK cells. *Cellular Signaling* 4:99-109
14. Simboli-Campbell M, Gagnon AM, Franks DJ and **Welsh JE** (1992) TPA decreases $1,25(OH)_2D_3$ binding and calbindin D28K in renal (MDBK) cells. *Mol Cell Endocrinol* 83:143-151
15. Weaver VM, Franks DJ and **Welsh JE** (1992) Activation of protein kinase C modulates dihydroxycholecalciferol synthesis in rat renal tubules. *Cellular Signaling* 4:293-301
16. Weaver VM and **Welsh JE** (1993) $1,25(OH)_2D_3$ supplementation prevents hypocalcemia in magnesium deficient chicks. *J Nutrition* 123:764-771
17. Weaver VM and **Welsh JE** (1994) Effects of in vivo and in vitro insulin on renal 25(OH)D hydroxylation in insulin dependent diabetic rats. *Diabetes Res* 25:107-119
18. Gagnon AM, Simboli-Campbell M and **Welsh JE** (1994) Induction of calbindin D28K in Madin Darby Bovine Kidney cells by $1,25(OH)_2D_3$. *Kidney Int* 45:95-102
19. **Welsh JE** (1994) Induction of apoptosis in breast cancer cells in response to vitamin D and anti-estogens. *Biochem Cell Biol* 72:537-545
20. Simboli-Campbell M and **Welsh JE** (1994) Comparative effects of $1,25(OH)_2D_3$ and EB1089 on cell cycle kinetics in MCF-7 cells. In: Vitamin D. A Pluripotent steroid hormone:structural studies, molecular endocrinology and clinical applications. (AW Norman, R. Bouillon and Thomasset, eds). W. de Gruyter, Berlin, 506-507
21. **Welsh JE**, Simboli-Campbell M and Tenniswood MPR (1994) Induction of apoptotic cell death by $1,25(OH)_2D_3$ in MCF-7 breast cancer cells. *In:* Vitamin D. A Pluripotent steroid hormone:structural studies, molecular endocrinology and clinical applications. (AW Norman, R. Bouillon and Thomasset, eds). W. de Gruyter, Berlin, 526-527
22. Gagnon AM and **Welsh JE** (1994) Phosphorylation and modulation of calbindin D28K by activation of protein kinase C. *In:* Vitamin D. A Pluripotent steroid hormone:structural studies, molecular endocrinology and clinical applications. (AW Norman, R. Bouillon and Thomasset, eds). W. de Gruyter, Berlin, 406-407

23. Donepudi M, Gagnon AM and **Welsh JE** (1994) Epidermal growth factor down regulates both calbindin D28K and the VDR in MDBK cells. *In:* Vitamin D. A Pluripotent steroid hormone: structural studies, molecular endocrinology and clinical applications. (AW Norman, R. Bouillon and Thomasset, eds). W. de Gruyter, Berlin, 410-411
24. Bonell D and **Welsh JE** (1994) Interaction of 1,25$(OH)_2D_3$ and TGFβ in IEC-6 cells. *In:* Vitamin D. A Pluripotent steroid hormone:structural studies, molecular endocrinology and clinical applications. (AW Norman, R. Bouillon and Thomasset, eds). W. de Gruyter, Berlin, 459-460
25. Weaver VM and **Welsh JE** (1994) Effects of *in vivo* and *in vitro* insulin on renal 25$(OH)D_3$ hydroxylation in insulin dependent diabetic rats. *Diabetes Res* 25:107-119
26. Simboli-Campbell M and **Welsh JE** (1994) 1,25-Dihydroxyvitamin D_3 translocates PKCβ to nucleus and enhances plasma membrane association of PKCα in renal epithelial cells. *J Biol Chem*, 269:3257-3264
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.
28. Narvaez CJ, VanWeelden K, Byrne I and **Welsh JE** (1996) Characterization of a Vitamin D_3 resistant MCF-7 cell line. *Endocrinol* 137:400-409.
29. Simboli-Campbell M, Narvaez CJ, Tenniswood M and **Welsh JE** (1996) 1,25-Dihydroxyvitamin D_3 induces morphological and biochemical markers of apoptosis in MCF-7 breast cancer cells. *J Steroid Biochem Mol Biol* 58:367-376.
30. Byrne I and **Welsh JE** (1997) Characterization of 1,25(OH)2D3 resistance in an MCF-7 cell line with functional vitamin D receptor. In: Vitamin D:Chemistry, Biology and Clinical Application of the Steroid Hormone. (AW Norman, R. Bouillon and Thomasset, eds). University of California Riverside Press, 234-235
31. Flanagan L, Ethier S and **Welsh JE** (1997) Vitamin D induced apoptosis in estrogen independent breast cancer cells and tumors. In: Vitamin D:Chemistry, Biology and Clinical Application of the Steroid Hormone. (AW Norman, R. Bouillon and Thomasset, eds). University of California Riverside Press, 459-460
32. Luo Z and **Welsh JE** (1997) Calbindin D28K alters calcium homeostasis and protects MCF-7 cells from apoptosis induced by TNFα. In: Vitamin D:Chemistry, Biology and Clinical Application of the Steroid Hormone. (AW Norman, R. Bouillon and Thomasset, eds). University of California Riverside Press, 619-620
33. **Welsh JE** (1977) 1,25$(OH)_2D_3$ protects MG-63 osteoblasts from TNFα and ceramide induced apoptosis. In: Vitamin D:Chemistry, Biology and Clinical Application of the Steroid Hormone. (AW Norman, R. Bouillon and Thomasset, eds). University of California Riverside Press, 405-406
34. Simboli-Campbell M, Narvaez CJ, VanWeelden K, Tenniswood M and **Welsh JE** (1997) Comparative effects of 1,25$(OH)_2D_3$ and EB1089 on cell cycle kinetics and apoptosis in MCF-7 breast cancer cells. *Breast Cancer Res Treat* 42:31-41.
35. Narvaez, CJ and **Welsh JE** (1997) Differential effects of 1,25-dihydroxyvitamin D_3 and TPA on cell cycle and apoptosis of MCF-7 cells and a vitamin D_3 resistant variant. *Endocrinol* 138:4690-4698
36. Gagnon AM and **Welsh JE** (1997) Modulation and phosphorylation of calbindin D28K correlates with protein kinase C activation. *Biochem Cell Biol* 75:17-24
37. VanWeelden K, Flanagan L, Binderup L, Tenniswood M and **Welsh JE** (1998) Apoptotic regression of MCF-7 xenografts in nude mice treated with the vitamin D_3 analog, EB1089. *Endocrinol* 139:2102-2110
38. Nolan EM, Donepudi M, VanWeelden K, Flanagan L and **Welsh JE** (1998) Dissociation of vitamin D_3 and anti-estrogen mediated growth regulation in MCF-7 breast cancer cells. *Mol Cell Biochem* 188:13-20
39. Flanagan L, VanWeelden K, Ammerman C, Ethier S and **Welsh JE** (1999) SUM-159PT cells: a novel estrogen independent human breast cancer model system. *Breast Cancer Res Treat* 58:193-204
40. Byrne I, Flanagan L, Tenniswood M and **Welsh JE** (2000). Identification of a hormone responsive promoter immediately upstream of exon 1c in the human vitamin D receptor gene. *Endocrinol*, 141: 2829-2836

41. Packman K, Flanagan L, Zinser G, Mitsch R, Tenniswood M and **Welsh JE** (2000) Combination treatment of MCF-7 xenografts with the vitamin D analog EB1089 and anti-estrogens. In: *In: Vitamin D Endocrine System: Structural, Biological, Genetic and Clinical Aspects.* (Norman AW, Bouillon R and Thomasett M, eds.) University of California Riverside Press, 453-460
42. Narvaez CJ and **Welsh JE** (2001) Role of mitochondria and caspases in vitamin D mediated apoptosis of breast cancer cells. *J Biol Chem*, 276:9101-9107
43. Posner G, Crawford K, Peleg S, **Welsh JE**, Romu S, Gewitz D, Gupta M, Dolan P and Kensler T. (2001) A non-calcemic sulfone version of the vitamin D_3 analog seocalcitol (EB1089):chemical synthesis, biological evaluation and potency enhancement of the anticancer drug adriamycin. *Bioorg Med Chem,* 9:2365-2371
44. Zinser GM, Packman K and **Welsh JE** (2002). Mammary gland development in vitamin D_3 receptor knockout mice. *Development* 129:3067-3076
45. Zinser GM, Sundberg, JP and **Welsh JE** (2002) Vitamin D_3 receptor ablation sensitizes skin to chemically induced carcinogenesis. *Carcinogenesis*, 23:2103-2109
46. Narvaez CJ, Byrne BM, Romu S, Valrance M and **Welsh JE** (2003) Induction of apoptosis by 1,25-dihydroxyvitamin D_3 in MCF-7 vitamin D_3-resistant variant can be sensitized by TPA. *J Steroid Biochem Mol Biol*, 84:199-209
47. Zinser GM, McEleney K and **Welsh JE** (2003) Characterization of mammary tumor cell lines from wild type and vitamin D receptor knockout mice. *Mol Cell Endocrinol*, 200:67-80
48. Weitzke JA and **Welsh JE** (2003) Phytoestrogen regulation of a vitamin D_3 receptor promoter and 1,25-dihydroxyvitamin D_3 actions in human breast cancer cells. *J Steroid Biochem Mol Biol*, 84:149-157
49. Flanagan L, Packman K, Juba B, O'Neill S, Tenniswood M and **Welsh JE** (2003) Efficacy of vitamin D compounds to modulate estrogen receptor negative breast cancer growth and invasion. *J Steroid Biochem Mol Biol*, 84:181-192
50. Froicu M, Weaver V, Wynn T, McDowell MA, **Welsh JE** and Cantorna M (2003) A crucial role for the vitamin D receptor in experimental inflammatory bowel diseases. *Mol Endocrinol*, 17: 2386-2392
51. Valrance M and **Welsh JE** (2004) Breast cancer cell regulation by high-dose vitamin D compounds in the absence of nuclear vitamin D receptor. *J Steroid Biochem Mol Biol*, 89-90, 221-225
52. Zinser GM and **Welsh JE** (2004) Effect of Vitamin D_3 receptor ablation on murine mammary gland development and tumorigenesis. *J Steroid Biochem Mol Biol*, 89-90, 433-436
53. Rao A, Coan A, **Welsh JE**, Wade WN, Koumenis C and Cramer SD (2004) Vitamin D receptor signaling through p21 is a target of genistein in human prostate cancer cells. *Cancer Res* 64:2143-2147
54. Zinser GM and **Welsh JE** (2004) Accelerated mammary gland development during pregnancy and delayed post-lactational involution in vitamin D_3 receptor null mice. *Mol Endocrinol* 18:2208-2223
55. Zinser GM and **Welsh JE** (2004) Vitamin D receptor status alters mammary gland morphology and tumorigenesis in MMTV-neu mice. *Carcinogenesis* 25:2361-2372
56. Zinser GM, Tribble E, Valrance M, Urben CM, Knutson J, Mazess RB, Strugnell S, and **Welsh JE** (2004) Anti-tumor effects of 1,24(S)-Dihydroxyvitamin D_2 in breast cancer cells and tumors, *Anticancer Res* 24:235-242
57. Zinser GM, Suckow M and **Welsh JE** (2005) VDR ablation alters carcinogen induced tumorigenesis in mammary gland, epidermis and lymphoid tissues. *J Steroid Biochem Mol Biol*, 97:153-164
58. Wietzke JA, Ward EC, Schneider J and **Welsh JE** (2005) Regulation of the human vitamin D receptor promoter in breast cancer cells is mediated through Sp1 sites. *Mol Cell Endo* 230:59-68
59. Byrne B and **Welsh JE** (2005) Altered thioredoxin subcellular localization and redox status in MCF-7 cells following 1,25-dihydroxyvitamin D3 treatment. *J Steroid Biochem Mol Biol* 97:57-64
60. Kemmis C, Salvador S, Smith K and **Welsh JE** (2006) Human mammary cells express CYP27B1 and are growth inhibited by 25-hydroxyvitamin D3. *J. Nutrition* 136:887-92
61. Rowling MR, Kemmis CM, Taffany DA and **Welsh JE**. (2006) Megalin mediated endocytosis of vitamin D binding protein correlates with 25-hydroxyvitamin D_3 actions in mammary cells. *J Nutrition* 136:2754-2759

62. Shah S, Islam M, Rizvi I, Zinser G, Valrance M, Aranda A, Moras D, Norman A, **Welsh JE**, Byers SW (2006) The Molecular Basis of Vitamin D Receptor and β-Catenin Cross Regulation. *Molecular Cell* 21:799-809
63. Mordan McCombs S, Brown T, **Welsh JE** and Tenniswood M. Dietary calcium does not affect prostate tumor progression in LPB-Tag transgenic mice. *J Steroid Biochem Mol Biol*, 103:747-751
64. Li S, Byrne B, **Welsh JE** and Palmer AF.(2007) Self-assembled poly(butadiene)-*b*-poly(ethylene oxide) polymersomes as paclitaxel carriers *Biotech Prog* 23:278-285
65. Byrne B and **Welsh JE** Identification of novel mediators of vitamin D signaling and $1,25(OH)_2D_3$ resistance in mammary cells. *J Steroid Biochem Mol Biol*, 103:703-707
66. Valrance ME, Brunet A, Acosta A and **Welsh JE**. Dissociation of growth arrest and CYP24 induction by VDR agonists in mammary cells. *J Cell Biochem*, 101:1505-1519
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 D_3 prevents hypocalcemia and osteomalacia in CYP27B1 knockout mice. *J Nutrition* 137:2608-2615.
69. Chlon TM, Taffany DA, **Welsh JE** and Rowling MJ. (2008) Retinoids Modulate Expression of the Endocytic Partners Megalin, Cubilin, and Disabled-2 and Uptake of Vitamin D-Binding Protein in Human Mammary Cells. *J Nutrition* 138:1323-1328.
70. Kemmis CM and **Welsh JE**. (2008) Mammary epithelial cell transformation is associated with deregulation of the vitamin D pathway. *J Cell Biochem*, 105:980-988
71. Narvaez CJ, Matthews D, Broun E, Chan M, and **Welsh JE** (2009) Lean phenotype and resistance to diet-induced obesity in VDR knockout mice correlates with UCP-1 induction in white adipose tissue. *Endocrinology, 150:651-661*
72. Marchionatti A, Picotto G, Narvaez CJ, Welsh JE and Tolosa de Talamoni N Antiproliferative action of menadione and $1,25(OH)_2D_3$ on breast cancer cells. *J Steroid Biochem Mol Biol, in press*
73. Costa JL, Eijk P, van de Wiel M, ten Berge D, Schmitt F, Narvaez CJ, **Welsh JE** and Ylstra B. Anti-proliferative action of Vitamin D in MCF7 breast tumor cell lines is functional with low or no Vitamin D Receptor. *Endocrine-Related Cancer*, *submitted*

INVITED REVIEWS, BOOK CHAPTERS and MULTI-MEDIA PRESENTATIONS:

1. **Welsh JE**, Weaver VM and Simboli-Campbell M (1991) Regulation of renal $25(OH)D_3$ 1α-hydroxylase:signal transduction pathways. *Biochem Cell Biol* 69:768-770
2. Tenniswood MP, Guenette RS, Lakins JS, Mooibroek M, Wong P and **Welsh JE** (1992) Active cell death in hormone dependent tissues. *Cancer Metastasis Reviews* 11:197-220
3. Tenniswood MP, Taillefer D, Lakins J, Guenette RS, Mooibroek M, Daehlin L and **Welsh JE** (1994) Control of gene expression during apoptosis in hormone dependent tissues. *In:* Apoptosis: The Molecular Basis of Cell Death, Volume II (Tomei LD and Cope FO, eds) Cold Spring Harbor Laboratory Press, pp. 283-311
4. Simboli-Campbell M and **Welsh JE** (1995) 1,25-Dihydroxyvitamin D3:coordinate regulator of active cell death and proliferation in MCF-7 breast cancer cells. *In:* Schering Foundation Workshop, Vol. 14: Workshop on Apoptosis in Hormone Dependent Cancers (Tenniswood MP and Michna H, eds) Springer Verlag, pp 181-200
5. Kiley SC, **Welsh JE**, Narvaez CJ and Jaken S (1996) Protein kinase C isozymes and substrates in mammary carcinogenesis. *J Mammary Gland Biol Neoplasia* 1:177-187
6. **Welsh JE** (1997) Vitamin D3 compounds as potential therapeutics for estrogen independent breast cancer. Invited Editorial, *Nutrition* 13:915-917
7. **Welsh JE**, VanWeelden K, Flanagan L, Byrne I, Nolan E and Narvaez CJ (1998) The role of vitamin D_3 and anti-estrogens in modulating apoptosis of breast cancer cells and tumors. *In: Subcellular Biochemistry, Vol. 28, Fat Soluble Vitamins*, Plenum Press, London
8. Narvaez CJ, Zinser G and **Welsh, JE** (2001) Functions of vitamin D_3 in mammary gland: from normal development to breast cancer. *Steroids,* 66:301-308

9. **Welsh JE**, Wietzke JA, Zinser GM, Smyczek S, Romu S, Tribble E, Welsh JC, Byrne B and Narvaez CJ (2002) Impact of the vitamin D_3 receptor on growth regulatory pathways in mammary gland and breast cancer. *J Steroid Biochem Mol Biol*, 83:85-92.
10. **Welsh JE**, Wietzke JA, Zinser GM, Byrne B, Smith K and Narvaez CJ (2003) Vitamin D_3 receptor as target for breast cancer prevention. *J Nutrition*, 133:2425S-2433S
11. Colston K and **Welsh JE** (2005) Vitamin D and Breast Cancer. In: *Vitamin D* (D. Feldman, J.W. Pike and F. Gloriuex, eds.), 2nd edition, Elsevier, Amsterdam
12. **Welsh, JE** (2004) Vitamin D and breast cancer: insights from animal models. *Am J Clin Nutrition*, 80: 1721S-1724S.
13. **Welsh JE** (2005) Vitamin D regulated pathways: impact on cell proliferation, differentiation and apoptosis. *In:* Dakshinamurti K and Zempleni J, editors, *Nutrients and Cell Signaling*. Marcel Dekker
14. **Welsh JE** (2006) Calcium and Vitamin D *In:* Go V, Heber D, Blackburn G and Milner J, editors, *Nutritional Oncology*. Elsevier
15. **Welsh JE** (2007) Vitamin D and Breast Cancer *In:* Pasqualini, J. Breast Cancer: Prognosis, Treatment and Prevention (2nd Edition)
16. **Welsh, JE** (2007) Targets of Vitamin D Receptor Signaling in Mammary Gland. *Journal of Bone and Mineral Res*
17. **Welsh, JE** (2007) Multimedia Presentation: Hormones and Breast Cancer. In Henry HL and Norman AW, co-editors, *Understanding Hormones*, Henry Stewart Talks
18. Mordan-McCombs S, Valrance M, Zinser G, Tenniswood M, **Welsh JE**. (2007) Calcium, vitamin D and the vitamin D receptor: impact on prostate and breast cancer in preclinical models. *Nutr Rev.* 65:S131-133
19. **Welsh, JE.** (2007) Vitamin D and prevention of breast cancer. *Acta Pharmacol Sin*. 28:1373-1382
20. Zinser GM, Narvaez CJ and **Welsh JE** The Vitamin D Signaling Pathway in Mammary Gland and Breast Cancer. In: "Vitamin D and Cancer." Trump D and Johnson C, Eds. Springer, NY, *in press*