

CURRICULUM VITAE
University of Pittsburgh School of Medicine

BIOGRAPHICAL

Name: Beth R. Pflug, Ph.D.

Citizenship: U.S.A.

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EDUCATION and TRAINING

UNDERGRADUATE:

<i>Dates Attended</i>	<i>Name and Location of Institution</i>	<i>Degree Received and Year</i>	<i>Major Subject</i>
1982-1987	Michigan Technological University	B.S. 1987	Biology

GRADUATE:

<i>Dates Attended</i>	<i>Name and Location of Institution</i>	<i>Degree Received and Year</i>	<i>Major Professor and Discipline</i>
1991-1997	Georgetown University School of Medicine, Washington, DC	Ph.D. 1997	Dan Djakiew, Ph.D. Cell Biology

POST-GRADUATE:

<i>Dates Attended</i>	<i>Name and Location of Institution</i>	<i>Name of Program Director and Discipline</i>
1997-1998	Georgetown University School of Medicine, Washington, DC	Italo Mocchetti, Ph.D. Postdoctoral Fellowship Department of Cell Biology
1998-2000	Johns Hopkins University School of Medicine, Baltimore, MD	Joel B. Nelson, M.D. Postdoctoral Fellowship Department of Urology

APPOINTMENTS AND POSITIONS

ACADEMIC:

<i>Years Inclusive</i>	<i>Name and Location of Institution or Organization</i>	<i>Title</i>
2000-Present	Department of Urology University of Pittsburgh Pittsburgh, Pennsylvania	Assistant Professor
2000-Present	Prostate and Urologic Cancer Program University of Pittsburgh Cancer Institute	Member
2001-Present	Graduate Faculty University of Pittsburgh School of Medicine	Member
2001-Present	Cellular and Molecular Pathology Graduate Program University of Pittsburgh School of Medicine	Member

HONORS

<i>Title of Award</i>	<i>Year</i>
American Association for Cancer Research Travel Grant	1999
CaPCure Research Award "Endothelin Axis Blockade". Co-investigator	2000
American Foundation for Urologic Research Scholar Award "Regulation of Fatty Acid Synthesis in Prostate Cancer" P.I. Pflug	2001

TEACHING EXPERIENCE

Microscopic Anatomy teaching assistant in the Department of Cell Biology at the Georgetown University Medical School, Washington, DC. (200 Medical Students)	1993-1994
Cancer Biology and Therapeutics graduate course lecture. University of Pittsburgh The Departments of Pathology & Pharmacology (15-20 graduate students/yr)	2002-2005

Trainees:

<u>TRAINEE</u>	<u>POSITION</u>	<u>TRAINING PERIOD</u>	<u>CURRENT POSITION</u>
Georgi Guruli, M.D.	Research fellow	2000-2003	Assistant Professor of Urology, UMDNJ
Stefana Pecher, M.D.	Postdoctoral fellow	2000-2002	Internal Medicine Resident, Philadelphia, PA
Shivani Reddy, B.S.	Summer research internship	2002	Medical student, Erie Medical College, Erie, PA
Glenn Cannon Jr., M.D.	Resident research rotation	2002	Urology Resident, UPMC, Pittsburgh, PA
Geeta Godara, M.D.	Postdoctoral fellow	2003-2004	Internal Medicine Resident, UPMC, Pittsburgh, PA
Grant Cannon	Undergraduate summer student	2003	Research Associate, Dept. of Urology, Johns Hopkins Univ
Maria Santabene	Undergraduate summer student	2004	Allegheny College 4 th year undergraduate student
Uzma Shah, Ph.D.	Postdoctoral fellow	2005-present	Dept. of Urology, University of Pittsburgh
Ardavan Akhavan, BS	Medical student M3	2005-present	Dept. of Urology, University of Pittsburgh
Pamela Soda	Undergraduate summer student	2005	University of Pittsburgh 4 th year undergraduate student
Arlee Fafalios, BS	Graduate student research rotation	2005	University of Pittsburgh, 1 st year graduate student

Ph.D. Thesis Committees

1. Cathy Thomas, BS- 2001-2004 Graduate student thesis committee, Ph.D. awarded 12/04 University of Pittsburgh, School of Public Health; present position: postdoctoral fellow, University of Pittsburgh, Department of Urology
2. Julie Myers, BS-2003-2005. Graduate student thesis committee University of Pittsburgh, Dept. Pharmacology, Ph.D. awarded 5/05: present position: postdoctoral fellow University of Pittsburgh, Department of Biomedical Engineering
3. Jason D'Antonio, BS.2003-present. Graduate student mentor. University of Pittsburgh, Dept. of Urology
4. Amanda Boehm, BS 2004-present. Graduate student thesis committee University of Pittsburgh Dept. of Pathology
5. Kathy Bright, BS 2004-present. Graduate student thesis committee University of Pittsburgh, Dept. of Urology

COMMITTEES/SERVICE

Urology Journal Club Director	2001-present
Member, Radiation Safety Committee, UPMC Shadyside	2004-present
Member, UPMC Shadyside Animal Facility Committee	2005-present

AD-HOC REVIEWER

	<u>years</u>
1. Prostate	2000-present
2. Molecular Pharmacology and Therapeutics	2001-present
3. Cancer Research	2003-present
4. Clinical Cancer Research	2004-present
5. J. Urology	2002-present
6. International Journal of Cancer	2004-present
7. Journal of Cellular Biochemistry	2003-present
8. British Journal of Cancer	2005-present

PROFESSIONAL SOCIETIES

American Association for Cancer Research	1998-present
Society for Basic Urologic Research	1999-present
AACR Women in Cancer Research	2005-present

PATENT APPLICATIONS

Patent No. 60/513,729 “Endothelin Axis and the Action of Dendritic Cells” Georgi Guruli, Beth R. Pflug, Michael R. Shurin and Joel B. Nelson

PUBLICATIONS

1. Djakiew D, **Pflug B** and Onoda M (1991) Stromal-Epithelial Paracrine Interactions in the Neoplastic Prostate. Workshop on the Underlying Molecular, Cellular and Immunological Factors in Age-Related Cancers p.1-13.
2. Djakiew D, Delsite R, **Pflug B**, Wrathall J, Lynch J and Onoda M (1991) Regulation of Growth by a Nerve Growth Factor-like Protein which Modulates Paracrine Interactions Between a Neoplastic Epithelial Cell Line and Stromal Cells of the Human Prostate. *Cancer Research* 51:3304-3310.
3. Onoda M, **Pflug B** and Djakiew D (1991) Germ Cell Mitogenic Activity is Associated with Nerve Growth Factor-like Protein(s). *Journal of Cellular Physiology* 149:536-543.
4. Djakiew D, **Pflug B**, Delsite R, Lynch J and Onoda M (1992) Density Dependent Polarized Secretion of a Prostatic Epithelial Cell Line. *The Prostate* 20:15-27.
5. **Pflug B**, Onoda M, Lynch J and Djakiew D (1992) Reduced Expression of the Low Affinity Nerve Growth Factor Receptor in Benign and Malignant Human Prostate Tissue and Loss of Expression in Four Human Metastatic Prostate Tumor Cell Lines. *Cancer Research* 52:5403-5406.

6. Djakiew D, **Pflug B** and Onoda M (1993) Stromal-epithelial paracrine interactions in the neoplastic rat and human prostate. *Adv Exp Med Biol* 330: 185-202.
7. Djakiew D, **Pflug BR**, Delsite R, Onoda M, Lynch JH, Arand G and Thompson EW (1993) Chemotaxis and Chemokinesis of Human Prostate Tumor Cell Lines in Response to Human Prostate Stromal Cell Secretory Proteins Containing a Nerve Growth Factor-like Protein. *Cancer Research* 53:1416-1420.
8. Djakiew D, **Pflug B**, Dionne C and Onoda M (1994) Postnatal Expression of Nerve Growth Factor Receptors in the Rat Testis. *Biology of Reproduction* 51:214-221.
9. **Pflug B**, Dionne C, Kaplan D, Lynch J and Djakiew D (1995) Expression of a Trk High Affinity Nerve Growth Factor Receptor in the Human Prostate. *Endocrinology* 136:262-268.
10. Djakiew D, Delsite D, Dalal R and **Pflug B** (1996) Role of the Low-Affinity Nerve Growth Factor Receptor and the High-Affinity Trk Nerve Growth Factor Receptor in Human Prostate Carcinogenesis. *Radiation Oncology Investigations* 3:333-339.
11. Dicou E, **Pflug B**, Magazin M, Lehy T, Djakiew D, Ferrara P, Nerriere V and Harvie D (1997) Two Peptides Derived from the Nerve Growth Factor Precursor are Biologically Active. *Journal of Cell Biology* 136:389-398.
12. Perez M, Regan T, **Pflug B**, Lynch J and Djakiew D (1997) Loss of the Low Affinity Nerve Growth Factor Receptor during Malignant Transformation of the Human Prostate. *The Prostate* 30: 274-279.
13. **Pflug B** and Djakiew D (1998) Expression of p75NTR in a Human Prostate Epithelial Tumor Cell Line Reduces NGF-Induced Cell Growth by Activation of Programmed Cell Death. *Molecular Carcinogenesis* 23:106-114.
14. **Pflug BR**, Reiter RE and Nelson JB (1999) Caveolin Expression is Decreased Following Androgen Deprivation in Human Prostate Cancer Cell Lines. *The Prostate* 40:269-273.
15. Brandoli C, Shi B, **Pflug B**, Andrews P, Wrathall JR and Mocchetti I. (2001) Dexamtheasone Reduces the Expression of p75 Neurotrophin Receptor and Apoptosis in Contused Spinal Cord. *Molecular Brain Research* 87:61-70.
16. Ackerstaff E, **Pflug BR**, Nelson JB and Bhujwalla ZM. (2001) Detection of Increased Choline Complunds with Proton Nuclear Magnetic Resonance Spectroscopy Subsequent to Malignant Transformation of Human Prostatic Epithelial Cells. *Cancer Research* 61:3599-3603.
17. Pizer ES, **Pflug BR**, Bova GS, Han WF, Udan MS and Nelson JB. (2001) Increased Fatty Acid Synthase as a Therapeutic Target in Androgen Independent Prostate Cancer Progression. *The Prostate* 47:102-110.
18. **Pflug BR**, Colangelo AM, Tornatore C and Mocchetti I. (2001) TrkA Induces Differentiation but not Apoptosis in C6-2B Glioma Cells. *J Neurosci Res* 64:636-645.

19. DeMiguel F, Lee SO, Lou W, Xiao X, **Pflug BR**, Nelson JB and Gao AC. (2002) Stat3 enhances the growth of LNCaP human prostate cancer cells in intact and castrated male nude mice. *The Prostate* 52:1-7.
20. **Pflug BR**, Pecher SM, Brink AW, Nelson JB and Foster BA. (2003) Increased fatty acid synthase expression and activity during progression of prostate cancer in the TRAMP model. *The Prostate* 57:245-254.
21. Pecher S, **Pflug BR**, Brink AWK and Nelson JB. (2004) Endothelin A Receptor Blockade does not Affect PSA Secretion in Prostate Cancer Cell Lines *The Prostate* 60:175-177.
22. Guruli G, **Pflug BR**, Pecher S, Makarenkova V, Shurin MR and Nelson JB. (2004) Function and survival of dendritic cells depend on endothelin-1 and endothelin receptor autocrine loops. *Blood* .104:2107-2115.
23. Ogawa T, Kamo I, **Pflug BR**, Nelson JB, Seki S, Igawa Y, Nishizawa O, De Groat WC, Chancellor MB and Yoshimura N. (2004) Differential roles of peripheral and spinal endothelin receptors in the micturition reflex in rats. *J Urology* 172:1533-1537.
24. Godara G, Cannon G, Cannon G, Jr., Nelson JB and **Pflug BR**. (2005) Role of endothelin axis in progression to aggressive phenotype of prostate adenocarcinoma. *The Prostate* 65:27-34.
25. Nelson JB, Udan MS, Guruli G and **Pflug BR**. (2005) Endothelin-1 inhibits apoptosis in prostate cancer. *Neoplasia* 7:631-637.
26. **Pflug BR**, Zheng H, Udan MS, Marshall FF, Brooks JD and Nelson JB. (2005) Endothelin-1 promotes cell survival in renal cell carcinoma through the ET_A receptor. *Carcinogenesis* (communicated).
27. Thomas CA, Grant S, **Pflug BR**, Getzenberg RH, Day BW (2005) Z-1,1-Dichloro-2-(4-methoxyphenyl)-3-phenylcyclopropane induces concentration-dependent growth inhibition, apoptosis and coordinate regulation of apoptotic genes in TRAMP cells. *Neoplasia* (communicated).
28. Shah US, Dhir R, Gollin S, Lewis D, Chandran UR, Acquafondata M and **Pflug BR**. (2005) Fatty acid synthase gene expression amplification in prostate adenocarcinoma. *Human Pathology* (communicated).

ABSTRACTS/PRESENTATIONS

1. Daniel Djakiew, **Beth Pflug**, Robert Delsite and Makoto Onoda (1991) Paracrine regulation of human prostatic growth between neoplastic epithelial cells and stromal cells. 16th Annual Meeting of American Society of Andrology (Montreal, Canada)
2. Robert Delsite, **Beth Pflug**, Jean Wrathall, John Lynch, Makoto Onoda and Daniel Djakiew (1991) Nerve growth factor (NGF)-like proteins are involved in paracrine growth regulation of the prostate. 73rd Annual Meeting of the Endocrine Society (Washington, DC)

3. Daniel Djakiew, **Beth Pflug** and Makoto Onoda (1991) Germ cells express a nerve growth factor-like mitogen. The 1991 Annual Meeting of the Society for the Study of Fertility (Oxford, England)
4. Makoto Onoda, **Beth Pflug** and Daniel Djakiew (1991) Mitogenic activity and nerve growth factor-like protein(s) in germ cell protein. 64th Annual Meeting of The Japanese Biochemical Society (Tokyo, Japan)
5. Daniel Djakiew, **Beth Pflug**, John Lynch, Gloria Arand and Erik Thompson (1992) Prostatic stromal cells secrete a nerve growth factor-like paracrine factor which is chemotactic for a neoplastic epithelial cell line. 87th Annual Meeting of the American Urological Association (Lake Tahoe, CA)
6. **Beth Pflug**, Christopher Graham, John Lynch and Daniel Djakiew (1992) Identification of the type II NGF receptor in the human prostate. 17th Annual Meeting of American Society of Andrology (Bethesda, MD)
7. **Beth Pflug**, John Lynch and Daniel Djakiew (1992) Loss of the p75 NGF receptor in benign and malignant prostate tissues. International Symposium on Biology of Prostate Growth (Bethesda, MD)
8. Daniel Djakiew, **Beth Pflug**, John H. Lynch, Gloria Arand and Erik Thompson (1993) Chemotaxis and chemokinesis of human prostate tumor cell lines in response to human prostate stromal cell secretory proteins containing a nerve growth factor-like protein. 88th Annual Meeting of American Urological Association (San Antonio, TX)
9. Kevin Hackett, **Beth Pflug**, John H. Lynch and Daniel Djakiew (1993) Characterization of human prostate stroma and epithelium in adenocarcinoma, benign prostatic hyperplasia and normal prostate tissue. 51st Annual Meeting of the Mid-Atlantic Section of the American Urological Association (Palm Beach, FL)
10. **Beth Pflug**, John Lynch and Daniel Djakiew (1993) A high affinity Trk-related nerve growth factor receptor is present in human prostate tissues and cell lines. 18th Annual Meeting of the American Society of Andrology (Tampa, FL)
11. **Beth Pflug** (1993) Expression of neurotrophin receptors in the human prostate. 6th Annual Mid-Atlantic Reproductive Biology Meeting (Baltimore, MD)
12. Daniel Djakiew, **Beth Pflug**, Robert Delsite, John Lynch and Craig Dionne (1994) Identification of a *trk* high affinity nerve growth factor (NGF) receptor protooncogene product in the human prostate. 89th American Urological Association (San Francisco, CA)
13. **Beth R. Pflug**, Craig Dionne, John H. Lynch and Daniel Djakiew (1994) Evidence of a high affinity neurotrophin receptor in human prostate epithelia and stimulation of tyrosine phosphorylation of the receptor by human prostate stromal protein. Keystone Symposia on Molecular and Cellular Biology (Lake Tahoe, CA)
14. Daniel Djakiew, **Beth Pflug**, Robert Delsite and Craig Dionne (1995) Characterization of the low affinity nerve growth factor receptor (p75) and the high affinity nerve growth factor receptor (Trk) in human prostate cancer. Molecular Biology of Cancer: Implications for Prevention and Therapy. (Maui, HI)
15. **Beth R. Pflug** and Daniel Djakiew (1996) Expression of the low affinity nerve growth factor receptor in prostate epithelial cells negatively regulates nerve growth factor-mediated growth via induction of apoptosis. 87th Annual Meeting of the American Association for Cancer Research (Washington, DC)

16. **Beth R. Pflug** and Daniel Djakiew (1996) Low affinity neurotrophin receptor expression in prostate epithelial tumor cells modulates NGF-induced growth. 10th International Congress of Endocrinology (San Francisco, CA)
17. **Beth Pflug**, Anna Maria Colangelo, Peter Johnson and Italo Mocchetti (1998) TrkA expression in C6-2B glioma cells reduces cell growth through differentiation and apoptosis. 89th Annual Meeting of the American Association for Cancer Research (New Orleans, LA)
18. Scott Krygier, **Beth Pflug** and Daniel Djakiew (1998) Investigation of molecular mechanisms of p75NTR regulation and expression in the human prostate. 1998 International Symposium on Biology of Prostate Growth (Bethesda, MD)
19. **Beth Pflug** and Joel Nelson (1998) Caveolin expression is decreased in androgen deprived clones of LNCaP. American Association for Cancer Research (Palm Springs, CA)
20. Hong Zheng, **Beth R. Pflug**, Fray F. Marshall and Joel B. Nelson (1999) Frequent promoter methylation of the endothelin B receptor gene EDNRB in human renal tumors. The American Urological Association Annual Meeting (Dallas, TX)
21. Sarmela Thevarajah, Michael S. Udan, Hong Zheng, **Beth R. Pflug** and Joel B. Nelson (1999) Endothelin axis expression in renal cell carcinoma. The American Urological Association Annual Meeting (Dallas, TX)
22. **Beth R. Pflug**, Michael S. Udan and Joel B. Nelson (2000) Endothelin-1 promotes survival in prostate and renal carcinoma cell lines by inhibition of apoptosis involving the Akt pathway. 91st Annual Meeting of the American Association for Cancer Research (San Francisco, CA)
23. Michael S. Udan, **Beth R. Pflug** and Joel B. Nelson (2000) Endothelin-1 promotes survival of prostate cancer cells through activation of Akt. The American Urological Association Annual Meeting (Atlanta, GA)
24. **Beth R. Pflug**, Michael S. Udan, Hong Zheng and Joel B. Nelson (2000) Endothelin-1 inhibits paclitaxel-induced apoptosis in renal cell carcinoma through Akt activation. The American Urological Association Annual Meeting (Atlanta, GA)
25. Ellen Ackerstaff, **Beth R. Pflug**, Joel B. Nelson and Zaver M Bhujwala (2000) Increased lactate characterizes malignant transformation in human prostate cancer cells. Annual Meeting of the society for Nuclear Resonance Imaging (Denver, CO)
26. **Beth R. Pflug**, Michael S. Udan and Joel B. Nelson (2001) Induction of apoptosis through the endothelin B receptor in prostate cancer cells. American Association for Cancer Research Annual Meeting (New Orleans, LA)
27. **Beth R. Pflug**, Michael S. Udan and Joel B. Nelson (2001) Endothelin B receptor mediates apoptosis in prostate cancer cells. American Urologic Association Annual Meeting (Anaheim, CA)
28. **Beth R. Pflug**, Joel B. Nelson, Alisa W. Brink, Stefana M. Pecher, Marie Acquafondata and Barbara A. Foster (2001) Fatty acid synthase is upregulated during prostate cancer progression in TRAMP. American Association for Cancer Research: New Discoveries in Prostate Cancer Biology and Treatment (Naples, FL)
29. **Beth R. Pflug**. (2002) Dysregulation of fatty acid synthase in the progression of prostate cancer: Early Events in Prostate Carcinogenesis. (Prouts Neck ME)

30. Georgi Pirtskhalaishivili, **Beth R. Pflug**, Michael M. Shurin and Joel B. Nelson. (2003) Endothelin-1 in dendritic cell maturation. AACR 94th Annual Meeting, (Washington, DC).
31. **Beth R. Pflug**, Stefana M. Pecher, Alisa K. Brink and Joel B. Nelson. (2003) “Dysregulation of the fatty acid metabolic pathway in the progression of prostate cancer” AACR 94th annual meeting (Washington DC).
32. Geeta Godara, Grant W. Cannon, Glenn M. Cannon Jr., Joel B. Nelson and **Beth R. Pflug**. (2003) Expression of endothelin receptors in the progression to the aggressive phenotype of prostate adenocarcinoma. University of Pittsburgh, Science 2003 (Pittsburgh, PA)
33. Geeta Godara, Grant W. Cannon, Glenn M. Cannon Jr., Joel B. Nelson and **Beth R. Pflug**. (2004) Expression of endothelin receptors in the progression to the aggressive phenotype of prostate adenocarcinoma. AACR 95th annual meeting, (Orlando, FL)
34. Jason M. D’Antonio, Geeta Godara, Joel B. Nelson and **Beth R. Pflug**. (2004) The role of the endothelin axis in androgen ablation and progression to advanced prostate cancer. Society for Basic Urologic Research annual meeting, (Savannah GA).
35. Geeta Godara, Stefana Pecher, **Beth R. Pflug**, Drazen M. Jukic and Joel B. Nelson. (2005) Identifying prostate cancer patients who will benefit from endothelin receptor antagonist therapy. AUA annual meeting (San Antonio, TX)
36. Jason D’Antonio, Geeta Godara, Joel B. Nelson, **Beth R. Pflug**. (2005) Role of the endothelin axis in the progression to androgen independent prostate cancer. AUA annual meeting (San Antonio, TX)
37. Uzma S. Shah, Rajiv Dhir and **Beth R. Pflug**. (2005) Biological and clinical significance of fatty acid synthase overexpression in prostate cancer. Prostate Cancer : Road Map to the Future meeting (Niagara Falls, NY)

1. Grant Support

Active

<i>Grant Number (funded)</i>	<i>Grant Title</i>	<i>Role in Project & Percentage of Effort</i>	<i>Years Inclusive</i>	<i>Source Amount</i>
1RO1 CA095239 (NCI)	Fatty acid synthase in prostate tumorigenesis	Principal Investigator 30% effort	2/1/04-1/31/08	\$974,160 total
2U01CA085067 (NCI)	EDRN Collaborative Studies	Co-Investigator 10% effort	4/1/05-3/31/06	\$118,000 total subact
Abbott Laboratories	Endothelin axis in prostate adenocarcinoma	Principal Investigator 50% effort	8/1/04-7/31/06	\$400,000 total
Rheogene	Androgen receptor expression in prostate tumor cells	Principal Investigator 5% effort	1/1/05-12/31/05	\$69,000 total

2. Completed Support

<i>Grant Number (funded)</i>	<i>Grant Title</i>	<i>Role in Project & Percentage of Effort</i>	<i>Years Inclusive</i>	<i>Source amount</i>
CaPCURE	Endothelin axis blockade	Co-Investigator 10% effort	1/1/00-12/31/03	\$150,000 total
CMRF	Regulation of gene expression by chronic androgen deprivation in prostate cancer cell lines	Principal Investigator 10% effort	1/1/01-12/31/03	\$10,000 total
UPCI	Role of FAS in prostate development and tumorigenesis	Principal Investigator 10% effort	2/1/01-1/31/03	\$15,000 total
IRG60-002-40 (American Cancer Society)	Fatty acid synthase: A novel target for advanced prostate cancer	Principal Investigator 15% effort	7/1/00-6/30/02	\$25,000 total