

COLLEGE OF MEDICINE CURRICULUM VITAE

Sudershan K Bhatia

April 2011

I. EDUCATIONAL AND PROFESSIONAL HISTORY

A. List of Institutions Attended:

Higher Education

1973-1978 MD (MBBS) - MLN Medical College Allahabad, UP, India

1985-1986 MPH - Johns Hopkins University Baltimore, MD

1986-1992 PhD - Johns Hopkins University Baltimore, MD

Postgraduate Medical Education

1978-1979 Internship - SRN Hospital, Allahabad, India

1979-1982 Post-graduate training - Pathology and Orthopedics, SRN Hospital, Allahabad, India

1998-1999 Transitional Rotating Internship – University of Iowa Hospitals and Clinics, Iowa City, IA

1999-2003 Residency – Radiation Oncology, University of Iowa, Iowa City, IA

2000-2001 Chief Resident – Radiation Oncology, University of Iowa, Iowa City, IA

2003-2004 Fellowship – Brachytherapy, Memorial Sloan-Kettering Cancer Center, New York, NY

Board Certification

2004 American Board of Radiology [Radiation Oncology]

Licensure

New York
Iowa

B. Professional and academic positions held:

1983-1985 Research Affiliate- Roswell Park Memorial Hospital,

COLLEGE OF MEDICINE CURRICULUM VITAE

Sudershan K Bhatia

page 2

Buffalo, NY

- 1986-1993 Graduate Research Associate - Dept. of Immunology & Infectious Diseases Johns Hopkins University, Baltimore, MD
- 1992-1993 Research Associate - Kyle Metabolic Research Labs & Endo. Service Walter Reed Army Medical Center, Washington, DC
- 1993-1996 Postdoctoral Associate – Department of Pathology, University of Iowa, Iowa City, IA
- 1996-1998 Research fellow - Division of Hematology and Oncology, College of Medicine, University of Iowa, Iowa City, IA
- 2005 Attending Radiation Oncologist, Newfoundland Cancer Treatment and Research Foundation, St. John's, Newfoundland, Canada
- 2005-present Assistant professor – Radiation Oncology, University of Iowa Hospitals and Clinics, Iowa City, IA

C. Honors, Awards, Recognitions, Outstanding Achievements (least to most recent)

- 1988-1989 NIH Training Grant – Immunotoxicology (NIEHS)
- 1990-1991 NIH Training Grant – Immunotoxicology (NIEHS)
- 1996-1998 NIH Training Grant – Molecular Hematology & Cell Biology
- 2008 – 2009 Teacher of the year Award (ARRO)
- 2009 – 2010 Educator of the year award (ARRO)
- 2009 - 2010 LINCC fellowship translation research grant

II. TEACHING

A. Teaching assignments on semester by semester basis

- Fall 2005 –present Resident Mentoring, Department of Radiation Oncology, University of Iowa, Iowa City IA
- Fall 2007 Facilitator, Physical Exam Skills for 2nd year medical students, University of Iowa, Iowa City IA
- Fall 2008 Facilitator, Physical Exam Skills for 2nd year medical students, University of Iowa, Iowa City IA
- Fall 2009-2011 Lecture in Biomedical engineering Senior research design course
- Spring 2010 Facilitator, Physical Exam Skills for 2nd year Medical students
- Spring 2011 Clinician mentor, FCP IV

COLLEGE OF MEDICINE CURRICULUM VITAE

Sudershan K Bhatia

page 3

B. Students supervised

Radiation Oncology Residents 2005-present

Terese Howes; 12/05 – 7/06; passed written 2006; passed oral 2007

Reena Pramanik; 12/05 – 7/06;

Joel Simmons; 12/05 – 6/07; passed written 2007

David Mattson; 12/05 – 6/08; passed written 2008

Casey Duncan; 12/05 – 2009; passed written 2008

Anna Olson; 7/06 – 6/10; graduated

Samuel Andrews; 7/06 – 6/10; graduated

Joni Buechler-Price; 7/07 – present

Wenqing Sun; 7/07 – present

Charles Murphy 7/08 – present

William Rockey 7/08 – present

Bryan Allen 7/09 – present

Graduate Student

Robin Beining, PhD thesis advisory committee 2009 - present

C. Other contributions to institutional programs

1981-1982 Teacher of Anatomy, Physiology and Sports Medicine, State College of Physical Education for Women, Allahabad, India

1982 Medical Officer, Sports Medicine, IX Asian Games, Delhi, India

III. SCHOLARSHIP

A. Publications or creative works (least to most recent)

Peer reviewed publications

1. Shukla HS, **Bhatia SK**, Naitrani YP, Das P, Gupta SC. Peritoneal biopsy for diagnosis of abdominal tuberculosis. *Postgrad Med J.* 58(678):226-8, 1982.
2. Chopra RK, Carroll MP, May WS, **Bhatia SK**, Margolick JB, Nagel JE, Adler WH. Four interleukin-2 surface binding proteins detected in rat spleen cells. *Immunology.* 77(3):338-44, 1992.
3. Nagy EV, Morris JC, Burch HB, **Bhatia SK**, Salata K, Burman KD. Thyrotropin receptor T cell epitopes in autoimmune thyroid disease. *Clin Immunol Immunopathol.* 75(2):117-24, 1995.
4. **Bhatia SK**, Tygrett LT, Grabstein KH, Waldschmidt TJ. The effect of in vivo IL-7 deprivation on T cell maturation. *J Exp Med.* 181(4):1399-409, 1995.

5. Erickson LD, Tygrett LT, **Bhatia SK**, Grabstein KH, Waldschmidt TJ. Differential expression of CD22 (Lyb8) on murine B cells. *Int Immunol.* 8(7):1121-9, 1996.
6. **Bhatia SK**, Rose NR, Schofield B, Lafond-Walker A, Kuppers RC. Influence of diet on the induction of experimental autoimmune thyroid disease. *Proc Soc Exp Biol Med.* 213(3):294-300, 1996.
7. Rijhsinghani AG, **Bhatia SK**, Tygrett LT, Waldschmidt TJ. Effect of pregnancy on thymic T cell development. *Am J Reprod Immunol.* 35(6):523-8, 1999.
8. Rijhsinghani AG, Thompson K, **Bhatia SK**, Waldschmidt TJ. Estrogen blocks early T cell development in the thymus. *Am J Reprod Immunol.* 36(5):269-77, 1996.
9. Rijhsinghani AG, Thompson K, Tygrette L, **Bhatia SK**. Inhibition of interleukin-10 during pregnancy results in neonatal growth retardation. *Am J Reprod Immunol.* 37(3):232-5, 1997.
10. Rijhsinghani A, **Bhatia SK**, Kantamneni L, Schlueter A, Waldschmidt TJ. Estrogen inhibits fetal thymocyte development in vitro. *Am J Reprod Immunol.* 37(5):384-90, 1997.
11. Liu HM, Newbrough SE, Bhatia SK, Dahle CE, Krieg AM, Weiner GJ. Immunostimulatory CpG oligodeoxynucleotides enhance the immune response to vaccine strategies involving granulocyte-macrophage colony-stimulating factor. *Blood.* 92(10):3730-6, 1998.
12. Warren TL, **Bhatia SK**, Acosta AM, Dahle CE, Ratliff TL, Krieg AM, Weiner GJ. APC stimulated by CpG oligodeoxynucleotide enhance activation of MHC class I-restricted T cells. *J Immunol* 165(11):6244-51, 2000.
13. Schlueter AJ, **Bhatia SK**, Li X, Tygrett LT, Yamashita Y, de Vries P, Waldschmidt TJ. Delineation among eight major hematopoietic subsets in murine bone marrow using a two-color flow cytometric technique. *Cytometry* 43(4):297-307, 2001.
14. **Bhatia SK**, Paulino AC, Buatti JM, Mayr NA and Wen BC. Curative radiation therapy for primary orbital lymphoma. *Int J Radiat Oncol Biol Phys.* 54(3):818-23, 2002.
15. Narayana A, **Bhatia S**, Souweidane M, Khakoo Y, Zaider M. (32) P radioisotope therapy for recurrent pilocytic astrocytoma. *Brachytherapy* 4(2):171-3, 2005.
16. Yamada Y, **Bhatia S**, Zaider M, Cohen G, Donat M, Eastham J, Rabbani F, Schupak K, Lee L, Lee J, Mueller B and Zelefsky MJ. Favorable clinical outcomes of three dimensional computer optimized inverse high dose rate prostate brachytherapy in the management of localized prostate cancer. *Brachytherapy* 5(3): 157-64, 2006.
17. Bylund KC, Bayouth JE, Smith MC, Hass C, **Bhatia SK**, Buatti JM. Analysis of interfraction prostate motion using megavoltage cone beam CT. *Int J Radiat Oncol Biol Phys.* 72(3):949-56, 2008.
18. Han D, Bayouth JE, **Bhatia SK**, Sonka M, Wu Xiaodong. Characterization and Identification of Spatial Artifacts during 4D-CT Imaging. *Medical Physics.* In press 2011.
19. Anderson C, Jacobson G, **Bhatia S**, Buatti JM. Book Review: Atlas of Diagnostic Oncology (4th edition) Edited: Arthur T. Skarin. Accepted April 2011. *International Journal of Radiation Oncology, Biology, Physics.*

Abstracts

1. Bylund KC, Bhatia SK, Smith MC, Buechler-Price JL, Buatti JM, Bayouth JE, Hass AC, "Interobserver Variation in Megavoltage Cone Beam CT (MV CBCT) Based Corrections in Head and Neck Image Guided Radiotherapy. Accepted for presentation at 2008 American Radium Society Annual Meeting, Laguna Niguel, CA. May 2008.
2. Monroe W, Kim Y, Christensen G, Wu X, Bayouth J, Bhatia S, McGuire S, Siochi RAC, Waldron T. Using small-deformation linear-elastic registration to quantifying ventilation-competent lung imaging from clinical 4DCT datasets: Toward selective avoidance IMRT for locally advanced non-small-cell lung cancer. 2008 American Association of Physicists in Medicine National Meeting, July 27-31, Houston, TX.
3. Kim Y, Muruganandham M, Bayouth JE, Modrick JM, Bhatia SK, Jacobson GM. Evaluation of 3 Tesla MR image distortion and artifacts in a titanium applicator presence: Toward 3T MRI guided HDR brachytherapy for cervical cancer. 2008 American Association of Physicists in Medicine National Meeting, July 27-31, Houston, TX.
4. Kim Y, Modrick JM, Bayouth JE, Pennington EC, Bhatia SK, Jacobson GM. Is a volume-based HDR brachytherapy optimization algorithm comparable to a classic line-based one?: Toward tumor-volume adaptive brachytherapy for cervical cancer by 3T MRI guidance. 2008 American Association of Physicists in Medicine National Meeting, July 27-31, Houston, TX.
5. Siochi RAC, Kim Y, Bhatia SK. Tumor control probability (TCP) reduction in phase gated RT treatments of non-small-cell lung cancer (NSCLC) tumors with motion in excess of planned motion. ASTRO Annual Meeting, Boston, MA, Sept 21-25, 2008.
6. Kim Y, Huang Y, Bayouth JE, Flynn RT, Bhatia SK, Jacobson GM, Modrick JM. Dosimetric consequences of the prescription point H of ABS recommendation in the era of MRI guided brachytherapy for cervical cancer: Based on GYN GEC-ESTRO Recommendation of MRI Guided Brachytherapy. ASTRO Annual Meeting, Boston, MA, Sept 21-25, 2008.
7. Sun W, Kim Y, Bhatia SK, Bayouth JE, Betts V, Pelland D, Jacobson GM. Simultaneous boosting for pelvic lymph nodes and organ sparing by selective avoidance IMRT for cervical cancer. ASTRO Annual Meeting, Boston, MA, Sept 21-25, 2008.
8. Waldron TJ, Bayouth JE, Bhatia SK, Buatti JM. Use of music-based breathing training to stabilize breathing motion in respiration correlated imaging and radiation delivery. ASTRO Annual Meeting, Boston, MA, Sept 21-25, 2008.
9. Nixon E, Kim Y, Kearney W, Modrick J, Jacobson G, Bhatia S, Bayouth JE. HDR Brachytherapy Tandem and Ovoid Titanium Applicator Safety Assessment in 3T MRI. American Brachytherapy Society/GEC-ESTRO Brachytherapy World Congress, Boston, MA, 2008.
10. Kim K, Nixon E, Modrick JM, Bhatia SK, Jacobson GM. On the radiobiologic implications for intracavitary HDR brachytherapy of cervical carcinoma: Based on 3D CT imaging and GYN GEC-ESTRO Recommendations. American Brachytherapy Society/GEC-ESTRO Brachytherapy World Congress, Boston, MA, 2008.
11. Olson AK, Bhatia SK, Jacobson GM, Modrick JM, Kim Y, Siochi RAC. High dose

COLLEGE OF MEDICINE CURRICULUM VITAE

Sudershan K Bhatia

page 6

- rate brachytherapy for carcinoma of the uterine cervix: A comparison of fractionation schemes and development of acute toxicity. American Brachytherapy Society/GEC-ESTRO Brachytherapy World Congress, Boston, MA, 2008.
12. Duncan CE, Anderson K, Bhatia SK. Normal tissue sparing in the treatment of anal carcinoma: Unique challenges in the setting of HIV disease. 2009 ACRO Conference.
 13. Al Omari A, Murry DJ, Smith BJ, Clamon S, Bhatia SK, Vaena D. Genetic variability in DNA repair and clinical outcome in stage III non-small cell lung cancer (NSCLC) treated with concurrent platinum-based chemoradiation. 2009 ASCO Annual Meeting.
 14. Sun W, Bhatia SK, Zimmerman MB, Jacobson GM. F-18 fluorodeoxyglucose uptake in primary cervical cancer and regional lymph nodes predicts prognosis after radiation therapy. Presented at 2009 ARS Annual Meeting, Vancouver, B.C.
 15. Buechler-Price J, Bayouth JE, Bhatia SK. Substantial differences in tumor volume and location show that 4DCT is superior to free-breathing CT for treatment planning of lung cancer. Presented at 2009 ARS Annual Meeting, Vancouver, B.C.
 16. Dou X, Wu X, Bhatia S, Buatti J. Tumor Segmentation in CT Images Using Globally Optimal Single Surface. Presented at Annual Meeting of AAPM, Philadelphia, PA July 2010
 17. Allen B G. , Fath M A. , Simons A L., Bhatia S K. , Buatti J.M., and Spitz D.R. Enhanced Tumor Chemo-Radio-Sensitization via Ketogenic Diets. Accepted for presentation at ASTRO Annual Meeting, San Diego, Oct 2010
 18. Andrews S.D., Bhatia S, Anderson K, Murphy C, Reed A, Zimmerman M, Shiliang S, Karwal M, Bayouth J, Buatti J. Highly Effective Treatment of Hepatocellular Carcinoma with Stereotactic Radiosurgery Combined with Chemo-embolization. Accepted for presentation at ASTRO Annual Meeting, San Diego, Oct 2010
 19. Olson A, Jacobson G, Betts V, Bhatia S. Definitive Radiation Therapy for the treatment of inoperable endometrial cancer: Pelvic radiation followed by HDR brachytherapy or IMRT/conformal boost. Accepted for presentation at ASTRO Annual Meeting, San Diego, Oct 2010
 20. Kim Y, Sun W, Jacobson G, Bhatia S. The Changes of Target Volumes between External Beam Radiotherapy and Brachytherapy and between Each Fraction of MRI-Guided Brachytherapy for GYN Cancer. Accepted for presentation at ASTRO Annual Meeting, San Diego, Oct 2010
 21. Bhatia SK, Bayouth J, Muruganandam M. High Resolution MRI and PET/CT for precise contouring of gross tumor in Rectal Cancer. American Radium Society meeting May 2011 West Plam Beach, Florida
 22. AbuHejleh T, et al. Relationship of HER2 overexpression to brain metastasis in esophageal cancer patients. Submitted to ASCO

Book Chapters

COLLEGE OF MEDICINE CURRICULUM VITAE

Sudershan K Bhatia

page 7

1. Rose NR and **Bhatia SK**. Autoimmunity: Animal models of human autoimmune disease. In Bureson GR, Dean J, Munson A (eds): Modern methods in toxicology, vol. 11, New York: Wiley-Liss Publishers, 1992.
2. **Bhatia SK** and Rose NR. Autoimmunity and autoimmune disease. In Bitter EE and Bitter N (eds): Principles of medical Biology, Jai Press Inc., Greenwich CT., 1994.

B. Areas of Research Interest and Current Projects

Molecular Imaging and Targeted Therapy, Radioimmunotherapy
4-Dimensional imaging and respiratory-gated therapy
Potential Role of Ketogenic Diet for Lung and Pancreas Cancer Control

C. Published reviews of scholarship

Review of Ketogenic Diet for cancer control – in preparation for submission

D. Grants received

LINCC Research fellowship in collaboration with Dr Douglas Spitz

E. Conference presentations (Selected)

1. Influence of diet on the induction of experimental autoimmune thyroid disease in mice. American Association of Immunologists meeting. May 1992 Denver, CO
2. Thyroglobulin epitopes involved in autoimmune thyroid disease. 75th Endocrine Society Meeting, June 1993, Las Vegas, Nevada.
3. Sequence analysis of antigenic epitopes of thyroglobulin. American Thyroid Society Meeting, Nov 1993, Tampa, FL.
4. A new standard protocol for identification of murine bone marrow cell lineages. Autumn Immunology Conference, Oct 1994, Chicago, IL.
5. The effect of in-vivo IL-7 deprivation on T cell maturation. Experimental Biology meeting April 1994, Anaheim, CA.
6. In-vivo administration of anti-CD40 ligand (gp39) blocks the rejection of MHC class II disparate skin allografts. 9th International Congress of Immunology. July 1995, San Francisco, CA.
7. CpG oligodeoxynucleotides and antigen pulsed dendritic cells enhances activation of T cells. FASEB, April 1998, San Francisco, CA.
8. Curative radiation therapy for orbital lymphoma. ASTRO annual meeting. Oct. 2000, San Francisco, CA.
9. Intraluminal brachytherapy combined with external beam radiation therapy for biliary tract cancer. RSNA, Nov 2002, Chicago IL.
10. Biochemical control and tolerance of HDR brachytherapy and 3-D conformal radiotherapy for patients with clinically localized prostate cancer. American Brachytherapy Meeting, May 2004, Barcelona, Spain.
11. Four dimensional CT image-guided treatment planning improves target precision in extracranial stereotactic radiation therapy for lung tumors. RSNA, Nov 2006, Chicago IL.

COLLEGE OF MEDICINE CURRICULUM VITAE

Sudershan K Bhatia

page 8

12. Cost-efficient utilization of new technology for precise tumor targeting. American Radium Society Meeting, May 2007, Amsterdam, Netherlands.
13. New trends in radiation therapy for breast cancer. Review of the 2007 San Antonio Breast Cancer Symposium, February 2008, Iowa City, Iowa.
14. Respiratory gated stereotactic radiosurgery for lung cancer. November 2008, Amrita Institute of Medical Sciences, Kochi, Kerala, India.
15. Image guided radiation therapy for gynecologic cancers. November 2008, Meenakshi Mission Hospital and Research Center, Madurai, India.
16. Current management of Anal Cancer, Post-Graduate Education Course in Surgery, October 2009, UIHC, Iowa City, Iowa
17. Review of Radiation Techniques for Breast Cancer and Potential Side Effects. Review of the 2010 San Antonio Breast Cancer Symposium, February 2010, Iowa City, Iowa.
18. SRS versus SRT, how to decide. And Evidence based advantage of IMRT for Head and Neck Cancer. XII BRAZILIAN RADIOTHERAPY SOCIETY CONGRESS, October 20 – 23, 2010, Campinas – SP – Brazil

IV. SERVICE

A. Memberships in Professional Organizations

1999-present American Society of Therapeutic Radiology and Oncology
2005-present American Brachytherapy Society
2006-present American Society of Clinical Oncology
2006-present The Cancer and Leukemia Group B (CALGB)

Collegiate Committees

2007-2009 Continuing Medical Education Committee
2009 – present Medical Radiation Protection Committee
2009 – present Holden Comprehensive Cancer Center Committee