

## CURRICULUM VITAE

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### **Education:**

|                |   |             |
|----------------|---|-------------|
| 8/1999-6/2002  | Illinois Mathematics and Science Academy  | Aurora, IL  |
| 9/2002-6/2006  | Illinois Institute of Technology<br>Armour College of Engineering<br>B.S. in Biomedical Engineering<br><i>Summa Cum Laude</i> | Chicago, IL |
| 10/2006-6/2011 | University of Chicago<br>Pritzker School of Medicine<br>Doctor of Medicine (M.D.)   | Chicago, IL |

### **Postdoctoral Training:**

|                              |  |                   |
|------------------------------|--|-------------------|
| Internship<br>7/2011-6/2012  | University of Chicago Medical Center<br>Preliminary Medicine   | Chicago, IL       |
| Residency<br>7/2012-6/2016   | University of Chicago<br>Department of Radiation and Cellular Oncology   | Chicago, IL       |
| Externship<br>9/2015-10/2015 | Department of Radiation Oncology,<br>Memorial Sloan-Kettering Cancer Center<br>Spine radiosurgery and stereotactic body radiotherapy | New York City, NY |
| Externship<br>4/2016-5/2016  | Department of Radiation Oncology,<br>Chicago Proton Center<br>Proton radiation therapy   | Warrenville, IL   |

### **Positions and Appointments:**

|                |   |  |
|----------------|---|--|
| 7/2016-present | Assistant Professor, School of Medicine (SOM) Track<br>Dept. of Radiation and Cellular Oncology<br>University of Chicago, Chicago, IL |  |
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**Licensure and Board Certification:**

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|--------------|---|
| 2016-present | Permanent Medical License, Illinois                 |
| 2016         | ABR Radiation Oncology – Clinical Oncology (Passed) |
| 2015         | ABR Radiation Oncology – Biology (Passed)           |
| 2015         | ABR Radiation Oncology – Physics (Passed)           |

**Honors and Awards:**

|               |  |
|---------------|--|
| 2/2016        | Distinguished Biomedical Engineering Alumni Award<br>Illinois Institute of Technology  |
| 7/2015-6/2016 | Chief Resident<br>Dept. of Radiation and Cellular Oncology, University of Chicago  |
| 5/2011        | Franklin McLean Medical Student Research Award<br>Awarded to one senior for most meritorious research,<br>Pritzker School of Medicine, University of Chicago |
| 5/2011        | Senior Research Award<br>Awarded to one senior for outstanding research,<br>Dept. of Radiation and Cellular Oncology, University of Chicago                  |
| 5/2010-5/2011 | Calvin Fentress Research Fellowship<br>Pritzker School of Medicine, University of Chicago  |
| 6/2007        | NIH Summer Research Fellowship<br>Pritzker School of Medicine, University of Chicago   |
| 6/2005        | Howard Hughes Medical Institute Research Fellowship<br>University of Chicago   |
| 7/2005        | Tau Beta Pi, Winkler Scholarship   |
| 6/2002-6/2006 | Tau Beta Pi, National Engineering Honor Society Membership   |
| 9/2002-6/2006 | Heald Undergraduate Tuition Scholarship<br>Illinois Institute of Technology  |

**Scientific and Medical Societies:**

|              |  |
|--------------|--|
| 2012-present | American Society of Therapeutic Radiology and Oncology (ASTRO) |
| 2012-present | American College of Radiology (ACR)                            |

**Extramural Professional Responsibilities:**

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|--------------|---|
| 2016-present | Judge, Summer Research Program, Pritzker School of Medicine |
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### **Peer-Reviewed Publications:**

1. **Pitroda S**, Angstadt M, McCloskey MS, Cocco EF, Phan KL. Emotional experience modulates brain activity during fixation periods between tasks. Neurosci Lett. 2008 Oct 3;443(2):72-6.
2. Mauceri HJ, Beckett MA, Liang H, Sutton HG, **Pitroda S**, Galka E, Efimova E, Darga T, Khodarev NN, King CR, Posner MC, Hellman S, Kufe DW, Weichselbaum RR. Translational strategies exploiting TNF-alpha that sensitize tumors to radiation therapy. Cancer Gene Ther. 2009 Apr;16(4):373-81.
3. **Pitroda SP**, Khodarev NN, Beckett MA, Kufe DW, Weichselbaum RR. MUC1-induced alterations in a lipid metabolic gene network predict response of human breast cancers to tamoxifen treatment. Proc Natl Acad Sci U S A. 2009 Apr 7;106(14):5837-41. (\* *Issue highlight*)
4. Khodarev NN, **Pitroda SP\***, Beckett MA, MacDermed DM, Huang L, Kufe DW, Weichselbaum RR. MUC1-induced transcriptional programs associated with tumorigenesis predict outcome in breast and lung cancer. Cancer Res. 2009 Apr 1;69(7):2833-7. (\* *Co-first authorship*)
5. Efimova EV, Liang H, **Pitroda SP**, Labay E, Darga TE, Levina V, Lokshin A, Roizman B, Weichselbaum RR, Khodarev NN. Radioresistance of Stat1 over-expressing tumour cells is associated with suppressed apoptotic response to cytotoxic agents and increased IL6-IL8 signalling. Int J Radiat Biol. 2009 May;85(5):421-31.
6. Khodarev NN, Roach P, **Pitroda SP**, Golden DW, Bhayani M, Shao MY, Darga TE, Beveridge MG, Sood RF, Sutton HG, Beckett MA, Mauceri HJ, Posner MC, Weichselbaum RR. STAT1 pathway mediates amplification of metastatic potential and resistance to therapy. PLoS One. 2009 Jun 8;4(6):e5821.
7. **Pitroda SP**, Wakim BT, Sood RF, Beveridge MG, Beckett MA, MacDermed DM, Weichselbaum RR, Khodarev NN. STAT1-dependent expression of energy metabolic pathways links tumour growth and radioresistance to the Warburg effect. BMC Med. 2009 Nov 5;7:68.
8. Khodarev N, Ahmad R, Rajabi H, **Pitroda S**, Kufe T, McClary C, Joshi MD, MacDermed D, Weichselbaum R, Kufe D. Cooperativity of the MUC1 oncoprotein and STAT1 pathway in poor prognosis human breast cancer. Oncogene. 2010 Feb 11;29(6):920-9.
9. Meng Y, Mauceri HJ, Khodarev NN, Darga TE, **Pitroda SP**, Beckett MA, Kufe DW, Weichselbaum RR. Ad.Egr-TNF and local ionizing radiation suppress metastases by interferon-beta-dependent activation of antigen-specific CD8+ T cells. Mol Ther. 2010 May;18(5):912-20.
10. MacDermed DM, Khodarev NN, **Pitroda SP**, Edwards DC, Pelizzari CA, Huang L, Kufe DW, Weichselbaum RR. MUC1-associated proliferation signature predicts outcomes in lung adenocarcinoma patients. BMC Med Genomics. 2010 May 6;3:16.

11. Liauw SL, **Pitroda SP**, Eggener SE, Stadler WM, Pelizzari CA, Vannier MW, Oto A. Evaluation of the prostate bed for local recurrence after radical prostatectomy using endorectal magnetic resonance imaging. Int J Radiat Oncol Biol Phys. 2013 Feb 1;85(2):378-84.
12. Jin C, Rajabi H, **Pitroda S**, Li A, Kharbanda A, Weichselbaum R, Kufe D. Cooperative interaction between the MUC1-C oncoprotein and the Rab31 GTPase in estrogen receptor-positive breast cancer cells. PLoS One. 2012;7(7):e39432.
13. **Pitroda SP**, Zhou T, Sweis RF, Filippo M, Labay E, Beckett MA, Mauceri HJ, Liang H, Darga TE, Perakis S, Khan SA, Sutton HG, Zhang W, Khodarev NN, Garcia JG, Weichselbaum RR. Tumor endothelial inflammation predicts clinical outcome in diverse human cancers. PLoS One. 2012;7(10):e46104.
14. Widau RC, Parekh AD, Ranck MC, Golden DW, Kumar KA, Sood RF, **Pitroda SP**, Liao Z, Huang X, Darga TE, Xu D, Huang L, Andrade J, Roizman B, Weichselbaum RR, Khodarev NN. RIG-I-like receptor LGP2 protects tumor cells from ionizing radiation. Proc Natl Acad Sci U S A. 2014 Jan 28;111(4):E484-91.
15. **Pitroda SP**, Pashtan IM, Logan HL, Budke B, Darga TE, Weichselbaum RR, Connell PP. DNA repair pathway gene expression score correlates with repair proficiency and tumor sensitivity to chemotherapy. Sci Transl Med. 2014 Mar 26;6(229):229ra42.
16. Takahashi H, Jin C, Rajabi H, **Pitroda S**, Raina D, Hasegawa M, Suzuki Y, Bronson RT, Weichselbaum R, Kufe D. MUC1-C activates the TAK1 inflammatory pathway in colon cancer. Oncogene. 2015 Feb 9.
17. Uppal A, Wightman SC, Mallon S, Oshima G, **Pitroda SP**, Zhang Q, Huang X, Darga TE, Huang L, Andrade J, Liu H, Ferguson MK, Greene GL, Posner MC, Hellman S, Khodarev NN, Weichselbaum RR. 14q32-encoded microRNAs mediate an oligometastatic phenotype. Oncotarget. 2015 Feb 28;6(6):3540-52. (\* *Issue Highlight*)
18. Khodarev NN, **Pitroda SP**, Weichselbaum RR. microRNAs and oligometastasis. Aging (Albany NY). 2015 Mar;7(3):146-7.
19. Wightman SC, Uppal A, **Pitroda SP\***, Ganai S, Stack M, Oshima G, Khan S, Huang X, Posner MC, Weichselbaum RR, Khodarev NN. Oncogenic CXCL10 signaling drives metastasis development and poor clinical outcome. Br J Cancer. 2015 Jun 4. (\* *Co-first authorship*)
20. Oshima G, Wightman SC, Uppal A, Stack M, **Pitroda SP**, Oskvarek J, Huang X, Posner MC, Hellman S, Weichselbaum RR, Khodarev NN. Imaging of tumor clones with differential liver colonization. Sci Rep. 2015 Jun 22.

21. Bouillez A, Rajabi H, **Pitroda S**, Jin C, Alam M, Kharbanda A, Tagde A, Wong KK, Kufe D. Inhibition of MUC1-C suppresses Myc expression and attenuates malignant growth in KRAS mutant lung adenocarcinomas. Cancer Res. 2016 Feb 1.
22. Ranoa DR, Parekh AD, **Pitroda SP**, Huang X, Darga T, Wong AC, Huang L, Andrade J, Staley JP, Satoh T, Akira S, Weichselbaum RR, Khodarev NN. Cancer therapies activate RIG-I-like receptor pathway through endogenous non-coding RNAs. Oncotarget. 2016 Mar 28.
23. Wong AC, Watson SP, **Pitroda SP**, Son CH, Das LC, Stack ME, Uppal A, Oshima G, Khodarev NN, Salama JK, Weichselbaum RR, Chmura SJ. Clinical and molecular markers of long-term survival after oligometastasis-directed stereotactic body radiotherapy (SBRT). Cancer. 2016 May 20.
24. Rajabi H, Tagde A, Alam M, Bouillez A, **Pitroda S**, Suzuki Y, Kufe D. DNA methylation by DNMT1 and DNMT3b methyltransferases is driven by the MUC1-C oncoprotein in human carcinoma cells. Oncogene. 2016 May 23.
25. Oshima G, Stack ME, Wightman SC, Skowron KB, Uppal A, **Pitroda SP**, Huang X, Posner MC, Hellman S, Weichselbaum RR, Khodarev NN. Advanced animal model of colorectal metastasis in liver: imaging techniques and properties of metastatic clones. (Accepted, J Vis Exp 2016)

#### **Oral Presentations:**

1. **Pitroda SP**, Pashtan IM, Weichselbaum RR, Connell PP. RPS predicts DNA repair pathway preference and cancer patient outcome. American Society of Therapeutic Radiology and Oncology 55<sup>th</sup> Annual Meeting, Atlanta, GA, September 2013.
2. **Pitroda SP**, Widau RC, Parekh AD, Golden DW, Ranck MC, Sood RF, Huang X, Darga TE, Roizman B, Khodarev NN, Weichselbaum RR. RIG-I-like receptor LGP2 protects tumor cells from ionizing radiation. American Society of Therapeutic Radiology and Oncology 56<sup>th</sup> Annual Meeting, San Francisco, CA, September 2014.
3. **Pitroda SP**, Weichselbaum RR, Connell PP. Low recombination proficiency score (RPS) in breast cancer predicts malignant potential and heightened sensitivity to DNA-damaging therapies. American Society of Therapeutic Radiology and Oncology 57<sup>th</sup> Annual Meeting, San Antonio, TX, October 2015.
4. **Pitroda SP**, Uppal A, Wightman SC, Mallon S, Oshima G, Zhang Q, Huang X, Darga TE, Huang L, Andrade J, Liu H, Ferguson MK, Greene GL, Posner MC, Hellman S, Khodarev NN, Weichselbaum RR. 14q32-encoded microRNAs mediate oligometastasis. American Society of Therapeutic Radiology and Oncology 57<sup>th</sup> Annual Meeting, San Antonio, TX, October 2015.
5. Wong AC, **Pitroda S**, Watson S, Son C, Das LC, Uppal A, Oshima G, Stack M, Khodarev N, Salama JK, Weichselbaum RR, Chmura S. Long-Term Survivors of an SBRT Dose Escalation Study for Oligometastases: Clinical and Molecular Markers. American Society of Therapeutic Radiology and Oncology 57<sup>th</sup> Annual Meeting, San Antonio, TX, October 2015.

6. Oshima G, **Pitroda SP**, Zhang C, Huang L, Uppal A, Wightman SC, Stack ME, Lim S, Huang X, Darga TE, Andrade J, Posner MC, Khodarev NN, Weichselbaum RR. Oligometastatic microRNAs are regulated by DNA methylation. Academic Surgical Congress 11<sup>th</sup> Annual Meeting, Jacksonville, FL, February 2016.

#### **Invited Presentations:**

1. “Emotional restlessness: Evidence of disruption of the brain’s default state during emotional processing,” Summer Research Forum, Pritzker School of Medicine, University of Chicago, Chicago, IL, August 2007.
2. “Tumor endothelial inflammation predicts clinical outcome in diverse human cancers,” University of Pennsylvania, Department of Radiation Oncology, Philadelphia, PA, September 2010
3. “MUC1-induced alterations in a lipid metabolic gene network predict response of human breast cancers to tamoxifen treatment,” Memorial-Sloan Kettering Cancer Center, Department of Radiation Oncology, New York, NY, November 2010.
4. “Oncogenic functions of MUC1 in gene regulation: New insights into prognostic and therapy-predictive markers for human breast cancer,” Illinois Institute of Technology, Department of Biomedical Engineering, Chicago, IL, February 2011.
5. “Cooperativity of the MUC1 oncoprotein and STAT1 pathway in poor prognosis human breast cancer,” Senior Scientific Session, Pritzker School of Medicine, University of Chicago, Chicago, IL, May 2011.

#### **Additional Abstracts and Poster Presentations:**

1. **Pitroda S**, Das AK, Staniszewski K, Connors M, Garfinkel M, Hall C. Characterization of tissue factor expression in isolated human islets. Biomedical Engineering Society Annual Fall Meeting, Baltimore, MD, September 2005.
2. **Pitroda S**, Turturro M, Connors M, Garfinkel M, Hall C. Tissue factor and tissue factor pathway inhibitor activity in isolated human islets. *Diabetes*. Jun 2006; 55 Suppl. 1:A445-6.
3. Khodarev NN, Roach P, Bhayani M, **Pitroda S**, Shao M, Knabb B, Beveridge M, Sood RF, Sutton H, Beckett M, Mauceri HJ, Weichselbaum RR. Development of aggressive pro-metastatic tumor clones is mediated by IFN/Stat1 pathway. AACR Special Conference on Inflammation and Cancer, Oahu, HI, October 2008.
4. Khodarev NN, Liang H, Mauceri HJ, **Pitroda SP**, Beckett MA, Sutton HG, Weichselbaum RR. Tumor reprogramming by host microenvironment deficient in TNF $\alpha$  signaling. AACR 100<sup>th</sup> Annual Meeting, Denver, CO, April 2009.

5. MacDermed D, Khodarev N, **Pitroda S**, Edwards D, Pelizzari C, Huang L, Kufe D, Weichselbaum R. MUC1-associated proliferation signature predicts outcomes in lung adenocarcinoma patients. AACR-IASLC Joint Conference on Molecular Origins of Lung Cancer, Coronado, CA, January 2010.
6. Khodarev NN , **Pitroda SP**, Wakim BT, Golden DW, Beckett MA, Mauceri HJ, Sutton HG, Perakis S, Malik R, Wietholt C, Pelizzari C, Chen C, Weichselbaum RR. STAT1-dependent expression of genes and proteins involved in energy metabolism links tumor growth and radioresistance to the Warburg effect and predicts poor prognosis in cancer patients. AACR 101<sup>st</sup> Annual Meeting, Washington, DC, April 2010.
7. MacDermed D, Khodarev N, **Pitroda S**, Edwards D, Pelizzari C, Huang L, Kufe D, Weichselbaum R. MUC1-Associated Proliferation Signature Predicts Outcomes in Lung Adenocarcinoma Patients. ACRT/SCTS Joint Annual Meeting: Clinical and Translational Research and Education Meeting, Washington, DC, April 2010.
8. Khodarev N, **Pitroda S**, Sood R, Khan S, Filippo M, Gutt R, Perakis S, Darga T, Malik R, Pederson A, Weichselbaum R. Ionizing radiation activates IFN signaling in tumor cells. AACR 102<sup>nd</sup> Annual Meeting, Orlando, FL, April 2011.
9. **Pitroda SP**, Gutt R, Vannier MW, Oto A, Liauw SL. A study of endorectal MRI in the evaluation of a detectable PSA post-prostatectomy: PSA level and time to PSA recurrence are associated with the presence of locally recurrent disease. American Society of Therapeutic Radiation Oncology 53<sup>rd</sup> Annual Meeting, Miami, FL, October 2011.
10. Gutt R, Dess RT, **Pitroda SP**, Vannier MW, Oto A, Liauw SL. Endorectal MRI and treatment planning considerations in intact prostate cancer: which patients are at greatest risk for radiographic seminal vesicle involvement? American Society of Therapeutic Radiation Oncology 53<sup>rd</sup> Annual Meeting, Miami, FL, October 2011.
11. Gutt R, Liauw SL, Beckett M, Liang H, Perakis S, Filippo M, **Pitroda SP**, Darga T, Khodarev NN, Weichselbaum RR. Statin therapy for prostate cancer: understudied and underutilized. American Society of Therapeutic Radiation Oncology 53<sup>rd</sup> Annual Meeting, Miami, FL, October 2011.
12. **Pitroda SP**, Uppal A, Wightman SC, Mallon S, Oshima G, Zhang Q, Huang X, Darga TE, Huang L, Andrade J, Liu H, Ferguson MK, Greene GL, Posner MC, Hellman S, Khodarev NN, Weichselbaum RR. 14q32-encoded microRNAs mediate an oligometastatic phenotype. Inaugural AACR Radiation Oncology Think Tank: Optimizing Cancer Care through Advancements in Radiation Science and Medicine, Fort Myers, FL, January 2015.
13. Stack ME, Uppal A, Wightman SC, **Pitroda SP**, Oshima G, Beckett M, Khodarev NN, Rock RS, Weichselbaum RR, Posner MC. Inhibition of the AIM (Adhesion, Migration, Invasion) Pathway Limits Tumor Cell Metastatic Properties. Chicago Surgical Society, Chicago, IL, December 2015.

14. Skowron K, **Pitroda S**, Beckett M, Khodarev N, Posner M, Steinberg G, Weichselbaum R. Bladder tumor initiating cells as predictors of outcome. Academic Surgical Congress 11<sup>th</sup> Annual Meeting, Jacksonville, FL, February 2016.

15. Stack ME, Uppal A, Wightman SC, **Pitroda SP**, Oshima G, Beckett M, Khodarev NN, Rock RS, Weichselbaum RR, Posner MC. Inhibition of the AIM (Adhesion, Migration, Invasion) pathway limits tumor cell metastatic properties. Society of Surgical Oncology 69<sup>th</sup> Annual Meeting, Boston, MA, March 2016.

16. Stack ME, **Pitroda SP**, Chen L, Liu GF, Parekh A, Skowron K, Oshima G, Huang X, Torres R, Khodarev NN, Posner MC, Weichselbaum RR. NSCLC sensitivity to Jak2 inhibition and identification of PD-L1 as a potential target of Jak inhibitor-based therapy. Charles Huggins Annual Surgical Research Symposium, University of Chicago, Chicago, IL, March 2016.

**Patents:**

2014            Inventors: **Pitroda SP**, Weichselbaum RR, Connell PP  
United States Provisional Patent  
Application Number: PCT/US2014/056942  
Date Filed: September 23, 2014  
Title: METHODS AND COMPOSITIONS RELATING TO CANCER THERAPY  
WITH DNA DAMAGING AGENTS

**Data Set Releases:**

1. GEO: GDS3124
2. GEO: GDS3125
3. GEO: GDS3126
4. GEO: GSE14337
5. GEO: GSE15845
6. GEO: GSE23002
7. GEO: GSE33253
8. GEO: GSE60766
9. GEO: GSE9712
10. GEO: GSE9713
11. GEO: GSE9714