

Bijoy Kumar Kundu, Ph.D.

Curriculum Vitae

December 1, 2015

I. Personal Data

Name: Bijoy Kumar Kundu, Ph.D.
Title: Assistant Professor
Office Address: 480 Ray C. Hunt Drive, Rm 183, Box 801339, Charlottesville, VA 20908
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FAX: (434) 924-9435
Electronic Mail: bkk5a@virginia.edu
Education: Ph.D. – Nuclear Physics, 1998
Nuclear Physics Division, Bhabha Atomic Research Center
Department of Atomic Energy, India
Citizenship: USA

II. Positions and Honors

RESEARCH AND PROFESSIONAL EXPERIENCE:

1997-1999: Project Scientist, Physics Department, Indian Institute of Technology, Kanpur, India.

1999-2000: Post-doctoral fellow, Institute of Physics, Bhubaneswar, India.

2002-2006: Research Associate, Radiology Research, University of Virginia, Charlottesville, VA,

2006-2007: Instructor, Radiology Research, University of Virginia, Charlottesville, VA, USA.

2007-2010: Assistant Professor of Research, Dept of Radiology and Med Imaging, UVa, Charlottesville, VA

2008-pres: Faculty, Robert M. Berne Cardiovascular Research Center, UVa, Charlottesville, VA.

July 2010-pres: Assistant Professor (tenure eligible AI track), Dept. of Radiology and Medical Imaging, UVa

Honors

- 1) Department of Atomic Energy (DAE, India) Fellowship for pursuing PhD, 1992-1997.
- 2) Department of Atomic Energy (DAE, India) Postdoctoral Fellowship, 1997-1999.
- 3) Department of Atomic Energy (DAE, India) Postdoctoral Fellowship, 1999-2000.
- 4) New Point of View, **Siemens Pre-clinical microPET image of the Year**, \$50,000 and a new point of view trophy, "*In-vivo FDG-PET imaging of myocardial hypertrophy*", September 2007, Providence, Rhode Island.
- 5) Honorable mention, **Siemens Pre-clinical drug discovery image of the year**, a new point of view trophy, "*Multi-modal PET-MR imaging of myocardial hypertrophy*", September 2008, Nice, France.

- 6) **Siemens pre-clinical “Notable entry” image of the year** for, “*In vivo Imaging of Tissue Glucose Metabolism in Type 2 Diabetes*”, September 2009, Montreal.
- 7) Finalist in the **Annual UVA Presidential Poster Competition** for the project, “Metabolic Imaging- A Novel Diagnostic Strategy for Hypertensive Heart: From Mouse to Man”, April 29th, 2013.
- 8) **Invited Speaker** in Spring NanoSTAR symposium, University of Virginia, May 21-22, 2013.
- 9) **Invited Speaker** College of Allied Health Sciences at Georgia Regents University, February 20, 2014.
- 10) **Invited Speaker**, "Kinetic models and dynamic brain PET"; SNMMI, Baltimore, MD, 2015.

Book Chapter: Co-authored a chapter on, “State-of-Art Instrumentation for PET and SPECT Imaging in Small Animals” with Heinrich R. Schelbert and David K. Glover for the book, *Clinical Nuclear Cardiology*, Edited by Zaret and Beller, published April 2010.

Other Experience and Professional Memberships

- 2003- Affiliate Member, IEEE Nuclear and Plasma Sciences Society (NPSS)
- 2003 Manuscript reviewer, American Association of Physicists in Medicine (AAPM)
- 2003 Manuscript reviewer, Journal of Magnetic Resonance Imaging (JMRI)
- 2005- Member, Academy of Molecular Imaging (AMI)
- 2005- Member, Society of Nuclear Medicine (SNM)
- 2009- Member, American Heart Association (AHA)
- 2009- Manuscript reviewer, Circulation Research
- 2009 Reviewer, NIH Challenge Grants in Health and Science Research (RC1)
- 2011- Reviewer, Journal of Molecular Imaging
- 2012- Editorial Board Member, OMICS Publishing Group: Radiology-Open Access
- 2012- Reviewer, Journal of Nuclear Medicine
- 2013- Member, Review Panel, Radiology and Imaging Basic Science, AHA
- 2013- Reviewer, Cardiology
- 2013- Reviewer, BBA-Molecular Basis of Disease
- 2014- Invited, Editorial Board Member, International Journal on Nuclear Medicine Research
- 2015- Reviewer, European Journal of Nuclear Medicine and Molecular Imaging

III. Mentoring

A. Graduate students

Name	Department	Degree	Project	Funding
Min Zhong	Physics, Radiology and Medical Imaging Role: Advisor	PhD, 2014	Min's dissertation developed dynamic PET imaging methods for non-invasive quantification of metabolism and blood flow in mouse models of myocardial injury <i>in vivo</i> .	NIH/NHLBI Grant number: R21 HL102627
Landon Locke	Biomedical Engineering Role:Co-advisor	PhD, 2011	Landon's dissertation developed FDG PET imaging methods for non-invasive quantification of glucose metabolism in mouse models of lung injury.	In part from Grant number: R21 HL102627

B. Post doctoral associates

Name	Department	Years	Project	Funding
P Antkowiack, PhD	Radiology and Medical Imaging Role: Mentor	2014-2015	Patrick worked on developing PET imaging methods for non-invasive quantification of cerebral glucose metabolism in a mouse model of dystonia	In part from grants R21 HL102627 and UVA Bridge Funds
Y Li, PhD	Radiology and Medical Imaging Role: Mentor	2014-current	Yinlin is working on developing PET imaging methods for non-invasive quantification of metabolic alterations in the rodent heart over time	In part from grants R21 HL102627, UVA Bridge funds and R01HL123627-01A1

C. Fellows

Name	Department	Years	Project	Funding
Y Hamirani, MD	Cardiology Role: Mentor	2012-2014	Yasmin studied metabolic remodeling in patients with systemic hypertension using dynamic FDG PET imaging	UVA Swortzel funds and in part from R21 HL102627
Komlosi P, MD	Neuroradiology Role: Mentor	2013-2015	Peter worked on using dynamic FDG PET imaging to study recurrent metastatic brain tumors using kinetic modeling	Unfunded

D. Undergraduate and Medical Students

Name	Department	Years	Project	Funding
Harnain C Medical Student Summer Research Program (MSSRP)	Radiology and Medical Imaging Role: Mentor	June-Aug 2008	Multimodality Imaging of Myocardial Hypertrophy	Funds from Jeffress Trust, commonwealth of VA and Partners Fund, CVRC, UVA
Yoke J 4th year UG student	Computer Science Role: Mentor	June-Aug 2009	Development of a model corrected blood input function for quantitative cardiac PET imaging	Funds from Jeffress Trust, commonwealth of VA and Partners Fund, CVRC, UVA
Alsono CE (MSSRP)	Radiology and Medical Imaging Role: Mentor	June-Aug 2011	Metabolic Remodeling Precedes Cardiac Dysfunction in Pressure Overload Left Ventricular Hypertrophy	NIH R21 HL102627
Mistri M (MSSRP)	Radiology and Medical Imaging Role: Mentor	June-Aug 2012	Non-invasive assessment of myocardial blood flow and metabolism in hypertrophic	NIH R21 HL102627

			cardiomyopathy	
Herbert L (MSSRP)	Radiology and Medical Imaging Role: Mentor	June-Aug 2015	Myocardial Metabolic Remodeling in Cardiac Hypertrophy	UVA Bridge/Interim Award
Wakim N 4th year UG Student	Biomedical Engineering Role: Mentor	Mar 2015- current	Myocardial Metabolic Remodeling in Cardiac Hypertrophy	UVA Bridge/Interim Award and NIH R01HL123627-01A1

E. Dissertation Committee

1) Min Zhong, PhD, Physics, Radiology and Medical Imaging, 2014, UVA

Role: Advisor

2) Landon W. Locke, PhD, Biomedical Engineering Department, 2011, UVA

Role: Co-advisor

3) Joe Pole, PhD, Physics Department, 2010, UVA

Role: Member

IV. Awards for graduate students, fellows and post doctors mentored

i) **Advisor to Min Zhong, PhD, May 2014.**

Awards: 1) IEEE travel award

2) UVA Presidential Poster Presentation, Finalist

3) Travel Award from Nano STAR at UVA, to the World Molecular Imaging Congress,

4) One among 3 Chinese students in UVA and amongst ~500 all over the world to get the "Chinese Government Award for Outstanding Self-financed Students Abroad". Min will be honored by the Chinese Ambassador in Washington DC, receive a certificate and a cash award of \$6000.

ii) **Yasmin Hamirani, MD, Fellow, Cardiology.**

Awards: 1) Best Fellow in Training award for her presentation at the ACC meeting, 2014.

Hamirani Y*, Zhong M, McBride A, Bourque J, **Kundu BK****, Myocardial Metabolic Remodeling in Hypertension Induced Left Ventricular Hypertrophy, Abstract, *J Am Coll Cardiol* 2014 April;

62(12):A1011.<http://content.onlinejacc.org/article.aspx?articleid=1856118>. *presenting corresponding author. **senior author

iii) **Yinlin Li, PhD, Visiting fellow, Radiology and Medical Imaging.**

Li Y, Huang T, Zhang X, Zhong M, He J, Berr S, Keller S, **Kundu BK***, Fatty Acid Metabolism from Dynamic ¹¹C-palmitate PET Images of Mouse Heart in vivo, Abstract accepted (poster), Society of Nuclear Medicine and Molecular Imaging (SNMMI) meeting, Baltimore, June 2015.

*presenting and corresponding author. Selected to compete for the SNMMI *high esteemed* poster award, SNMMI conference, Baltimore, Maryland, June 2015.

http://snmmi.files.cms-plus.com/AnnualMeeting/2015/AM2015_PosterAward_candidates.pdf
Pub#1471, Cardiovascular Track.

- iv) Best abstract presented at the Radiology Research Week, October 2015.
Logan Herbert, 2nd year graduate medical student awarded the grand prize of \$1000 for the best abstract presented at the Radiology Research week, Oct 12-19, 2015.
Herbert L*, Wakim N, Li Y, ..., Epstein F, Taegtmeier H, Keller S, **Kundu BK**** Cardiac Metabolic Remodeling Precedes Structural Remodeling in the Spontaneously Hypertensive Rat Model, (Abstract), Radiology Research Week, Oct 19-23, 2015, University of Virginia.
*presenting and corresponding author. ** senior author

V. Select Peer-reviewed Publications in reverse chronological order (2015-1996):

a. Publications in the tenure eligible AI track (2010-current)

1. Hamirani Y, **Kundu BK***, Zhong M,...,Taegtmeier H, Bourque J. Non-Invasive Detection of Early Metabolic Left Ventricular Remodeling in Systemic Hypertension. *Cardiology* 2015 Nov 24; 133(3):157-162. **NIHMS726318**. *corresponding author.
2. Li Y, Huang T, Zhang X, Zhong M, He J, Keller S, Berr S, **Kundu BK***, Fatty acid metabolism from dynamic ¹¹C-palmitate PET images of mouse heart *in vivo*. *Mol Imaging*. 2015 Sep 1;14:516-25. PMID 26462138. *corresponding author. **PMC4625801**
3. Zhang Y, **Kundu BK**, Zhong M, Huang T, Li J, Chordia MD, Chen MH, Pan D, He J, Shi W, PET imaging detection of macrophages with a formyl peptide receptor antagonist. *Nucl Med Biol*. 2015 Apr;42(4):381-6. **PMC4405787**
4. **Kundu BK**, Zhong M, Sen S, Davogusto G, Keller SR, Taegtmeier H*, Remodeling of glucose metabolism precedes pressure overload-induced left ventricular hypertrophy: review of a hypothesis. *Cardiology*. 2015;130(4):211-20. **PMC4394867**. *corresponding author.
5. Hamirani, Y, Zhong M, McBride A, Bourque J, **Kundu BK***, Myocardial Metabolic Remodeling in Hypertension Induced Left Ventricular Hypertrophy, Abstract, *J Am Coll Cardiol* 2014 April; 62(12):A1011.<http://content.onlinejacc.org/article.aspx?articleid=1856118>. *corresponding author.
6. Sen S, **Kundu BK***, Wu HC*, Hashmi SS, Guthrie P, Locke LW, Matherne GP, Berr SS, Terwelp M, Scott B, Carranza S, Frazier H, Glover DK, Dillman WH, Gambello MJ, Entman ML, Taegtmeier H, Glucose regulation of load-induced mTOR signaling and ER stress in mammalian heart, *J Am Heart Assoc*. 2013 May 17;2(3):e004796. **PMC3698799**. *equal contribution
7. **Zhong M****, Alonso CE, Taegtmeier H, **Kundu BK***. Quantitative PET Imaging Detects Early Metabolic Remodeling in a Mouse Model of Pressure-Overload Left Ventricular Hypertrophy In Vivo. *J Nucl Med* 2013 April;54(4):609-15. **PMC3727159**. *corresponding author. **First author publication by Min Zhong, PhD who was a graduate student in the Kundu lab.
8. **Zhong M****, **Kundu BK***, Optimization of a Model Corrected Blood Input Function from Dynamic FDG-PET Images of Small Animal Heart in vivo. *IEEE Trans Nucl Sci*. 2013 October; 60(5):3417-3422. **PMC3985393**. *corresponding author. **First author publication by Min Zhong, PhD, who was a graduate student in the Kundu lab.

9. Li X, Zhang Y, Yang Z, Xu Y, **Kundu BK** et al, Synthesis of PECAM-1-specific ⁶⁴Cu PET imaging agent: Evaluation of myocardial infarction caused by ischemia-reperfusion injury in mouse. *Bioorg Med Chem Lett*. 2012 Jun 15;22(12):4144-7.
10. Locke LW, Williams MB, Fairchild KD, Zhong M, **Kundu BK**, Berr SS, FDG-PET Quantification of Lung Inflammation with Image-Derived Blood Input Function in Mice, *Int J Mol Imag*, Volume 2011, Article ID 356730, Epub 2011, Dec 10, 2011. **PMC3236466**
11. Alonzo C, Zhong M, Thornhill B, Figler R, Tagetmeyer H, **Kundu BK***, Metabolic Adaptation Precedes Maladaptive Response in Pressure Overload Induced Left Ventricular Hypertrophy in Mice: An In Vivo FDG-PET Study, *Circ Res* 2011; 109:e55-e63.***corresponding author**.
12. Locke LW**, Berr SS, **Kundu BK***, Image-Derived Input Function from Cardiac Gated Maximum a Posteriori Reconstructed PET Images in Mice, *Mol Imag Biol*. 2011 Apr;13(2):342-347. **PMC303677.*corresponding author**. **Co-advised Landon Locke, PhD, Graduated in 2011.

b. Publications in Research track (2007-2010)

13. Locke LW, Chordia MD, Zhang Y, **Kundu BK**, Kennedy D, Landseadel J, Xiao L, Fairchild KD, Berr SS, Linden J, Pan D, A novel neutrophil-specific PET imaging agent: cFLFLF-PEG-⁶⁴Cu. *J Nucl Med*. 2009; 50:790-797. PMC3004780
14. Cinti MN, Majewski S, Williams MB, Bachmann C, **Kundu BK**, Stolin AV, Popov V, Welch BL, DeVincentis G, Pani R, Iodine 125 imaging in mice using NaI(Tl)/Flat panel PMT integral assembly. *IEEE Trans Nucl Sci.*, 2007; 54: 461-468.
15. Berr SS, **Kundu BK**, Xu Y, Roy RJ, Williams MB, French BA, Serial, Multi-Modality Assessment of Myocardial Infarction in Mice using MRI and microPET Provides Complementary Information on the Progression of Scar Formation. *Images in Cardiovascular Medicine. Circulation*, 2007; 115: e428-e429.
16. Zhang Y, **Kundu BK**, Fairchild K, Berr SS, Linden J, Pan D, Synthesis of novel Leukocytes-specific PET Imaging Agents. *Bioorg Med Chem Lett*, 2007; 17(24):6876-6878.

c. Publications as a Research Associate (2003-2006)

17. **Kundu BK***, Stolin AV, Pole DJ, Majewski S, Zorn C, Popov V, Williams MB, Tri-modality Small Animal Imaging System. *IEEE Trans Nucl Sci.*, 2006; 53: 66-70. ***corresponding author**
18. Li H, Zheng Y, Stolin AV, **Kundu BK**, Williams MB, Half Cone Beam SPECT System for Small Animal Imaging. *IEEE ISBI*, 2006:1236-1239.
19. Stolin AV, **Kundu BK**, Pole DJ, Williams MB, Characterization and Comparison of X-ray detectors for use in small animal imaging. *IEEE NSS-MIC*, 2004; 6: 3480-3483.
20. Stolin AV, Williams MB, **Kundu BK**, Majewski S, Popov V. Weisenberger AG, Characterization of Imaging Gamma Detectors for Use in Small Animal SPECT. *IEEE NSS-MIC*, 2003; 3: 2085-2089.
21. Williams MB, Stolin AV, **Kundu BK**, Zheng Y, Li H, Investigation of Square Cross-Section Apertures for Small Animal Pinhole SPECT. *Mol Imag Biol*, 2003; 5(3):131-132

22. Williams MB, Stolin AV, **Kundu BK**, Investigation of Spatial Resolution and Efficiency Using Pinholes with Small Pinhole Angle. *IEEE Trans Nucl Sci.*, 2003; 50:1562-1568.

d. Publications during PhD and post doctoral periods (1992-2002)

23. Jain PK, **Kundu BK**, Ralston JP, Oscillatory Color Transparency in $\pi A \rightarrow \pi p(A-1)$ and $\gamma A \rightarrow \pi N(A-1)$ *Phys. Rev. D* 65, 2002, 094027(1-11).
24. **Kundu BK**, Samuelsson J, Jain PK, Ralston JP, Perturbative color transparency in electroproduction experiments, *Phys. Rev D* 62, 2000, 11309-113020.
25. **Kundu BK***, Li H-n, Samuelsson J, Jain PK, The perturbative proton form factor reexamined, *Euro. Phys. Journal C*, 1999, 637-642. ***corresponding author**
26. **Kundu BK**, Jain BK and Santra AB, The elementary $p(p, p'\pi^+)n$ reaction, *Phys. Rev. C* 58, 1998, 1614-1617.
27. **Kundu BK**, Jain BK, The $6\text{Li}(p, \Delta^{++})6\text{He}$ reaction reanalysed, *Phys. Lett. B* 422, 1998, 19-25.
28. Jain BK and **Kundu BK**, Delta decay in the nuclear medium, *Phys. Rev. C* 53, 1996, 1917-1926.

Select Abstracts (2015-2003):

1. **Herbert L***, Wakim N, Li Y, .., Epstein F, Taegtmeyer H, Keller S, **Kundu BK****, Cardiac Metabolic Remodeling Precedes Structural Remodeling in the Spontaneously Hypertensive Rat Model, (Abstract for fall symposium), Medical Student Summer Research Program (MSSRP), November 3, 2015, University of Virginia. ***presenting and corresponding author. ** senior author**
2. **Herbert L***, Wakim N, Li Y, .., Epstein F, Taegtmeyer H, Keller S, **Kundu BK**** Cardiac Metabolic Remodeling Precedes Structural Remodeling in the Spontaneously Hypertensive Rat Model, (Abstract), Radiology Research Week, Oct 19-23, 2015, University of Virginia. ***presenting and corresponding author. ** senior author. Best abstract, Radiology Research week, 2015.**
3. **Wakim N***, Herbert L, Li Y,.., Epstein F, Taegtmeyer H, Keller S, **Kundu BK****, Noninvasive Imaging To Model Progression Of Pressure Overload Left Ventricular Hypertrophy, Abstract (accepted), BMES Annual Meeting, Tampa, Florida, Oct 7-10, 2015. ***presenting and corresponding author. ** senior author**
4. **Zhang X***, Li Y*, Sanchez-Jurado R..& **Kundu BK**** (2015). Segmentation method for breast tumor diagnosis based on Artificial Neural Network algorithm applied to dynamic ^{18}F -FDG MAMMI PET images. Abstract (accepted) IEEE NSS-MIC. San-Diego, 31 Oct- 7 Nov 2015. Abstract 1287. <http://www.nss-mic.org/2015/submissions/confirmation.asp?code=74C95430-5627-4D7B-B5A2-A9E93826BDD0>. *** presenting and corresponding author. ** senior author**
5. Li Y, Huang T, Zhang X, He J, Berr S, Keller S, **Kundu BK***, Fatty Acid Metabolism from Dynamic ^{11}C -palmitate PET Images of Mouse Heart in vivo, *J Nucl Med Abstract* 2015; 56:1471. ***presenting and corresponding author**

6. **Kundu BK***, Antkowiack P, Huang T, Majewski S, He J, Shi W, Dynamic FDG PET Imaging of the Brain in a Mouse Model of Dystonia, J Nucl Med Abstract 2015; 56: 1554. ***presenting and corresponding author**; http://jnm.snmjournals.org/content/56/supplement_3/1554.short
7. **Hamirani, Y***, Zhong M, Bourque J, **Kundu BK**, Myocardial Metabolic Remodeling in Hypertension Induced Left Ventricular Hypertrophy, Abstract presented at the American College of Cardiology (ACC) meeting, Washington DC, April 2014. J Am Coll of Cardiol. 2014; 63(12). **Best ACC Fellow in Training Poster. *corresponding author**
8. Huang T, Zhong M, Keller S, Berr S, Kunkel F, He J, **Kundu BK***, Automated production and application of [¹¹C]palmitate as a probe for myocardial fatty-acid metabolism in the stressed heart, Late-Breaking Abstract, World Molecular Imaging Congress, 2013, Savannah, Georgia, September 18-21. Molecular Imaging and Biology, 2013; S182-S183. ***corresponding author**
9. Zhong M, Hamirani Y, Bourque J, **Kundu BK***, Non-Invasive Detection of Early Metabolic Remodeling in Left Ventricular Hypertrophy, Late-Breaking Abstract, World Molecular Imaging Congress, 2013, Savannah, Georgia, September 18-21. Molecular Imaging and Biology, 2013; S148-S149. ***corresponding author**
10. Zhong M, Mistry M, Dimastromatteo J, Taegtmeier H, Glover DK, **Kundu BK***, PET Imaging of Myocardial Blood Flow in the Stressed Mouse Heart in vivo, J. Nucl. Med. Meeting Abstracts, May 2013; 54: 1635. ***presenting author**
11. Alonzo, C, Zhong M, Thornhill B, Figler R, Taegtmeier H, **Kundu BK***, Metabolic Adaptation Precedes Maladaptive Response in Pressure Overload Induced Left Ventricular Hypertrophy in Mice: An In Vivo FDG-PET Study, Late Breaking Basic Science Abstracts, AHA Scientific Sessions. Circulation Research 2011; 109:e55-e63. ***presenting author**
12. Zhong M, Locke LW, **Kundu BK***, Compartment Model Corrected Blood Input function Estimate Improves with Iterative Image Reconstruction and Cardiac Gating, Journal of Nucl. Med. abstracts, 2011; 52: 2104. ***corresponding author**
13. **Kundu BK**, Figler R and Taegtmeier H, Metabolic adaptation of the heart in a mouse model of Type 2 Diabetes Mellitus: A PET imaging study, AHA Scientific sessions. Circulation. 2010; 122:A12755. ***corresponding author**
14. **Kundu BK***, Locke LW, Roy RJ, Matherne GP, Berr SS, Taegtmeier H, Glover D, Metabolic Remodeling Precedes Left Ventricular Remodeling in Cardiac Hypertrophy: Early Detection by Non-invasive Imaging. Late Breaking Basic Science Abstracts, AHA Scientific Sessions. Circulation Research 2009; 105:e55-e62. ***presenting author**
15. Klivanov AV, Shevchenko T, **Kundu BK**, et al. Ultrasound contrast media as a therapy for solid tumor: reduction of tumor size as the result of ultrasound treatment of microbubbles in the tumor vasculature. Contrast Media Research, Copenhagen, Denmark, October 11-13, 2009.
16. Klivanov AV, Shevchenko T, **Kundu BK**, et al. Destruction of microbubbles in the tumor vasculature by image-guided focused ultrasound inhibits tumor growth. World Molecular Imaging Congress (WMIC), Montreal, Canada, September 23-26, 2009.
17. **Kundu BK** et al. Non-invasive assessment of myocardium glucose metabolism and left ventricular structure and function in a murine model of Left Ventricular Hypertrophy. Cardiovascular

Molecular Imaging (CVMI) meeting, Bethesda, National Institutes of Health, April 2009; Journal of Nuclear Medicine Abstracts, 2009; 50: 663.

18. **Kundu BK***, Harnain C, Locke LW, Pei H, Glover DK, Berr SS, Matherne GP, Lankford AR. Small Animal Dynamic FDG-PET with Spill-Over and Partial Volume Corrections: Rate of Glucose Utilization in Hypertrophic Myocardium. World Molecular Imaging Congress (WMIC), Nice, France, September 10-13, 2008. ***presenting author**
19. **Kundu BK***, Zhang Y, Locke LW, Berr SS, Yang Z, Pan D. FDG-PET as an Anatomical Imaging Marker in Murine Models of Cardiac Disease. World Molecular Imaging Congress (WMIC), Nice, France, September 10-13, 2008. ***presenting author**
20. **Kundu BK***, et al; Dynamic FDG-PET imaging in-vivo to evaluate glucose metabolism in a mouse model of myocardial hypertrophy; 55th SNM meeting, New Orleans, June, 2008; Journal of Nuclear Medicine Abstracts, 2008; 49:184P. ***presenting author**
21. Locke LW, Chordia MD, Kennedy D, Zhang Y, **Kundu BK**, Fairchild KD, Berr SS, Linden J, Pan D. Evaluation of a novel neutrophil-specific PET imaging agent: cFLFLF-PEG-64Cu. 55th SNM meeting, New Orleans, June, 2008; Journal of Nuclear Medicine Abstracts, 2008; 49:161p.
22. Yang Z, Zhang Y, Locke LW, Tian R, **Kundu BK**, Linden J, Berr SS, Pan D. Dual Modality (PET/MR) Detection of Previously Ischemic Myocardium in a Murine Model of Myocardial Infarction Using PECAM-1-Ab-64Cu. 55th SNM meeting, New Orleans, June, 2008; Journal of Nuclear Medicine Abstracts, 2008; 49:202p.
23. **Kundu BK***, Berr SS, Roy RJ, Matherne GP, Lankford AR. Quantitative Gated FDG-PET for Assessment of Left Ventricular Function and Glucose Metabolism in a Mouse Model of Myocardial Hypertrophy (Siemens Award). AMI-SMI Conference, Providence, September 7-11, 2007. ***presenting author**
24. Locke LW, **Kundu BK**, Williams MB, Pole DJ, Linden J, Berr SS. Micro-PET/CT imaging of Klebsiella pneumoniae induced lung inflammation in mice. AMI-SMI Conference, Providence, September 7-11, 2007.
25. Pan D, **Kundu BK**, Zhang Y, Locke LW, Berr SS, Fairchild KD, Linden J. Development of PEGylated Leukocyte-specific Peptide for PET Imaging. AMI-SMI Conference, Providence, September 7-11, 2007.
26. **Kundu BK***, Lankford AR, Matherne GP, Berr SS. In-vivo PET imaging of glucose uptake in pressure overloaded mice to evaluate metabolic mechanism and cardiac function during myocardial hypertrophy, (**oral presentation**). 54th SNM Conference, Washington DC, June 2-6, 2007; Journal of Nuclear Medicine Meeting Abstracts, 2007; 48:55p. ***presenting author**
27. Landon LW, **Kundu BK**, Williams MB, Pole DJ, Linden J, Berr SS. Quantifying lung inflammation with PET after instillation of endotoxin in mice. 54th SNM Conference, Washington DC, June 2-6, 2007; Journal of Nuclear Medicine Meeting Abstracts, 2007; 48:195p.
28. Yang Z, Zhang Y, **Kundu BK**, Williams MB, French BA, Pan D. Novel Radiolabeled PECAM-1 Antibodies for In Vivo Detection of Ischemic Myocardium in a Murine Model of Myocardial Infarction. 5th Society of Molecular Imaging Conference, August 29-September 2, Hawaii, 2006.

29. Zhang Y, Berr SS, **Kundu BK**, Linden J, Pan D. Peptide-Based PET Imaging Agents For Detection Of Inflammation. 5th Society of Molecular Imaging Conference, August 29-September 2, Hawaii, 2006.
30. French BA, **Kundu BK**, Xu Y, Roy RJ, Williams MB, Berr SS. Serial, Multi-Modality Assessment of Myocardial Infarction in Mice using MRI and microPET. 5th Society of Molecular Imaging Conference, August 29-September 2, Hawaii, 2006; AHA Conference, Chicago, 2006.
31. Stiles BM, Altes TA, Rehm PK, Trotta BM, Herring AJ, Olazagasti J, **Kundu BK**, Williams MB, Daniel TM. A novel technique for resection of subcentimeter pulmonary nodules combining radiotracer localization with 1318-nm Nd:YAG laser excision. Presentation at the American Association of Thoracic Surgeons, April (2005).
32. Rehm PK, Altes TA, Williams MB, Stolin VA, **Kundu BK**, Daniels TM. Intraparenchymal Retention of Tc-99m Macroaggregated Albumin (MAA), Unfiltered Tc-99m Sulfur Colloid (Sc) and Tc-99m Pertechnetate (TCO4) in Lung after Transthoracic Injection. Society of Nuclear Medicine (2003).

VI. Research Support:

CURRENT

ACTIVE

1R01HL123627-01A1 **Kundu (PI)** **9/7/2015-5/31/2019**
NIH-NHLBI
Myocardial Metabolic Remodeling in Cardiac Hypertrophy

The goal of the studies proposed in this application is to characterize metabolic changes over time in hearts of spontaneously hypertensive rats (SHR) and relate these to the development of left ventricular hypertrophy and heart failure.

Role: Principal Investigator

Total Award: \$1.9 M

Direct costs: \$1.3 M

Interim/Bridge Award (Kundu, B) **Kundu (PI)** **1/5/2015-1/4/2016**
 VPR, UVA
 Myocardial Metabolic Remodeling in Cardiac Hypertrophy

The goal is to investigate the relationship between changes in myocardial glucose metabolism and cardiac remodeling in response to pressure overload.

Role: Principal Investigator

Direct costs: \$90k

R01 AR050429-09 (Yan, Z) **Yan, Z (PI)** **7/1/2011 - 6/30/2016**
 NIH-NIAMS
 p38 MAPK a regulator of muscle contractile and metabolic functions

The goal of the proposed research is to define the molecular basis for the counter-regulatory functions of p38 γ and p38 α /p38 β in skeletal muscle.

Role: Collaborator

R21 HL120003-01A1 (He, J)

He, J (PI)

2/1/2014 - 1/31/2016

NIH-NHLBI

Novel systemic delivery of siRNA for atherosclerosis

The objective is to use a novel endogenous nanoparticle to develop systemic siRNA delivery targeting new gene for effective therapy of atherosclerosis.

Role: Collaborator

PENDING

R21

Pan, D (PI)

4/01/2016-3/31/2018

NIH

FPR targeting theranostic agent cFLFLF for stroke-induced neuroinflammation

The goal is to develop a highly sensitive inflammation based PET imaging method that target formyl peptide receptor mediated infiltrating leukocytes along with possibility of using antagonist of the same receptor for treatment.

Role: Collaborator

COMPLETED

R21 HL102627-01

Kundu (PI)

4/1/2010 - 3/31/2014

NIH-NHLBI

Metabolic remodeling precedes and triggers left ventricular remodeling in cardiac hypertrophy

The major goals of this proposal are to develop and optimize non-invasive PET imaging techniques along with MRI to test the hypothesis that metabolic remodeling precedes and triggers structural and functional remodeling of the heart in cardiac hypertrophy in-vivo and also to evaluate whether metabolic imaging of the myocardium due to pharmacologic interventions could provide an early indication of favorable left ventricular remodeling.

Role: Principal Investigator

Total award: \$408k

Direct costs: \$275k

Thelma R. Swartzel Grant

Bourque and Kundu (PI)

7/1/2011-12/31/2013

UVA School of Medicine

Non-invasive detection of early metabolic remodeling in Left Ventricular Hypertrophy

The primary hypothesis of this study is that our improved method of glucose-uptake quantification will identify metabolic patterns of myocardial hypertrophy that can detect early metabolic remodeling in hypertensive patients without evidence of structural heart disease.

Role: Co-PI

Direct costs:\$50k

J-899, The Thomas F. and Kate Miller Jeffress

Kundu (PI)

1/1/2008 – 12/31/2010

Memorial Trust

In-vivo FDG-PET Imaging to Evaluate Glucose Uptake, Metabolism and Cardiac Function in a Mouse Model of Myocardial Hypertrophy

The major goals of this proposal are to utilize FDG-PET imaging to evaluate the role of glucose uptake and metabolism in a mouse model of myocardial hypertrophy and also to determine the effect of treatment on glucose uptake and cardiac function in-vivo.

Role: Principal Investigator

Direct costs: \$30k

Partners' Fund

Kundu (PI)

9/01/2008-8/31/2010

The Robert M. Berne Cardiovascular Research Centers at the University of Virginia
Non-invasive imaging techniques in-vivo in a mouse model of myocardial hypertrophy

The major goals of this project are to develop and optimize non-invasive techniques in-vivo to evaluate glucose metabolism in a mouse model of pressure overload LV hypertrophy

Role: Principal Investigator

Direct costs: \$25k

Virginia Bioscience Health Research Corporation Bennett, Berr et al (PI) 7/1/2014 - 6/30/2015

Reversing Bioenergetic Deficits and Improving Cognitive Function in Alzheimer's Disease

UVA will:

1. Optimize ^{31}P -MRS measurements of living rat brain.
2. Determine baseline regional values for ^{31}P -MRS and FDG uptake of normal/untreated rat brain
3. Using maximum rhTFAM dose from above VCU study, treat rats for 4X1 week dosing and determine changes in regional brain ^{31}P -MRS and ^{18}F FDG-PET

Role: Collaborator

US Army Med Res and Material Command

Stone (PI)

3/1/2013 - 9/30/2013

Neuroimaging of biomarkers for combat relevant Traumatic Brain Injury

The primary goal of this project is the development of biomarkers for non-invasive assessment of injury in a rat model of TBI.

Role: Collaborator

Commonwealth Health Research Board

SS Berr (PI)

7/1/2012-6/30/2014

Development of Biomarkers that Target Tumor Associate Macrophages

The goal is to use mannose coated liposomes to carry a variety of payloads including radioactive elements for imaging or therapeutics that are designed to change the phenotype of macrophages to cause them to be less tumor-supportive.

Role: Collaborator