

**BIOGRAPHICAL SKETCH**

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.  
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Kristine Glunde	POSITION TITLE Assistant Professor		
eRA COMMONS USER NAME kglunde1			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Bremen, Bremen, Germany	Diploma	1997	Chemistry, Biochemistry
University of Bremen, Bremen, Germany	Ph.D.	2000	Biochemistry

**A. Positions and Honors.****Positions and Employment**

- 10/1997-07/2000 Doctoral Research Assistant, Department of Chemistry & Biology, University of Bremen, Bremen, Germany.
- 09/2000-09/2003 Postdoctoral Fellow, Department of Radiology and Radiological Sciences, Division of MR Research – Oncology Section, Johns Hopkins University School of Medicine, Baltimore, MD.
- 09/2003-03/2005 Instructor, Department of Radiology and Radiological Sciences, Division of MR Research – Oncology Section, Johns Hopkins University School of Medicine, Baltimore, MD.
- 03/2005- Assistant Professor, Department of Radiology and Radiological Sciences, Division of MR Research – Oncology Section, Johns Hopkins University School of Medicine, Baltimore, MD.

**Other Experience and Professional Memberships**

- 1999- International Society for Magnetic Resonance in Medicine (ISMRM).
- 1999- ISMRM, MR in Drug Research Study Group.
- 2000- ISMRM, MR of Cancer Study Group.
- 2002- American Association for Cancer Research (AACR).
- 2003- American Society for Cell Biology (ASCB).
- 2004- Society for Molecular Imaging.

**Journal Reviewing Activities**

1. NMR in Biomedicine
2. Molecular Imaging
3. Cancer Research
4. Clinical Cancer Research
5. Nature Reviews Cancer

**Honors**

- 1997 *Excellence Award “Stiftung Constancia von 1823”* – awarded for the Diploma Thesis at the University of Bremen.
- 1997-2000 *FNK Ph. D. Student Stipend* – FNK (Research Foundation Associated with the University of Bremen), University of Bremen.
- 1999-2002 *Three Student Stipend Awards* – International Society for Magnetic Resonance in Medicine (ISMRM).

- 2000 *Travel Award* – Deutsche Forschungsgemeinschaft (German Research Foundation).
- 2003 *Career Development Award* – In Vivo Cellular and Molecular Imaging Center (ICMIC, NIH-funded) at the Johns Hopkins University.
- 2005 *Travel Award* – International Conferences on Magnetic Resonance in Biological Systems (ICMRBS)
- 2005 *1<sup>st</sup> Place Poster Award MR Spectroscopy* – ISMRM in Miami, Florida, USA

## **B. Selected peer-reviewed publications (in chronological order).**

### **Peer-reviewed publications (in chronological order)**

1. **Glunde, K.**, Düßmann, H., Juretschke, H.-P., and Leibfritz, D. (2002) Na<sup>+</sup>/H<sup>+</sup> exchange subtype 1 inhibition during extracellular acidification and hypoxia in glioma cells. *J. Neurochem.* **80**, 36-44.
2. **Glunde, K.**, Ackerstaff, E., Natarajan, K., Artemov, D., and Bhujwala, Z. M. (2002) Real-time changes in <sup>1</sup>H and <sup>31</sup>P NMR spectra of malignant human mammary epithelial cells during treatment with the anti-inflammatory agent indomethacin. *Magn. Reson. Med.* **48**, 819-825.
3. **Glunde, K.**, Guggino, S. E., Ichikawa, Y., and Bhujwala, Z. M. (2003) A novel method of optically imaging lysosomes in living human mammary epithelial cells. *Mol. Imaging* **2**, 24-36.
4. Ackerstaff, E., **Glunde, K.**, and Bhujwala, Z. M. (2003) Choline Phospholipid Metabolism: A target in cancer cells? *J. Cell Biochem.* **90**, 525-53.
5. **Glunde, K.**, Guggino, S. E., Solaiyappan M., Pathak, A. P., Ichikawa, Y., and Bhujwala, Z. M. (2003) Extracellular acidification alters lysosomal trafficking in human breast cancer cells. *Neoplasia* **5**, 533-545.
6. Pathak, A. P., Gimi, B., **Glunde, K.**, Ackerstaff, E., Artemov, D., and Bhujwala, Z. M. (2004) Molecular and functional imaging of cancer: Advances in MRI and MRS. *Methods Enzymol.* **386**, 3-60.
7. **Glunde, K.**, Jie, C., and Bhujwala, Z. M. (2004) Molecular basis of the aberrant choline phospholipid metabolism of breast cancer cells. *Cancer Res.* **64**, 4270-4276.
8. Gimi, B., Pathak, A. P., Ackerstaff, E., **Glunde, K.**, Artemov, D., and Bhujwala, Z. M. (2005) Molecular imaging of cancer: Applications of MR methods. *IEEE Trans. Med. Imaging* **93**, 784-799.
9. **Glunde, K.**, Foss, C. A., Takagi, T., Wildes, F., and Bhujwala, Z. M. (2005) Synthesis of 6'-O-lissamine-rhodamine B-glucosamine as a novel probe for fluorescence imaging of lysosomes in breast tumors. *Bioconjug. Chem.* **16**, 843-851.
10. **Glunde, K.**, Raman, V., Mori, N., and Bhujwala, Z. M. (2005) RNA interference-mediated choline kinase suppression in breast cancer cells induces differentiation and reduces proliferation. *Cancer Res.* **65**, 11034-11043.
11. **Glunde, K.**, Stasinopoulos, I. A., and Bhujwala, Z. M. (2006) Choline Phospholipid Metabolism in Cancer: A Molecular Perspective. *NMR Biomed.* (in press).
12. **Glunde, K.**, Jacobs, M. A., Bhujwala, Z. M. (2006) Choline Metabolism in Cancer: Implications for Diagnosis and Therapy. *Expert Rev. Mol. Diagn.* (in press).
13. **Glunde, K.** and Serkova, N. J. (2006) Profiling of Choline Metabolites in Cancer. *Pharmacogenomics* (in press).
14. **Glunde, K.**, Ackerstaff, E., Mori, N., Jacobs, M. A., and Bhujwala, Z. M. (2006) Choline phospholipid metabolism in cancer: consequences for molecular pharmaceutical interventions. *Molecular Pharmaceutics* (in press).
15. **Glunde, K.**, Jie, C., and Bhujwala, Z. M. (2006) Mechanisms of indomethacin-induced alterations in choline phospholipid metabolism of breast cancer cells. *Neoplasia* (in press).
16. Li, C., Greenwood, T. R., Bhujwala, Z. M., and **Glunde, K.** (2006) Synthesis and characterization of glucosamine-bound near-infrared probes for optical imaging. *Org. Lett.* **8**, 3623-3626.

17. Raman, V., Pathak, A. P., **Glunde, K.**, Artemov, D., and Bhujwala, Z. M. (2006) Magnetic resonance imaging of transgenic mouse models of cancer. *NMR Biomed.* (in press)
18. **Glunde, K.**, Pathak, A. P., and Bhujwala, Z. M. (2006) Molecular-Functional Imaging of Cancer: To Image and Imagine. *Trend Mol. Med.* (in press)

### **Books and book chapters**

1. **Glunde, K.** (2000) Dissertation. Ionenhomöostase und Metabolismus neuraler Zellen während der Azidose und Hypoxie: Rolle des Na<sup>+</sup>/H<sup>+</sup>-Austausches, *Shaker Verlag, Aachen*, ISBN 3-8265-7869-4.
2. Bhujwala, Z. M., Ackerstaff, E., Artemov, D., **Glunde, K.**, Pathak, A. P., Raman, V., and Solaiyappan, M. (2005) *In vivo* cellular and molecular imaging of cancer. In: *Biomedical Magnetic Resonance Proceedings of the International Workshop*. Edited by Jagannathan, N. R., Jaypee Brothers Medical Publishers (P) Ltd., New Delhi, pages 247-256.
3. Bhujwala, Z. M., **Glunde, K.**, Ackerstaff, E., Pathak, A. P., Gimi, B., and Artemov, D. (2006) Molecular Imaging in Cancer Therapies of the Future. In: *In vivo MR Techniques in Drug Discovery and Development*. Edited by Beckmann, N., CRC Press, Boca Raton, FL.
4. Jacobs, M. A., **Glunde, K.**, Gimi, B., Pathak, A. P., Ackerstaff, E., Artemov, D., and Bhujwala, Z. M. (2006) MR Molecular and Functional Imaging of Cancer. In: *Molecular and Cellular MR Imaging*. CRC Press, Boca Raton, FL (in press)

### **Peer-reviewed publications in conference proceedings (in chronological order)**

1. **Glunde, K.**, Juretschke, H.-P., and Leibfritz, D. (1998) Metabolic effects of a selective Na<sup>+</sup>/H<sup>+</sup> exchange subtype 1 inhibitor (HOE642) during acidosis and ischemia in neural cells studied by NMR spectroscopy. *Twelfth General Meeting of the European Society for Neurochemistry*, St. Petersburg, Russia, *J. Neurochem.* **71**, S39C.
2. **Glunde, K.**, Juretschke, H.-P., and Leibfritz, D. (1999) Extracellular acidification and hypoxia in glial cell lines studied by NMR spectroscopy: Role of Na<sup>+</sup>/H<sup>+</sup> exchange subtype 1 inhibitor. *Seventh Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Philadelphia, MD, USA.
3. **Glunde, K.**, Düßmann, H., Juretschke, H.-P., and Leibfritz, D. (1999) Na<sup>+</sup>/H<sup>+</sup> exchange in a glial cell line studied *in vivo* by fluorescence spectroscopy using BCECF. *17<sup>th</sup>/13<sup>th</sup> International/European Society for Neurochemistry*, Berlin, Germany, *J. Neurochem.* **73**, S100B.
4. **Glunde, K.** and Leibfritz, D. (1999) Effects of extracellular acidification on phospholipid synthesis of neural cell lines studied by NMR spectroscopy. *17<sup>th</sup>/13<sup>th</sup> International/European Society for Neurochemistry – Post Satellite Meeting: Functional aspects of energy metabolism in brain*, Oxford, UK, *J. Neurochem.* **73**, S216A.
5. **Glunde, K.**, Engelmann, J., and Leibfritz, D. (2000) Effects of extracellular acidification on lipid/phospholipid synthesis of neural cell lines studied by one- and two-dimensional NMR spectroscopy. *Eighth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Denver, CO, USA.
6. **Glunde, K.**, Leibfritz, D., and Lehmann, W. D. (2000) Effects of extracellular acidification on phospholipid composition of neuronal cells studied by quantitative nano-electrospray ionization tandem mass spectrometry. *48<sup>th</sup> American Society for Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Allied Topics*, Long Beach, CA, USA.
7. **Glunde, K.**, Ackerstaff, E., Natarajan, K., Artemov, D., and Bhujwala, Z. M. (2001) Impact of indomethacin on phospholipid metabolism in malignant human mammary epithelial cells: <sup>1</sup>H and <sup>31</sup>P NMR spectroscopic study of viable cells. *Ninth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Glasgow, Scotland, UK.
8. **Glunde, K.**, Guggino, S. E., Ichikawa, Y., and Bhujwala, Z. M. (2002) Altered lysosomal trafficking in human breast cancer cells during extracellular acidosis. *93<sup>rd</sup> annual meeting of the American Association for Cancer Research (AACR)*, San Francisco, CA, USA.

9. **Glunde, K.**, Chacko, V. P., and Bhujwala, Z. M. (2002) Mechanisms of indomethacin induced alterations in phospholipid metabolism in human mammary epithelial cells studied by  $^1\text{H}$  and  $^{13}\text{C}$  NMR spectroscopy. *Tenth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Honolulu, Hawaii, USA.
10. **Glunde, K.**, Ackerstaff, E., Natarajan, K., Artemov, D., and Bhujwala, Z. M. (2002) Indomethacin alters phospholipid metabolism in a pH-independent manner in living breast cancer cells. *Tenth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Honolulu, Hawaii, USA.
11. **Glunde, K.**, Guggino, S. E., Ichikawa, Y., and Bhujwala, Z. M. (2002) Altered lysosomal trafficking in human breast cancer cells during extracellular acidosis. *The First Annual Meeting of the Society for Molecular Imaging*, Boston, MA, USA, *Molecular Imaging* **1**, p190.
12. **Glunde, K.**, Chacko, V. P., and Bhujwala, Z.M. (2002) Indomethacin-induced alterations in phospholipid metabolism of malignant and non-malignant human mammary epithelial cells studied by  $^1\text{H}$  and  $^{13}\text{C}$  NMR spectroscopy, *ISMRM Workshop on In Vivo Functional and Molecular Assessment of Cancer*, Santa Cruz, CA, USA, p47-48.
13. **Glunde, K.**, Chacko, V. P., and Bhujwala, Z. M. (2003) Differences in choline phospholipid metabolism of nonmalignant versus malignant human mammary epithelial cells during indomethacin treatment. *94<sup>th</sup> annual meeting of the American Association for Cancer Research (AACR)*, Washington, DC, USA.
14. **Glunde, K.**, Chacko, V. P., and Bhujwala, Z. M. (2003) Mechanisms of indomethacin-induced alterations in choline phospholipid metabolism of non-malignant versus malignant human mammary epithelial cells. *Eleventh Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Toronto, Ontario, Canada.
15. Raman, V., Mori, N., Mironchik, Y., **Glunde, K.**, and Bhujwala, Z. M. (2003) Gene expression inhibition of choline kinase in breast cancer cells using RNA interference detected by  $^1\text{H}$  NMR spectroscopy. *Eleventh Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Toronto, Ontario, Canada.
16. Mori, N., **Glunde, K.**, and Bhujwala, Z. M. (2003) Effect of choline kinase inhibition using hemicholinium-3 on choline phospholipid metabolism of human mammary epithelial cells. *Eleventh Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Toronto, Ontario, Canada.
17. Mori, N., **Glunde, K.**, and Bhujwala, Z. M. (2003) Impact of choline kinase inhibition on choline phospholipid metabolism in human mammary epithelial cells. *The Second Annual Meeting of the Society for Molecular Imaging*, San Francisco, CA, USA.
18. **Glunde, K.**, Raman, V., Mori, N., Mironchik, Y., and Bhujwala, Z. M. (2003) Choline kinase downregulation in breast cancer cells using RNA interference detected by  $^1\text{H}$  NMR spectroscopy. *The Second Annual Meeting of the Society for Molecular Imaging*, San Francisco, CA, USA.
19. **Glunde, K.**, Jie, C., and Bhujwala, Z. M. (2003) Molecular Alterations underlying differences in choline phospholipid metabolism of nonmalignant versus malignant human mammary epithelial cells. *The Second Annual Meeting of the Society for Molecular Imaging*, San Francisco, CA, USA.
20. Artemov, D., Okollie, B., **Glunde, K.**, and Bhujwala, Z. M. (2003) Towards MR imaging of cell surface receptors. *The Second Annual Meeting of the Society for Molecular Imaging*, San Francisco, CA, USA.
21. **Glunde, K.**, Lempka, S., Guggino, S. E., Solaiyappan, M., Pathak, A. P., and Bhujwala, Z. M. (2003) Acidic extracellular environments cause lysosomal displacement to the cell periphery and filopodia extension in human breast cancer cells. *Mol Biol Cell (Suppl)* **14**, 110a; *43<sup>rd</sup> Annual Meeting of the American Society for Cell Biology*, San Francisco, CA, USA.
22. **Glunde, K.**, Raman, V., Mori, N., Mironchik, Y., and Bhujwala, Z. M. (2004) Choline kinase knock-down in breast cancer cells using RNA interference is associated with an increase in intracellular lipid droplets and triacylglycerides. *Twelfth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Kyoto, Japan.
23. **Glunde, K.**, Raman, V., and Bhujwala, Z. M. (2004) Correlation between choline kinase mRNA and  $^1\text{H}$  MRS-detectable choline metabolite levels in stable choline kinase knock-down clones of a human breast

- cancer cell line. *Twelfth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Kyoto, Japan.
24. Mori, N., **Glunde, K.**, Raman, V., and Bhujwalla, Z. M. (2004) Vascular endothelial growth factor overexpression increases phosphocholine levels in a human breast cancer model. *Twelfth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Kyoto, Japan.
  25. Bhujwalla, Z. B., Solaiyappan, M., Pathak, A. P., Ackerstaff, E., and Raman, V., **Glunde, K.**, Artemov, D. (2004) Characterizing tumors with multi-modality imaging. *The Third Annual Meeting of the Society for Molecular Imaging*, St. Louis, MO, USA.
  26. Mori, N., **Glunde, K.**, Raman, V., and Bhujwalla, Z. M. (2004) Effect of vascular endothelial growth factor (VEGF) overexpression on choline phospholipid metabolism in a human breast cancer model. *The Third Annual Meeting of the Society for Molecular Imaging*, St. Louis, MO, USA.
  27. **Glunde, K.**, Solaiyappan, M., Pathak, A. P., and Bhujwalla, Z. M. (2004) Extracellular acidification increases total lysosomal volume in invasive breast cancer cells. *The Third Annual Meeting of the Society for Molecular Imaging*, St. Louis, MO, USA.
  28. **Glunde, K.**, Raman, V., Mori, N., Wildes, F., and Bhujwalla, Z. M. (2004) RNA interference-mediated choline kinase knock-down in human breast cancer cells monitored by magnetic resonance spectroscopy. *The Third Annual Meeting of the Society for Molecular Imaging*, St. Louis, MO, USA.
  29. **Glunde, K.**, Mori, N., Raman, V., and Bhujwalla, Z. M. (2004) Choline kinase knock-down in human breast cancer xenografts monitored by <sup>31</sup>P MR spectroscopy. *The Third Annual Meeting of the Society for Molecular Imaging*, St. Louis, MO, USA.
  30. **Glunde, K.**, Mori, N., Raman, V., and Bhujwalla, Z. M. (2005) Phosphorus MR spectroscopic changes mediated by choline kinase knock-down in a human breast tumor model. *XXI International Conference on Magnetic Resonance in Biological Systems (ICMRBS)*, Hyderabad, India.
  31. **Glunde, K.**, Raman, V., Mori, N., and Bhujwalla, Z. M. (2005) Choline kinase knock-down in human breast cancer xenografts monitored by <sup>31</sup>P MR spectroscopy. *Thirteenth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Miami Beach, Florida, USA.
  32. **Glunde, K.**, Raman, V., Solaiyappan, M., Pathak, A. P., Artemov, D., and Bhujwalla, Z. M. (2005) Hypoxia increases cellular phosphocholine and total choline levels in human prostate cancer cells. *Thirteenth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Miami Beach, Florida, USA.
  33. Mori, N., **Glunde, K.**, and Bhujwalla, Z. M. (2005) Tumor microenvironment alters choline phospholipid metabolite levels. *Thirteenth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Miami Beach, Florida, USA.
  34. **Glunde, K.**, Raman, V., Solaiyappan, M., Pathak, A. P., Artemov, D., and Bhujwalla, Z. M. (2005) Hypoxia-driven increase in cellular phosphocholine and total choline levels in human prostate cancer cells. *The Fourth Annual Meeting of the Society for Molecular Imaging*, Cologne, Germany.
  35. **Glunde, K.**, Foss, C. A., Tiffany Greenwood, T. R., and Bhujwalla, Z. M. (2006) Increased lysosomal burden correlates with the metastatic potential of human breast cancer xenografts. *97<sup>th</sup> annual meeting of the American Association for Cancer Research (AACR)*, Washington, DC, USA.
  36. Mori, N., **Glunde, K.**, Takagi, T., Raman, V., and Bhujwalla, Z. M. (2006) Inhibition of choline kinase expression by siRNA enhances treatment of breast cancer cells with 5-Fluorouracil. *97<sup>th</sup> annual meeting of the American Association for Cancer Research (AACR)*, Washington, DC, USA.
  37. Har-el, Y., **Glunde, K.**, Sgouros, G. (2006) Liposomal delivery of radionuclides targeted to ovarian cancer cells. *97<sup>th</sup> annual meeting of the American Association for Cancer Research (AACR)*, Washington, DC, USA.
  38. **Glunde, K.**, Raman, V., and Bhujwalla, Z. M. (2006) Hypoxia regulates phosphocholine and total choline concentrations in human prostate cancer. *Fourteenth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Seattle, Washington, USA.

39. **Glunde, K.**, Artemov, D., Raman, V., and Bhujwala, Z. M. (2006) Choline kinase suppression increases tumor lipid content and vascular volume in a human breast cancer model. *Fourteenth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Seattle, Washington, USA.
40. Mori, N., **Glunde, K.**, Takagi, T., Raman, V., and Bhujwala, Z. M. (2006) Choline kinase downregulation by siRNA reduces phosphocholine and total choline, and enhances treatment of breast cancer cells with 5-fluorouracil. *Fourteenth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Seattle, Washington, USA.
41. Har-el, Y., **Glunde, K.**, Sgouros, G. (2006) Detection of liposomal uptake to ovarian cancer cells using  $^1\text{H}$  MR spectroscopy. *Fourteenth Scientific Meeting of the International Society of Magnetic Resonance in Medicine*, Seattle, Washington, USA.

### **Invited talks**

1. *Breast Cancer Seminar*, Oncology Department, The Johns Hopkins University School of Medicine, Baltimore, MD, USA, February 13, 2001. Title of Talk: 'Lysosomes and lysosome-associated membrane protein (LAMP) in cancer cell invasion'
2. *Breast Cancer Seminar*, Oncology Department, The Johns Hopkins University School of Medicine, Baltimore, MD, USA, September 25, 2001. Title of Talk: 'Imaging lysosomes and lysosome-associated membrane proteins (LAMPs) in human mammary epithelial cells'
3. *Breast Cancer Seminar*, Oncology Department, The Johns Hopkins University School of Medicine, Baltimore, MD, USA, April 23, 2002. Title of Talk: 'Real-time changes in  $^1\text{H}$  and  $^{31}\text{P}$  NMR spectra of malignant human mammary epithelial cells during treatment with the anti-inflammatory agent indomethacin'
4. *In Vivo Cellular Molecular Imaging Center – Seminar Series*, The Russell H. Morgan Department of Radiology, The Johns Hopkins University School of Medicine, Baltimore, MD, USA June 12, 2002. Title of Talk: 'Altered lysosomal trafficking in human breast cancer cells during extracellular acidosis'
5. *Breast Cancer Seminar*, Oncology Department, The Johns Hopkins University School of Medicine, Baltimore, MD, USA, January 28, 2003. Title of Talk: 'Altered lysosomal trafficking in human breast cancer cells during extracellular acidosis'
6. *Invited lecture*, University of Colorado Health Sciences Center, University of Colorado, Denver, CO, USA, July 30, 2003. Title of Talk: 'Metabolic and cell biological aspects of cancer invasion and metastasis'
7. *MR Research Seminar*, The Russell H. Morgan Department of Radiology, Johns Hopkins University School of Medicine, Baltimore, MD, USA, March 04, 2004. Title of Talk: "Choline in breast cancer"
8. *Breast Cancer Seminar*, Oncology Department, The Johns Hopkins University School of Medicine, Baltimore, MD, USA, April 20, 2004. Title of Talk: 'Choline phospholipid metabolism in breast cancer'
9. *In Vivo Cellular Molecular Imaging Center – Seminar Series*, The Russell H. Morgan Department of Radiology, The Johns Hopkins University School of Medicine, Baltimore, MD, USA June 02, 2004. Title of Talk: 'CDA #1 update: lysosomes & beyond ...'
10. *In Vivo Cellular Molecular Imaging Center – 1<sup>st</sup> Annual P50 ICMIC and SAIRP Retreat*, The Russell H. Morgan Department of Radiology, The Johns Hopkins University School of Medicine, Baltimore, MD, USA, July 12, 2004. Title of Talk: 'Lysosomal trafficking in breast cancer'
11. *In Vivo Cellular Molecular Imaging Center – Seminar Series*, The Russell H. Morgan Department of Radiology, The Johns Hopkins University School of Medicine, Baltimore, MD, USA March 30, 2005. Title of Talk: 'Update on CDA #1: Optical imaging of lysosomes in vivo'
12. *In Vivo Cellular Molecular Imaging Center – 2<sup>nd</sup> Annual P50 ICMIC and SAIRP Retreat*, The Russell H. Morgan Department of Radiology, The Johns Hopkins University School of Medicine, Baltimore, MD, USA, July 22, 2005. Title of Talk: 'Research Component #1: Combined Anti-Angiogenic Therapy and siRNA Targeting of Choline Kinase'
13. *In Vivo Cellular Molecular Imaging Center – 2<sup>nd</sup> Annual P50 ICMIC and SAIRP Retreat*, The Russell H. Morgan Department of Radiology, The Johns Hopkins University School of Medicine, Baltimore, MD, USA, July 22, 2005. Title of Talk: 'Career Development Award #1: Lysosomal trafficking in breast cancer'

14. *Max Planck Institute for Biological Cybernetics – Invited Seminar*, Tübingen, Germany, August 30, 2005. Title of Talk: 'Molecular and Functional Imaging of Breast Cancer: Lysosomal Trafficking and Choline Metabolism'.
15. *Korean Society for Molecular Imaging (KSMI) Meeting – Invited Speaker*, Seoul, Korea, November 5, 2005. Title of Talk: 'Recent advances in molecular and functional imaging of cancer.'
16. *Yonsei University – Invited Seminar*, Seoul, Korea, November 8, 2005. Title of Talk: 'Recent advances in molecular and functional imaging of cancer.'
17. *KCIST BioMedical Nanolmaging Meeting – Invited Speaker*, Jeju, Korea, November 9, 2005. Title of Talk: 'Recent advances in molecular and functional imaging of cancer.'
18. *5<sup>th</sup> Annual Metabolic Profiling Meeting – Pathways in Discovery – Invited Speaker*, Orlando, Florida, USA, December 8, 2005. Title of Talk: 'The choline metabolite profile in tumor invasion and metastasis'.
19. *Institute for Atomic and Molecular Physics (AMOLF) – Invited Seminar*, Amsterdam, The Netherlands, March 29, 2006. Title of Talk: 'Choline Phospholipid Metabolism in Cancer'.

## C. Research Support

### Ongoing Research Support

1 R21 CA112216-01 Kristine Glunde (PI)

06/01/05-05/31/07

NIH/NCI

*'Imaging lysosomes to predict metastasis in breast cancer'* The aim of this R21 is to develop novel imaging techniques to optically image lysosomes, and to assess the role of lysosomal trafficking in breast cancer invasion and metastasis.

Role: Principal Investigator

2 R01 CA082337 Zaver Bhujwala (PI)

05/01/04-04/30/08

NIH/NCI

*'Hostile Environments Promote Invasion and Metastasis'* The aim of these studies is to identify the interaction between the physiological environment and inflammatory signaling and vascularization in breast cancer invasion and metastasis, and the ability of anti-inflammatory agents to prevent invasion and metastasis.

Role: Co-Investigator

1P50 CA 103175 Bhujwala, Z.M. (PI)

08/01/03-07/31/08

NIH

*'JHU ICMIC Program'* This center grant is funded to establish an In Vivo Cellular and Molecular Imaging Center at Johns Hopkins. The center grant consists of four 'R01's, five developmental projects, five resources, and a career developmental program. Percent effort is provided on studies investigating the role of choline kinase in cancer metastasis as part of a research component.

Role: Co-Investigator

### Completed Research Support

1P50 CA 103175 Bhujwala, Z.M. (PI) / Glunde, K. (Career Development Awardee) 08/01/03-07/31/05

NIH

*'JHU ICMIC Program'* This CDA from the center grant is funded to study the role lysosomal trafficking in breast cancer invasion and metastasis.

Role: Career Development Awardee