

# CURRICULUM VITAE

Ande Bao, PhD, MS, DABR

Medical Physicist  
Department of Radiation Oncology  
Seidman Cancer Center  
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## EDUCATION

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<i>University of Texas Health Science Center at San Antonio, San Antonio, Texas</i>	
Ph.D.	2003
Major: Radiological Sciences - Medical Physics	
<i>Beijing Normal University, Beijing, China</i>	
M.S.	1996
Major: Radiopharmaceutical Chemistry	
<i>Sichuan University, Chengdu, China</i>	
B.Sc.	1990
Major: Radiochemistry, Chemistry	

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## POST-GRADUATE TRAINING

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<i>University of Texas Health Science Center at San Antonio, San Antonio, Texas</i>	
Post-doctoral Fellow	2003-2005

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## EMPLOYMENT

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*University Hospitals Case Medical Center / Case Western Reserve University, Cleveland, Ohio*

Clinical Medical Physicist / Assistant Professor	June 2012-Current
<i>University of Texas Health Science Center at San Antonio, San Antonio, Texas</i>	
Assistant Professor / Medical Physicist	2005-June 2012
<i>University of Texas Health Science Center at San Antonio, San Antonio, Texas</i>	
Post-doctoral Fellow	2003-2005
<i>China-Japan Friendship Hospital, Beijing, China</i>	
Clinical and Research Associate	1996-1999
<i>Southwestern Institute of Nuclear Physics and Chemistry, Chengdu, China</i>	
Research Assistant	1990-1993

## BOARD CERTIFICATION

<i>American Board of Radiology (ABR) board certificate (No. P3586)</i>	2008
Specialty: Nuclear Medical Physics	
<i>American Board of Radiology (ABR) board certificate (No. P3586)</i>	2014
Specialty: Therapeutic Medical Physics	

## CLINICAL EXPERIENCE

<i>University Hospitals Case Medical Center, Seidman Cancer Center, Department of Radiation Oncology, Cleveland, Ohio</i>	
Radiation therapy physics clinical service	June 2012-Current
<i>University of Texas Health Science Center at San Antonio / Cancer Therapy and Research Center, Department of Radiation Oncology, San Antonio, Texas</i>	
Radiation therapy physics clinical practice	2008-June 2012
<i>University of Texas Health Science Center at San Antonio, Department of Radiology, San Antonio, Texas</i>	
Clinical nuclear medicine physics service; Clinical radionuclide therapy physics service	2005-June 2012

## MAJOR GRANT AWARDS

<i>Cancer Prevention Research Institute of Texas (CPRIT).</i>	
Title: Development of rhenium nanoliposomes for Cancer Therapy	May 2015-Feb. 2018
Role: Sub-Investigator / Medical Physicist	
<i>NIH/NCI. R01 CA131039</i>	
Title: Image-Guided Interventional Cancer Therapy with Liposomal Radionuclides	Nov. 2008-July 2013
Role: Principal Investigator (PI)	
<i>San Antonio Life Science Institute (SALSI)</i>	
Title: Development of a New Lipid Nanoparticle Platform for Drug Delivery	Aug. 2010-Aug. 2011

Role: Principal Investigator (PI)

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*Susan G. Komen for the Cure® Foundation. BCTR0707169*

Title: Breast Cancer Brachytherapy Using Nanoparticle-Carried Therapeutic Radionuclides Sep. 2007-Sep. 2010

Role: Principal Investigator (PI)

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*University of Texas Health Science Center at San Antonio ERC Pilot grant*

Title: Pilot Studies on Image Guide Interventional Therapy Nov. 2005-Apr. 2007

Role: Principal Investigator (PI)

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*San Antonio Area Foundation*

Title: EGFR / VEGFR Targeted Nuclear Imaging and Radionuclide Therapy June 2006-May 2007

Role: Principal Investigator (PI)

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*NIH/NCI. P30 CA054174-16*

Title: Radiofrequency Ablation (RFA) and Rhenium Liposomes for Solid Tumor Therapy Aug. 2005 –July 2007

Role: Co-Investigator

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## HONORS AND AWARDS

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*Academy of Molecular Imaging (AMI) Annual Conference 2005*

Young Investigator Travel Scholarship March 2005

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*Society of Nuclear Medicine (SNM) – Chinese Society of Nuclear Medicine (CSNM) Joint Meeting 2011*

Travel Award Feb. 2011

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*Medical Internal Radiation Dose (MIRD) Committee of Society of Nuclear Medicine (SNM)*

Internship Oct. 2008-2012

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## COURSE TEACHING

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*Physics of Nuclear Medicine course for Radiological Sciences – Medical Physics graduate students*

Course Director Jan. 2007-May 2012

Can teach major courses of *Diagnostic and Molecular Imaging Physics*, and *Radiation Therapy Physics*

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## INSTRUCTION

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I served as supervisor of two (2) Ph.D. graduate students in Medical Physics (Therapy Physics and Diagnostic Imaging Physics tracks, respectively) for their Ph.D. research projects, who obtained their Ph.D. degree in 2011 and 2012, respectively.

I supervised one (1) graduate student in Image / Data Analysis, who received her Ph.D. degree in 2012.

I also supervised two (2) Post-doctoral Fellows, three (3) Medical Doctors (M.D.), and three (3) Medical Students for their preclinical research.

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## PATENT

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*U.S., European, Canada, and Australian patent*

Title: Radiolabeled Compounds and Liposomes and Their Method of Making and Using Same

U.S. Patent No. 7,718,160  
Issued Date: May 18, 2010

Inventors: **Ande Bao**, William T. Phillips, Beth Goins

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## PEER-REVIEWED PUBLICATIONS

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(\* denotes author for correspondence)

- 1) Goins B, Phillips WT, **Bao A**. Strategies for improving the intratumoral distribution of liposomal drugs in cancer therapy. *Expert Opin Drug Deliv* 2016; Apr 4:1-17. [Epub ahead of print] (PMID: 26981891).
- 2) Phillips WT, **Bao A**, Brenner AJ, Goins BA. Image-guided interventional therapy for cancer with radiotherapeutic nanoparticles. *Adv Drug Deliv Rev* 2014;76:39–59 (PMID: 25016083).
- 3) Jiang L, Miao Z, Liu H, Ren G, **Bao A**, Cutler CS, Shi H, Cheng Z. <sup>177</sup>Lu-labeled RGD-BBN heterodimeric peptide for targeting prostate carcinoma. *Nucl Med Commun* 2013;34:909–914 (PMID: 23708872).
- 4) Flaten GE, Chang TT, Phillips WT, Brandl M, **Bao A**, Goins B. Liposomal formulations of poorly soluble camptothecin: drug retention and biodistribution. *J Liposome Res* 2013;23:70–81 (PMID: 232106).
- 5) Li S, Goins B, Hrycushko BA, Phillips WT, **Bao A\***. Feasibility of eradication of breast cancer cells remaining in postlumpectomy cavity and draining lymph nodes following intracavitary injection of radioactive immunoliposomes. *Mol Pharm* 2012;9:2513–2522 (PMID: 22894603).
- 6) Li S, Goins B, Zhang L, **Bao A\***. A Novel multifunctional theranostic liposome drug delivery system: Construction, in vitro stability and multimodality MR, near-infrared fluorescent and nuclear imaging. *Bioconjugate Chem* 2012;23:1322–1332 (PMID: 2257785).
- 7) Hoppmann S, Qi S, Miao Z, Liu H, Jiang H, Cutler CS, **Bao A**, Cheng Z. <sup>177</sup>Lu-DO3A-HSA-Z<sub>EGFR:1907</sub>: Characterization as a potential radiopharmaceutical for radionuclide therapy of EGFR-expressing head and neck carcinomas. *J Biol Inorg Chem* 2012;17:709–718 (PMID: 22418921).
- 8) Xie H, Goins B, **Bao A**, Wang ZJ, Phillips WT. Effect of intratumoral administration on the biodistribution of <sup>64</sup>Cu labeled gold nanoshells. *Int J Nanomed* 2012;7:2227–2238.
- 9) Phillips WT, Goins B, **Bao A**, Vargas D, Guttierrez JE, Trevino A, Miller JR, Henry J, Zuniga R, Vecil G, Brenner AJ. Rhenium-186 liposomes as convection-enhanced nanoparticle brachytherapy for treatment of glioblastoma. *Neuro-Oncol* 2012;14:416–425 (PMID: 22427110).

**Editorial:** Nanoparticles for treating brain tumors: unlimited possibilities. *Neuro-Oncol* 2012;14:389.

- 10) Soundararajan A, Dodd GD, III, **Bao A**, Phillips WT, McManus L, Pridhoda TJ, Goins BA. Chemo-radionuclide therapy with rhenium-186 labeled liposomal doxorubicin in combination with radiofrequency ablation for effective treatment of head and neck cancer. *Radiology* 2011;261:813–823 (PMID: 22025735).

**Comment by:** Goldberg SN. Science to practice: Which approaches to combination interventional oncologic therapy hold the greatest promise of obtaining

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- maximal clinical benefit? *Radiology* 2011;261:667–669 (PMID: 22095989).
- 11) Hrycushko BA, Ware S, Li S, **Bao A\***. Improved tumour response prediction with equivalent uniform dose for direct intratumoral infusion of liposome-encapsulated <sup>186</sup>Re radionuclide. *Phys Med Biol* 2011;56:5721–5734 (PMID: 21841210).
  - 12) Soundararajan A, **Bao A**, Phillips WT, McManus LM, Perez R, III, Goins BA. Chemo-radionuclide therapy with <sup>186</sup>Re labeled liposomal doxorubicin: Toxicity, therapeutic response, and dosimetry. *Cancer Biother Radiopharm* 2011;26:603–614 (PMID: 21834653).
  - 13) Hrycushko BA, Li S, Goins B, Otto RA, **Bao A\***. Direct intratumoral infusion of lipid nanoparticle-carried beta-emitting radionuclides for cancer therapy: effects of nonuniform intratumoral dose distribution. *Med Phys* 2011;38:1339–1347 (PMID: 21520844).
  - 14) Mfuh AM, Mahindaratne MP, Quintero MV, Lakner FJ, **Bao A**, Goins BA, Phillips WT, Negrete GR. Novel asparagine-derived lipid enhances distearoylphosphatidylcholine bilayer resistance to acidic conditions. *Langmuir* 2011;27:4447–4455 (PMID: 21413760).
  - 15) Xie H, Parmeswaran P, Deorukhkar AA, Goins B, **Bao A**, Phillips WT, Wang Z, Schwartz J, Krishnan S. Integrin  $\alpha v \beta 3$ -targeted gold nanoshells augment tumor vasculature-specific imaging and therapy. *Int J Nanomed* 2011;6:259–269 (PMID: 21423588).
  - 16) Hoppmann S, Miao Z, Liu S, Liu H, Ren G, **Bao A**, Cheng Z. Radiolabeled affibody-albumin bioconjugates for HER2-positive cancer targeting. *Bioconjug Chem* 2011;22:413–421 (PMID: 21299201).
  - 17) Li S, Goins B, Phillips WT, Saenz M, Otto PM, **Bao A\***. Post-lumpectomy intracavitary retention and lymph node targeting of <sup>99m</sup>Tc encapsulated liposomes in breast cancer xenograft nude rats. *Breast Cancer Res Treat* 2011;130:97–107 (PMID: 21181436).
  - 18) Hrycushko BA, Gutierrez AN, Goins B, Yan W, Phillips WT, Otto PM, **Bao A\***. Radiobiological characterization of post-lumpectomy focal brachytherapy with lipid nanoparticle-carried radionuclides. *Phys Med Biol* 2011;56:703–719 (PMID: 21299006).
  - 19) Jiang L, Miao Z, Kimura RH, Liu H, Cochran JR, Culter CS, **Bao A**, Li P, Cheng Z. Preliminary evaluation of <sup>177</sup>Lu-labeled Knottin peptides for integrin receptor-targeted radiotherapy. *Eur J Nucl Med Molec Imaging* 2011;38:613–622 (PMID: 21153409).
  - 20) Hrycushko BA, Li S, Shi C, Goins B, Liu Y, Phillips WT, Otto PM, **Bao A\***. Post-lumpectomy focal brachytherapy for simultaneous treatment of surgical cavity and draining lymph nodes. *Int J Radiat Oncol Biol Phys* 2011;79:948–955 (PMID: 20864271).
  - 21) Xie H, Wang ZJ, **Bao A**, Goins B, Phillips WT. In vivo PET imaging and biodistribution of radiolabeled gold nanoshells in rats with tumor-xenografts. *Int J Pharm* 2010;395:324–330 (PMID: 20540999).
  - 22) French JT, Goins B, Phillips WT, Saenz M, Li S, Garcia-Rojas X, Otto RA, **Bao A\***. Interventional therapy of head and neck cancer with lipid nanoparticle-carried rhenium-186 radionuclide. *J Vasc Interven Radiology* 2010;21:1271–1279 (PMID: 20478719).
  - 23) Li S, Goins B, Phillips WT, **Bao A\***. Remote loading of <sup>99m</sup>Tc-BMEDA into liposomes and in vitro stability evaluation: effects of lipid formulations and chemical gradients. *J Liposome Res* 2011;21:17–27 (PMID: 20334497).
  - 24) Zheng X, Goins BA, Cameron IL, Santoyo C, **Bao A**, Frohlich VC, Fullerton GD. Ultrasound-guided intratumoral administration of collagenase-2 improved liposome
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- drug accumulation in solid tumor xenografts. *Cancer Chemother Pharmacol* 2011;67:173–182 (PMID: 20306263).
- 25) Head HW, Dodd GD, III, **Bao A**, Soundararajan A, Garcia-Rojas X, Prihoda TJ, McManus LM, Goins BA, Santoyo C, Phillips WT. Combination radiofrequency ablation and intravenous radiolabeled liposomal doxorubicin: Imaging and quantification of increased drug delivery to tumors. *Radiology* 2010;255:405–414 (PMID: 20413753).
  - 26) Goins B, **Bao A**, Phillips WT. Techniques for loading technetium-99m and rhenium-186/188 radionuclides into pre-formed liposomes for diagnostic imaging and radionuclide therapy. *Methods Molec Biol* 2010;606:469–491 (PMID: 20013416).
  - 27) Soundararajan A, **Bao A**, Phillips WT, Perez R, III, Goins BA. <sup>186</sup>Re-liposomal doxorubicin (Doxil): In vitro stability, pharmacokinetics, imaging and biodistribution in head and neck squamous cell carcinoma xenograft-bearing nude rats. *Nucl Med Biol* 2009;36:515–524 (PMID: 19520292).
  - 28) Wang SX, **Bao A\***, Phillips WT, Goins B, Herrera SJ, Santoyo C, Miller FR, Otto RA. Cancer intraoperative therapy with liposomal drug delivery: Retention and distribution in human head and neck squamous cell carcinoma xenograft model. *Int J Pharm* 2009;373:156–164 (PMID: 19429301).
  - 29) Phillips WT, Goins BA, **Bao A**. Radioactive liposomes. *WIREs Nanomed Nanobiotech* 2009;1:69–83 (PMID: 20049780).
  - 30) **Bao A**, Goins B, Dodd GD, 3rd, Soundararajan A, Santoyo C, Otto RA, Davis MD, Phillips WT. Real time iterative monitoring of RF ablation tumor therapy with <sup>15</sup>O-water PET imaging. *J Nucl Med* 2008;49:1723–1729 (PMID: 18794264).
  - 31) Zavaleta CL, Goins BA, **Bao A**, McManus LM, McMahan CA, Phillips WT. Imaging of <sup>186</sup>Re-liposome therapy in ovarian cancer xenograft model of peritoneal carcinomatosis. *J Drug Targeting* 2008;16:626–637 (PMID: 18686134).
  - 32) Wang SX, **Bao A\***, Herrera SJ, Phillips WT, Goins B, Santoyo C, Miller FR, Otto RA. Intraoperative <sup>186</sup>Re-liposome radionuclide therapy in a head and neck squamous cell carcinoma xenograft positive surgical margin model. *Clin Cancer Res* 2008;14:3975–3983 (PMID: 18559620).
  - 33) Kundu SK, Mahindaratne MPD, Quintero MV, **Bao A**, Negrete GR. One-pot reductive cyclization to antitumor quinazoline precursors. *Arkivoc* 2008;2:33–42.
  - 34) Lacerda L, Soundararajan A, Pastorin G, Al-Jamal K, Turton J, Frederik P, Herrero MA, Li S, **Bao A**, Emfietzoglou D, Mather S, Phillips WT, Prato M, Bianco A, Goins B, Kostarelos K. Dynamic imaging of functionalised multi-walled carbon nanotube systemic circulation & urinary excretion. *Adv Materials* 2008;20:225–230.
  - 35) Medina LA, Goins B, Rodríguez-Villafuerte M, **Bao A**, Martínez-Davalos A, Awasthi V, Galván OO, Santoyo C, Phillips WT, Brandan M-E. Spatial dose distributions in solid tumors from <sup>186</sup>Re transported by liposomes using HS radiochromic media. *Eur J Nucl Med Molec Imaging* 2007;34:1039–1049 (PMID: 17287961).
  - 36) **Bao A\***, Phillips WT, Goins B, McGuff HS, Zheng X, Woolley FR, Natarajan M, Santoyo C, Miller FR, Otto RA. Setup and characterization of a human head and neck squamous cell carcinoma xenograft model in nude rats. *Otolaryngol Head neck Surg* 2006;135:853–857 (PMID: 17141073).
  - 37) **Bao A\***, Phillips WT, Goins B, Zheng X, Sabour S, Natarajan M, Woolley FR, Zavaleta C, Otto RA. Potential use of drug carried-liposomes for cancer therapy via direct intratumoral injection. *Int J Pharm* 2006;316:162–169 (PMID: 16580161).
  - 38) **Bao A\***, Zhao X, Phillips WT, Woolley FR, Otto RA, Goins B, Hevezi JM. Theoretical study of the influence of a heterogeneous activity distribution on intratumoral absorbed dose distribution. *Med Phys* 2005;32:200–208 (PMID: 15719971).
  - 39) **Bao A**, Goins B, Klipper R, Negrete G, Phillips WT. Pegylated liposomal doxorubicin (Doxil) direct <sup>99m</sup>Tc labeling for pharmacokinetic and non-invasive imaging studies. *J*
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- Pharmacol Exp Ther* 2004;308:419–425 (PMID: 14610219).
- 40) **Bao A**, Goins B, Klipper R, Negrete G, Phillips WT. Novel  $^{186}\text{Re}$ -liposome labeling using  $^{186}\text{Re}$ -“SNS/S” complexes: *in vitro* stability, imaging and biodistribution in rats. *J Nucl Med* 2003;44:1992–1999 (PMID: 14660726).
  - 41) **Bao A\***, Goins B, Klipper R, Negrete G, Mahindaratne M, Phillips WT. A Novel Liposome Radiolabeling Method Using  $^{99\text{m}}\text{Tc}$ -“SNS/S” Complexes: *In Vitro* and *In Vivo* Evaluation. *J Pharm Sci* 2003;92:1893–1904 (PMID: 12950007).
  - 42) **Bao A**, Lu L, Wang X, Qin L. Radiolabeling chemistry of  $^{99\text{m}}\text{Tc}$  and  $^{188}\text{Re}$  with *o*-phenanthroline. *Nuclear Techniques* 1999;22:253–256 (in Chinese).
  - 43) **Bao A**, Ma H, Qin L, et al. Comparative Study on Lunar, Hologic, Norland Dual Energy X-Ray Bone Densitometry with European Spine Phantom. *Nuclear Electronics & Detection Technology* 1999;19:352–356 (in Chinese).
  - 44) Qin L, **Bao A**, Ma H, et al. Effect of Zn, Cu, Mn on the growth and mechanical strength of adolescent rat skeleton. *Chinese Journal of Trace Element* 1999;1(2):9–11 (in Chinese).
  - 45) Nie H, Qin L, Tian W, Ni B, **Bao A**, Wang P. Preliminary study on the relationship between osteoporosis and trace elements with rat models. *Biol Trace Element Res* 1999;71–72:523–528.
  - 46) Qin L, Chen J, Ge C, Ma H, Zhang W, Xiao Y, **Bao A**. Analysis of bone mineral density and relevant factors in 781 healthy people aged 15 to 50. *Chinese Journal of Preventive Medicine* 1999;33:282–285 (in Chinese).
  - 47) **Bao A**, Zhang W, Qin L, Zhang L, Ge C, Ma H. Diagnosis of secondary hyperparathyroidism induced by chronic renal failure in 271 patients using serum PTH-M. *Journal of China-Japan Friendship Hospital* 1997;11:205–208 (in Chinese).
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## BOOK CHAPTERS

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- 1) Phillips WT, **Bao A**, Sou K, Li S, Goins B. Radiolabeled liposomes as drug delivery nanotheranostics. P252-267. In: *Drug Delivery Applications of Noninvasive Imaging: Validation from Biodistribution to Sites of Action* (Ed. C. Li, M. Tian), Wiley 2013.
  - 2) Phillips WT, Goins B, Sou K, **Bao A**. Radiolabeled liposomes as theranostic agents. P71-108. In: *Nanoimaging* (Ed. B. A. Goins, W. T. Phillips), Pan Stanford Publishing 2011.
  - 3) Xie H, Wang ZJ, **Bao A**, Goins B, Phillips WT. Radiolabeled gold nanoshells for in vivo imaging: Example of methodology for initial evaluation of biodistribution of a novel nanoparticle. P213-224. In: *Nanoimaging* (Ed. B. A. Goins, W. T. Phillips), Pan Stanford Publishing 2011.
  - 4) Miller FR, Schmalbach CE, **Bao A**. Occult primary head and neck carcinoma: Role of positron emission tomography imaging. P423-430. In: *Cancer Imaging: Instrumentation and Applications*. Ed. Hayat MA. Elsevier 2008.
  - 5) Phillips WT, Goins B, **Bao A**. Long-Circulating Liposomes with Attached Diagnostic Moieties: Application for Gamma and MR Imaging. P431-456. In: *Multifunctional Pharmaceutical Nanocarriers* (Ed. V. Torchilin), Springer 2008.
  - 6) Laverman P, Storm G, Phillips WT, **Bao A**, Goins B. Radiolabeling of liposomes for scintigraphic imaging. In: *Liposome Technology (3<sup>rd</sup> Edition) (Vol. II)* (Editor-in-Chief: Gregory Gregoriadis) P169 -185. Informa Healthcare, New York, NY 2006.
  - 7) Phillips WT, Goins B, **Bao A**, Medina LA. Liposomes for intracavitary and intratumoral drug delivery. In: *Liposome Technology (3<sup>rd</sup> Edition) (Vol. III)* (Editor-in-Chief: Gregory Gregoriadis) P277-302. Informa Healthcare, New York, NY 2006.
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## INVITED LECTURES / PRESENTATIONS

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- 1) Floyd J, Phillips W, Goins B, **Bao A**, Brenner A. First in human study of rhenium nanoliposomes for intratumoral therapy of glioma. **Oral and poster presentations.** SNO-Society for CNS Interstitial Delivery of Therapeutics / Joint Conference on Therapeutic Delivery to the CNS. San Antonio, Texas. Nov. 18-19, 2015.
  - 2) **Bao A**, Zheng Y, Ware S, Colussi V, Ellis R, Wessels B. MRI-guided targeted prostate cancer radiation therapy: Imaging, diagnosis, and image co-registration. **Poster presentation.** The 55th *Annual Meeting of the American Association of Physicists in Medicine (AAPM)*, Indianapolis, Indiana. Aug. 2013.
  - 3) **Bao A**, Zheng Y, Ellis R, Fabien J, Rhodes C, Colussi V, Wessels B. MRI-guided targeted prostate cancer radiation therapy: Multi-image co-registration. **Poster presentation.** The 55th *Annual Meeting of the American Association of Physicists in Medicine (AAPM)*, Indianapolis, Indiana. Aug. 2013.
  - 4) Ellis R, Traughber B, **Bao A**, Pereira G, Kaminsky D, Pirozzi S, Shen Z, Liu I, Nelson A, Piper J. Comparison of planned versus delivered dose for prostate cancer using deformable image-guided adaptive radiation therapy (IGART). **Poster presentation.** The 55th *Annual Meeting of the American Association of Physicists in Medicine (AAPM)*, Indianapolis, Indiana. Aug. 2013.
  - 5) Ware S, May L, Li S, Reddick RL, **Bao A**. Histochemical evaluation of intratumoral radionuclide therapy with liposome-encapsulated  $^{186}\text{Re}$ . **Poster presentation.** *The Annual Meeting of Society of Nuclear Medicine (SNM)*, Miami, FL. June 2012.
  - 6) Chung Y-h, Goins B, Li S, Ware S, Mfuh A, Negrete G, **Bao A**. Imaging and biodistribution of acid-stable liposome-based oral drug delivery with Tc-99m-labeling. **Poster presentation.** *The Annual Meeting of Society of Nuclear Medicine (SNM)*, Miami, FL. June 2012.
  - 7) Hrycushko BA, Ware S, Li S, Goins B, **Bao A**. Improved dose-response relationship for focused cancer therapy with liposome-encapsulated  $^{186}\text{Re}$  radionuclides. **Poster presentation.** The 53rd *Annual Meeting of the American Association of Physicists in Medicine (AAPM)*, Vancouver, Canada. July 2011.
  - 8) Ware S, Hardman R, Tio F, **Bao A**. MRI detection of dominant intraprostatic lesions and correlation with tumor microenvironment. **Poster presentation.** The 53rd *Annual Meeting of the American Association of Physicists in Medicine (AAPM)*, Vancouver, Canada. July 2011.
  - 9) Hrycushko BA, Ware S, Li S, Goins B, Zarzabal LA, Phillips WT, **Bao A**. Cancer therapy through altered tumor microenvironment combined with multiple intratumoral infusions of liposome-encapsulated  $^{186}\text{Re}$  radionuclides. **Oral presentation.** *The Annual Meeting of Society of Nuclear Medicine (SNM)*, San Antonio, TX. June 2011.
  - 10) Chung Y-h, Goins B, Li S, Mfuh A, Negrete G, **Bao A**. Evaluation of oral liposomal drug delivery with  $^{99\text{m}}\text{Tc}$ -labeling and simulated gastric and bile fluid incubation. **Oral presentation.** *The Annual Meeting of Society of Nuclear Medicine (SNM)*, San Antonio, TX. June 2011.
  - 11) Li S, Goins B, Zhang L, **Bao A**. Multifunctional liposomes for multi-modality near-infrared fluorescent, MR, and nuclear imaging of drug delivery and therapy response monitoring. **Poster presentation.** *The Annual Meeting of Society of Nuclear Medicine (SNM)*, San Antonio, TX. June 2011.
  - 12) **Bao A**. Focused cancer therapy with locoregional delivery of lipid nanoparticle-carried beta-emission radionuclides. **Invited oral presentation.** *The 1<sup>st</sup> Society of*
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*Nuclear Medicine (SNM) – Chinese Society of Nuclear Medicine (CSNM) Joint Meeting, Beijing, China. Feb. 24-27, 2011.*

- 13) Li S, Goins B, Hrycushko BA, Yan W, Phillips WT, Otto PM, **Bao A**. Nuclear and fluorescent imaging studies of post-lumpectomy focal therapy to eradicate remaining breast cancer cells using dual labeled immunoliposomes. **Oral presentation.** *The Annual Meeting of Society of Nuclear Medicine (SNM)*, Salt Lake City, UT. June 2010.
- 14) **Bao A**, Goins B, Jin X, Yan W, Davis MD, Phillips WT, Otto RA. <sup>15</sup>O-water PET imaging of water retention and clearance in image-guided interventional delivery of nanoparticle-carried cancer therapy agents. **Oral presentation.** *The Annual Meeting of Society of Nuclear Medicine (SNM)*, Salt Lake City, UT. June 2010.
- 15) Hrycushko B, Li S, Shi C, Liu Y, **Bao A**. Novel post-lumpectomy breast cancer brachytherapy with the capability of simultaneous focal lymph node irradiation. *Medical Physics* 36: 2772-2773 (Abstract). **Oral presentation.** *The 51st Annual Meeting of the American Association of Physicists in Medicine (AAPM)*, Anaheim, CA. July 2009.
- 16) French JT, Goins B, Saenz M, Li S, Garcia-Rojas X, Phillips WT, Otto R, **Bao A**. Interventional therapy of head and neck cancer with lipid nanoparticle-carried rhenium-186. **Poster presentation.** *The 100<sup>th</sup> Annual Meeting of the American Association for Cancer Research (AACR)*, Denver, CO, Apr. 2009.
- 17) Li S, Goins B, Phillips WT, Saenz M, Otto P, **Bao A**. Postlumpectomy loco-regional breast cancer therapy with liposomal therapeutic agents: Retention and distribution in nude rats. *J Clin Oncol* 27, 2009 (suppl; abstr e11562). Electronic presentation. *The American Society of Clinical Oncology (ASCO) Annual Meeting 2009*, Orlando, FL. Apr. 2009.
- 18) **Bao A**, Goins B, Wang SX, Garcia-Rojas X, Soundararajan A, Otto RA, Dodd GD, III, Phillips WT. Image-guided interventional cancer therapy with <sup>186</sup>Re-liposomes. **Oral presentation.** *The Annual Meeting of Society of Nuclear Medicine (SNM)*, New Orleans, LA. June 2008.
- 19) Soundararajan A, **Bao A**, Perez R, Dodd G, Phillips W, Goins B. Determination of maximum tolerated dose of Re-186 liposomal doxorubicin in rats for effective therapy. **Poster presentation.** *The Annual Meeting of Society of Nuclear Medicine (SNM)*, New Orleans, LA. June 2008.
- 20) **Bao A**. Image-guided interventional cancer therapy with nanoparticle-carried radionuclides. **Invited Oral Presentation.** *The Southwest Chapter of the American Association of Physicists in Medicine (SWAAPM) Annual Meeting*. Austin, TX. Apr. 18-19, 2008.
- 21) Garcia-Rojas X, **Bao A**, Phillips WT, Soundararajan A, Goins B, Dodd GD. Comparative solid tumor therapy with direct intratumoral infusion of Doxil with and without adjuvant <sup>186</sup>Re radionuclide therapy and radiofrequency ablation. **Oral presentation.** *The World Congress of Interventional Oncology (WCIO) Annual Meeting*, Los Angeles, CA. Apr. 2008.
- 22) **Bao A**, Dodd GD, Goins BA, Soundararajan A, Davis MD, Phillips WT. Real time iterative monitoring of RF ablation tumor therapy with O-15-water PET imaging. **Oral presentation.** *The Radiological Society of North America (RSNA) Annual Meeting 2007*, Chicago, IL. Nov. 25-30, 2007.
- 23) Wang SX, **Bao A**, Phillips WT, Goins B, Miller FR, Otto RA. Intraoperative Liposomal Radionuclide Distribution Study. **Poster presentation.** *Academy of Otolaryngology – Head and Neck Surgery Annual Meeting*, Washington DC. Sep. 2007.

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- 24) **Bao A**, Herrera SJ, Wang SX, Phillips WT, Goins B, Miller FR, Otto RA. Intraoperative Therapy with Liposomal Radionuclide. **Oral presentation.** *Academy of Otolaryngology – Head and Neck Surgery Annual Meeting*, Washington DC. Sep. 2007.
  - 25) Soundararajan A, Dodd GD, III, **Bao A**, Perez R, III, Phillips WT, Goins BA. Longitudinal  $^{18}\text{F}$ -FDG MicroPET Imaging to Monitor Tumor Response Following Radiofrequency Ablation in a Head and Neck Squamous Cell Carcinoma (SCC) Xenograft in Nude Rats. **Poster presentation.** *Joint Molecular Imaging Conference*, Providence, RI. Sep. 7-11, 2007.
  - 26) Garcia-Rojas X, **Bao A**, Dodd GD III, Santoyo C, Raivas S, Perez R, Goins B, Phillips WT. MicroSPECT/CT imaging of intratumoral distribution and retention following intratumoral delivery of radiolabeled liposomes in a human solid tumor xenograft. **Poster presentation.** *Joint Molecular Imaging Conference*, Providence, RI. Sep. 7-11, 2007.
  - 27) **Bao A**, Goins B, Wang S, Garcia-Rojas X, Soundararajan A, Santoyo C, Otto RA, Dodd GD, III, Phillips WT. Re-186-lipid nanoparticles for intratumoral therapy of head and neck cancer in rats. **Oral presentation.** *Current Status in Radionuclide Therapy, Capri, NA, Italy*. Sep. 20-22, 2007.
  - 28) **Bao A**, Phillips WT, Goins B, Otto RA. Tumor brachytherapy using intratumoral injection of beta-emitting therapeutic radionuclides carried within nanoparticles. *Medical Physics* 33: 2236-2237 (Abstract). **Oral presentation.** *48th Annual Meeting of the American Association of Physicists in Medicine (AAPM)*, Orlando, FL. July 2006.
  - 29) Medina LA, Brandan ME, Martinez-Davalos A, Rodriguez-Villafuerte M, **Bao A**, and Goins B. Spatial Dose Distributions in Solid Tumors From  $^{186}\text{Re}$  Transported by Liposomes Using HS Radiochromic Media. *Medical Physics* 32: 2008, 2005 (Abstract). **Poster presentation.** *47th Annual Meeting of the American Association of Physicists in Medicine (AAPM)*, Seattle, WA. July, 2005.
  - 30) **Bao A**, Phillips WT, Goins B, Zheng X, McGuff HS, Natarajan M, Santoyo C, and Otto RA. Small animal imaging and histopathological studies on head and neck squamous cell carcinoma xenograft in nude rats. **Poster presentation.** *Academy of Molecular Imaging (AMI) Annual Conference*, Orlando, FL. Mar. 2005.
  - 31) **Bao A**, Zhao X, Goins B, Otto RA, and Phillips WT. The influence of heterogeneous radioactivity distribution on intratumoral radiation dose distribution. *J Nucl Med* 45(5S): 438P, 2004 (Abstract). **Poster presentation.** *The 51<sup>st</sup> Annual Meeting of Society of Nuclear Medicine (SNM)*, Pennsylvania, PA. June 2004.
  - 32) **Bao A**, Goins B, Klipper R, Negrete G, and Phillips WT. Novel  $^{186}\text{Re}$ -liposome labeling using  $^{186}\text{Re}$ -“SNS/S” complexes for radionuclide therapy. *J Nucl Med* 44(5S): 306P, 2003 (Abstract). **Poster presentation.** *The 50<sup>th</sup> Annual Meeting of Society of Nuclear Medicine (SNM)*, New Orleans, La. June 2003.
  - 33) **Bao A**, Phillips WT, Negrete G, Klipper R, and Goins B.  $^{99\text{m}}\text{Tc}/^{186}\text{Re}/^{188}\text{Re}$ -liposome radiolabeling for nuclear imaging and targeted radionuclide therapy. In: *Technetium, Rhenium and Other Metals in Chemistry and Nuclear Medicine.* **Oral presentation.** *Sixth International Symposium on Technetium in Chemistry and Nuclear Medicine*, Padova, Italy. Sep. 2002.
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## AREAS OF RESEARCH INTEREST

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- Multi-modal / Multi-parametric image co-registration, target definition, dose
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evaluation, and Image-Guided Radiation Therapy

- Radiological imaging, image analysis, and data interpretation
- Image-guided cancer biology-adapted radiation therapy
- Problem/Evidence-initiated clinical and translational cancer research
- Image-guided focused cancer radiation therapy and techniques
- Cancer focused brachytherapy using unsealed nano-radionuclide sources
- Medical application of nanotechnology
- Radionuclide therapy dosimetry and treatment planning
- Radiopharmaceutical sciences and targeted drug delivery
- Cancer molecular imaging – chemistry and biology
- Small animal imaging techniques and small animal imaging physics
- Translational and clinical research

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## PROFESSIONAL MEMBERSHIPS

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American Association on Physics in Medicine (AAPM)	2004-Current
American Association for Cancer Research (AACR)	2006-Current
Society of Nuclear Medicine (SNM)	2001-Current

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## PROFESSIONAL SERVICE / COMMUNITY ACTIVITY

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*Young Professional Committee (YPC) of Society of Nuclear Medicine (SNM)*

Invited Committee Member 2008-2012

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*Society of Nuclear Medicine (SNM) Annual Meeting, Salt Lake City, UT. June 2010*

Moderator June 2010

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## GRANT APPLICATION REVIEW

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*The North Carolina Biotechnology Center*

Invited Grant Proposal Reviewer Feb. 2007

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*National Institute of Health (NIH) – Stimulus Funds Challenge Grant. SPECIAL EMPHASIS PANEL ZRG1 BST*

Invited Grant Proposal Reviewer June 2009

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*Florida State Department of Health's James and Esther King Biomedical Research Program and Bankhead Coley Cancer Research Program*

Invited Grant Proposal Reviewer 2010 - 2013

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*Department of Defense (DoD), USA. Biomedical Research Program*

Invited Grant Proposal Reviewer 2013

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*Italian Ministry of Health. COMPETITION FOR TARGETED RESEARCH FUNDING CALL GRANT*

Invited Grant Proposal Reviewer 2010 – 2015

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*Swiss Cancer League. Research Grant*

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**MANUSCRIPT PEER-REVIEW**

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Over 30 manuscripts for scientific journals of:

- 1) Medical Physics
- 2) Journal of Applied Clinical Medical Physics
- 3) Journal of Nuclear Medicine
- 4) Journal of Nuclear Medicine Technology
- 5) Cancer Research
- 6) Clinical Cancer Research
- 7) Molecular Cancer Therapeutics
- 8) Molecular Pharmaceutics
- 9) Conjugate Chemistry
- 10) Journal of Pharmaceutical Sciences
- 11) Journal of Chemotherapy
- 12) Journal of Controlled Release
- 13) Nanomedicine: Nanotechnology, Biology, and Medicine
- 14) Journal of Experimental & Clinical Cancer Research
- 15) International Journal of Radiation Biology
- 16) Physics and Chemistry of Lipids

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**MEETINGS OR COURSES ATTENDED**

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- 1) The American Society of Radiation Oncology (ASTRO) 2015 State of Art Radiation Therapy (START) meeting. Las Vegas, NV. Apr. 2015.
  - 2) The 55<sup>th</sup> Annual Meeting of the American Association of Physicists in Medicine (AAPM), Indianapolis, Indiana. Aug. 2013.
  - 3) The 53<sup>rd</sup> Annual Meeting of the American Association of Physicists in Medicine (AAPM), Vancouver, Canada. July 2011.
  - 4) The 58<sup>th</sup> Annual Meeting of Society of Nuclear Medicine (SNM), San Antonio, TX. June 2011.
  - 5) The 1<sup>st</sup> Society of Nuclear Medicine (SNM) – Chinese Society of Nuclear Medicine (CSNM) Joint Meeting, Beijing, China. Feb. 2011.
  - 6) Geant4 Monte Carlo simulation software tutorial course. Texas A&M University, College Station, Texas. Jan. 2011.
  - 7) FDA's Clinical Investigator Training Course. National Labor College, Silver Spring, MD. Nov. 2010.
  - 8) The 57<sup>th</sup> Annual Meeting of Society of Nuclear Medicine (SNM), Salt Lake City, UT. June 2010.
  - 9) The 51<sup>st</sup> Annual Meeting of the American Association of Physicists in Medicine (AAPM), Anaheim, CA. July 2009.
  - 10) The 100<sup>th</sup> Annual Meeting of the American Association for Cancer Research (AACR), Denver, CO. Apr. 2009.
  - 11) The 50<sup>th</sup> Annual Meeting of the American Association of Physicists in Medicine (AAPM), Houston, TX. July 2008.
  - 12) The 55<sup>th</sup> Annual Meeting of Society of Nuclear Medicine (SNM), New Orleans, LA.
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June 2008.

- 13) The Southwest Chapter of the American Association of Physicists in Medicine (AAPM) Annual Meeting. Austin, TX. Apr. 2008.
  - 14) NIH BIROW5 workshop (NIBIB/NIH), Bethesda, MD. Jan. 2008.
  - 15) The Radiological Society of North America (RSNA) Annual Meeting 2007, Chicago, IL. Nov. 2007.
  - 16) The 7<sup>th</sup> Annual In Vivo Cancer Cellular and Molecular Imaging Symposium, University of Texas Southwestern Medical Center, Dallas, Texas. Oct. 2007.
  - 17) The 48<sup>th</sup> Annual Meeting of the American Association of Physicists in Medicine (AAPM), Orlando, FL. July 2006.
  - 18) The 97<sup>th</sup> Annual Meeting of the American Association for Cancer Research (AACR), Washington, DC. Apr. 2006.
  - 19) Academy of Molecular Imaging (AMI) Annual Conference, Orlando, FL. Mar. 2005.
  - 20) The 51<sup>st</sup> Annual Meeting of Society of Nuclear Medicine (SNM), Pennsylvania, PA. June 2004.
  - 21) The 50<sup>th</sup> Annual Meeting of Society of Nuclear Medicine (SNM), New Orleans, LA. June 2003.
  - 22) The 49<sup>th</sup> Annual Meeting of Society of Nuclear Medicine (SNM), Los Angeles, CA. June 2002.
  - 23) The 7<sup>th</sup> World Conference on Liposome Research, Napa, CA. May 2000.
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