BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
Yoshinori Kato	Assistant Professor of Radiology and Oncology
eRA COMMONS USER NAME ykato2	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Hoshi University, Tokyo, Japan	B.S.	1997	Pharmaceutical Sciences
Hoshi University, Tokyo, Japan	M.S.	1997-1999	Pharmaceutics (DDS)
Hoshi University, Tokyo, Japan	Ph.D.	1999-2002	Pharmaceutics (DDS)
Hoshi University, Tokyo, Japan	Postdoc	2002-2003	Pharmaceutics (DDS)
The Johns Hopkins University, Baltimore, USA	Postdoc	2003-2006	MR of Cancer

A. Personal Statement

My expertise is in pharmaceutics, in particular, drug delivery systems (DDS) in cancer, which is critically important for the JHU ICMIC. Specifically, my current research work and interests include preparation, characterization, pharmacodynamics, and imaging of anticancer agent/imaging probe-loaded nanocarriers. As a postdoctoral fellow at Hopkins, I carried out magnetic resonance imaging (MRI) and spectroscopic imaging (MRSI) in cancer under the supervision of Dr. Artemov, and have acquired various imaging theories and techniques including MRI and optical imaging. As PI or Co-Investigator on several current or previous grants, I integrate my expertise in drug delivery systems and my new research field, molecular imaging, and our group has developed new imaging techniques as well as nanocarrier systems for cancer imaging and therapy. Based on my expertise and research interest, Dr. Bhujwalla has chosen me as a member of the Imaging and Probes Resource of the JHU ICMIC, and I will play a significant role in this resource. I am confident that I can provide the strength needed for advancing the research projects, specifically, development of nanocarrier-based imaging probes, based on my DDS expertise. In summary, I have a demonstrated record of successful and productive research projects in an area of high relevance for the imaging and probe development resource, and my expertise and experience have prepared me to succeed in my role in this resource.

B. Positions and Honors

Positions and Employment

2008-present	Assistant Professor, JHU ICMIC Program, Oncology Section, Div. of MR Research, Dept. of Radiology, The Johns Hopkins University School of Medicine, Baltimore, MD
2006-08	Research Associate, Oncology Section, Div. of MR Research, Dept. of Radiology, The Johns Hopkins University School of Medicine, Baltimore, MD
2003-06	Postdoctoral Research Fellow, Oncology Section, Div. of MR Research, Dept. of Radiology, The Johns Hopkins University School of Medicine, Baltimore, MD
2002-03	Postdoctoral Research Fellow, Dept. of Drug Delivery Research, Hoshi University, Tokyo, Japan
2000-01	Research Assistant, Hoshi University, Tokyo, Japan
1999	Teaching Assistant, Hoshi University, Tokyo, Japan

Other Experience and Professional Memberships

2003	Guest Editor for *Curr. Pharm. Biotechnol.* <Vol. 4, Issue 5, 2003>
1998-present	The Pharmaceutical Society of Japan
1999- present	The Academy of Pharmaceutical Science and Technology, Japan
2004- present	The International Society of Magnetic Resonance in Medicine, USA
2004- present	The Japan Society of Drug Delivery System
2005- present	American Association for Cancer Research
2005- present	The Society for Molecular Imaging

2009- present Controlled Release Society

Honors and Awards

1999 The Nagai Foundation Tokyo APSTJ Graduate Student Award
2001 The Nagai Foundation Tokyo APSTJ Graduate Student Award
2002 The Nagai Foundation Tokyo APSTJ Graduate Student Award
2004 Educational Stipends for Students and Postdoctoral Trainees, ISMRM, Travel Award
2004 PSWC2004 Student Travel Grant
2005 Scholar-in-Training Award, AACR Special Conference "Anti-Angiogenesis and Drug Delivery to Tumors: Bench to Bedside and Back"
2009 Highly rated abstract for the 100th AACR annual meeting (top 3-4%)

C. Selected Peer-reviewed publications (Selected from 34 peer-reviewed publications)

Most relevant to the current application

1. Kato Y., Artemov D. Monitoring of Release of Cargo from Nanocarriers by MRI/MRS: Significance of T_2/T_2* Effect of Iron Particles. Magn Reson Med 2009; 61, 1059-1065. PMCID2718565.
2. Onuki Y., Jacobs I., Artemov D., Kato Y. Noninvasive visualization of *in vivo* release and intratumoral distribution of surrogate MR contrast agent using the dual MR contrast technique. Biomaterials 2010; 31(27), 7132-7138. PMCID2917222.
3. Mikhaylova M., Stasinopoulos I., Kato Y., Artemov D., Bhujwalla Z.M. Imaging of cationic multifunctional liposome-mediated delivery of COX-2 siRNA. Cancer Gene Ther 2009; 16(3), 217-226.
4. Kato Y., Onishi H., Machida Y. Evaluation of N-succinyl-chitosan as a systemic long-circulating polymer. Biomaterials 2000; 21, 1579-1585.
5. Yamabe K., Kato Y., Onishi H., Machida Y. In vitro characteristics of liposomes and double liposomes prepared using a novel glass-beads method. J Control Release 2003; 90(1), 71-79.

Additional recent publications of importance to the field (in chronological order)

1. Kato Y., Onishi H., Machida Y. Biological characteristics of lactosaminated N-succinyl-chitosan as a liver-specific drug carrier in mice. J Control Release 2001; 70, 295-307.
2. Kato Y., Onishi H., Machida Y. Tumour cell uptake of lactosaminated and intact N-succinyl-chitosans and antitumour effects of conjugates with mitomycin C. Anticancer Res 2002; 22(5), 2771-2776.
3. Yamabe K., Kato Y., Onishi H., Machida Y. Potentiality of double liposomes containing salmon calcitonin as an oral dosage form. J Control Release 2003; 89(3), 429-436.
4. Inoue K., Onishi H., Kato Y., Michiura T., Nakai K., Sato M., Yamamichi K., Machida Y., Nakane Y. Comparison of intraperitoneal continuous infusion of floxuridine and bolus administration in a peritoneal gastric cancer xenograft model. Cancer Chemother Pharmacol 2004; 53, 415-422.
5. Mironchik Y., Winnard Jr P.T., Vesuna F., Kato Y., Wildes F., Pathak A.P., Kominsky S., Artemov D., Bhujwalla Z.M., Diest P.V., Burger H., Glackin C., Raman V. Twist overexpression induces *in vivo* angiogenesis and correlates with chromosomal instability in breast cancer. Cancer Research 2005; 65(23), 10801-10809.
6. Kato Y., Okollie B., Artemov D. Non-invasive $^{1}H/^{13}C$ magnetic resonance spectroscopic imaging of the intratumoral distribution of temozolomide. Magn Reson Med 2006; 55(4), 755-761.
7. Kato Y., Okollie B., Raman V., Vesuna F., Zhao M., Baker S.D., Bhujwalla Z.M., Artemov D. Contributing factors of temozolomide resistance in MCF-7 tumor xenograft models. Cancer Biol Ther 2007; 6(6), 891-897.
8. Winnard Jr P.T., Kluth J.B., Kato Y., Artemov D., Raman V. Development of novel chimeric transmembrane proteins for multimodality imaging of cancer cells. Cancer Biol Ther 2007; 6(12), 1889-1899.
9. Kato Y., Holm A.D., Okollie B., Artemov D. Noninvasive detection of temozolomide in brain tumor xenograft by magnetic resonance spectroscopy. Neuro-Oncology 2010; 12(1), 71-79. PMC Journal - In Process.

D. Research Support

Ongoing Research Support

R21 EB008162-01 (Kato) 06/01/08-05/31/11 NCE
NIBIB
Noninvasive Monitoring of *In vivo* Drug Release
The goal of this study is to monitor *in vivo* release of drugs/MR contrast agents from liposomes and nano/microspheres and the subsequent intratumoral distribution.

Role: PI

Research Grant (Kato) 04/01/10-03/31/11
The Nagai Foundation, Tokyo
New Strategy for Cancer Therapy: Development of New Nanocarrier System
This new class of nanocarriers, biologically active nanocarriers, will provide an additional benefit to conventional nanocarriers, i.e., "anticancer activity." Successful preclinical studies will result in the translation of bioactive nanocarriers to the clinic, with the potential for improved therapy for breast cancer patients.
Role: PI

R21 CA128793-01 (Pathak) 04/01/08-03/31/11 NCE
NCI
Title: A lectin-contrast agent for multimodality molecular imaging of tumor angiogenesis
The primary goal of this project is to develop a de novo lectin-targeted imaging probe that improves our ability to image the structural and functional changes in tumor blood vessels during angiogenesis, using molecular magnetic resonance imaging (MRI).
Role: Co-Investigator

R21 CA133288-01A1 (Artemov) 09/01/09-08/31/11
NCI
Activated nano-sized MR contrast agents for imaging of tumor proteolytic activity
This project focuses on the proteolytic-specific activated MR contrast agent.
Role: Co-Investigator

Junior Faculty proposal (Pathak) 05/01/10-04/30/11
Institute for NanoBioTechnology at JHU
Microimaging of Nanocarrier Delivery in Brain Tumor Therapy
This study will elucidate a crucial need to characterize the neurovasculature in brain tumors and its effect on the distribution of drug carriers such as nanoparticulate liposomes.
Role: Co-PI

KG100594 (Artemov) 06/01/10-05/31/13
Susan G Komen Breast Cancer Foundation
Novel Two-Component Delivery System Based on Her-2/neu Receptor Internalization Strategy.
The main goal of the proposal is development of a novel image-guided delivery platform for targeted therapy of Her-2 positive breast cancer.
Role: Co-Investigator

Idea Award (Raman) 09/01/10-08/31/12
DOD Breast Cancer Research Program
A novel RNA helicase inhibitor to treat breast cancer
The major objective of this proposal is to longitudinally image and delineate the therapeutic impact of a novel RNA helicase inhibitor to treat breast cancer.
Role: Co-Investigator

RFA-MD-10-2 (Artemov) 09/01/10-08/31/12
Technology Development Corp (Maryland State)
Noninvasive Imaging of Stem Cell Homing and Viability
We are developing a new imaging technique to monitor stem cell homing/viability using a novel two-component MRI tracer that can be loaded to cells prior to transplantation following traditional labeling procedures. We also intend to provide imaging readout of both spatial localization and viability of the transplanted cells.
Role: Co-Investigator

Completed Projects Within Last Three Years

Concept Award (Artemov) 09/15/07-09/14/08
DOD Breast Cancer Research Program
Molecular MR Imaging of Protease Activity in Breast Cancer with Activated Contrast Agents
The goal of this study was to extend the concept of "the dual MR contrast technique" for protease-specific activation of MR contrast agent.

Role: Co-Investigator

Research Grant (Kato) 04/01/07-03/31/09
The Nagai Foundation, Tokyo
Visualization of *In vivo* Release Characteristics and Intratumoral Distribution of Anticancer Drug-Loaded Nanoparticles
The goal of this study was to test and prove the new concept of "the dual MR contrast technique" to noninvasively monitor *in vivo* release of drug molecules from nanocarriers.
Role: PI

R01 R56CA097310-04A1 Artemov) 09/01/07-08/31/10
NCI
MR Pharmacoangiography – Vascular modulation of delivery
We developed a noninvasive MR method for direct detection of ^{13}C-labeled temozolomide ([^{13}C]TMZ) in preclinical breast and brain tumor models.
Role: Co-Investigator

RFA-MD-07-2 (Artemov) 07/01/08-07/01/10
Technology Development Corp (Maryland State)
Targeted Imaging and Therapy of Breast Cancer Stem-like Cells
This project was focused on targeted imaging and therapy of breast cancer stem-like cells.
Role: Co-Investigator