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## BIOGRAPHICAL SKETCH

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NAME Marie-France Penet	POSITION TITLE Instructor		
eRA COMMONS USER NAME (credential, e.g., agency login) mpenet2			
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
University of Aix-Marseille II, France	BSc	2000	Cellular Biology and Physiology
University of Aix-Marseille II, France	Master	2001	Cellular Biology and Physiology
University of Aix-Marseille II, France	Post graduate	2002	Immunology
University of Aix-Marseille II, France	Ph.D.	2005	Biology

### A. Personal Statement

The goal of the proposed research is to develop new multifunctional, long-circulating and stable nanoparticles loaded with siRNA to provide a novel image-guided molecular targeted approach to ovarian cancer treatment. I have a strong background in imaging mice with MR techniques. My imaging expertise began during my Ph.D. when I performed brain imaging studies of mice infected with *Plasmodium berghei* ANKA, parasites that induce the murine form of cerebral malaria. Then, as a post-doctoral fellow in Pr. Zaver Bhujwalla's laboratory, I worked on imaging orthotopic prostate cancer models. For the past three years, I have performed surgical orthotopic implantation of prostate tumor pieces in male SCID mice.

### B. Positions and Honors

#### Positions and Employment

2002-2005	Ph.D. student at the Center of Biological and Medical Magnetic Resonance, Marseille, France
2006-2010	Postdoctoral Fellow, The JHU ICMIC Program of The Russell H. Morgan Department of Radiology and Radiological Science, The Johns Hopkins University School of Medicine, Baltimore, MD, 21205, USA
2010-Present	Instructor, The JHU ICMIC Program of The Russell H. Morgan Department of Radiology and Radiological Science, The Johns Hopkins University School of Medicine, Baltimore, MD, 21205, USA

#### Other Experience and Professional Memberships

2006	Member, American Association of Cancer Research
2006	Member, International Society of Magnetic Resonance in Medicine

#### Honors and Awards

2007	Educational Stipends for Students and Postdoctoral Trainees, ISMRM, Travel Award
2009	Educational Stipends for Students and Postdoctoral Trainees, ISMRM, Travel Award

### C. Selected Peer-reviewed Publications

#### Most relevant to the current application

1. Li C, Penet MF, Winnard P, Artemov D, Bhujwalla ZM. Image-guided enzyme/prodrug cancer therapy Clin Can Res, 2008; 14: 515-522 Prior to April 2008.
2. Penet MF, Pathak AP, Raman V, Ballesteros P, Artemov D, Bhujwalla ZM. Noninvasive Multi-parametric Imaging of Metastasis-Permissive Microenvironments in a Human Prostate Cancer Xenograft. Cancer Res, 2009; 69:8822-9 PMID2783669.
3. Li C, Penet MF, Wildes F, Takagi T, Chen Z, Winnard PT, Artemov D, Bhujwalla ZM. Nanoplex Delivery of siRNA and Prodrug Enzyme for Multimodality Image-Guided Molecular Pathway Targeted Cancer Therapy ACS Nano, 2010; 4(11):6707-16 PMID2991391.

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

1. Penet MF, Martin F, Malergue F, Lepidi H, Dessein A, Galland F, de Reggi M, Naquet P, Gharib B. Vanin-1(-/-) mice show decreased NSAID- and Schistosoma-induced intestinal inflammation associated with higher glutathione stores. *J Clin Invest*. 2004, 113:591-597.
2. Penet MF, Viola A, Confort-Gouny S, Le Fur Y, Duhamel G, Kober F, Ibarrola D, Izquierdo M, Coltel N, Gharib B, Grau GE, Cozzone PJ. Imaging experimental cerebral malaria *in vivo*: important role of brain ischemic edema. *J Neurosci*. 2005, 25:7352-7358.
3. Penet MF, Laigle C, Le Fur Y, Confort-Gouny S, Heurteaux C, Cozzone PJ, Viola A. *In vivo* characterization of brain morphometric and metabolic endophenotypes in three inbred strains of mice using magnetic resonance techniques. *Behavior Genetics* 2006, 36:732-744.
4. Penet MF, Kober F, Confort-Gouny S, Le Fur Y, Dalmaso C, Coltel N, Grau GE, Cozzone PJ, Viola A. Magnetic resonance spectroscopy reveals an impaired brain metabolic profile in mice resistant to cerebral malaria infected with *Plasmodium berghei* ANKA *J Biol Chem* 2007, 282:14505-14514.
5. Penet MF, Abou-Hamdan M, Coltel N, Cornille E, Grau GE, de Reggi M, Gharib B. Protection against cerebral malaria by the low molecular-weight thiol panthetine. *PNAS* 2008, 105:1321-1326 PMID2234136.
6. Li C, Wildes F, Winnard P Jr, Artemov D, Penet MF, Bhujwala ZM. Conjugation of poly-L-lysine to bacterial cytosine deaminase improves the efficacy of enzyme/prodrug cancer therapy. *J Med Chem* 2008, 51:3572-3582. PMC Journal in Process.
7. Shah T, Wildes F, Penet MF, Winnard PT Jr, Glunde K, Artemov D, Ackerstaff E, Gimi B, Kakkad S, Raman V, Bhujwala ZM. Choline kinase overexpression increases invasiveness and drug resistance of human breast cancer cells. *NMR Biomed*. 2010 Jul;23(6):633-42. PMID3115627.

### **Review Articles**

1. Penet MF, Glunde K, Jacobs MA, Pathak AP, Bhujwala ZM. Molecular and functional MRI of the tumor microenvironment. *J Nuc Med* 2008, 49: 687-690. PMID3075060.
2. Glunde K, Artemov D, Penet MF, Jacobs MA, Bhujwala ZM. Magnetic Resonance Spectroscopy in Metabolic and Molecular Imaging and Diagnosis of Cancer. *Chem Rev*. 2010. PMID2877696.
3. Pathak AP, Penet MF, Bhujwala ZM. MR molecular imaging of tumor vasculature and vascular targets. *Adv Genet*. 2010, 69:1-30. PMC Journal in Process.
4. Penet MF, Mikhaylova M, Li C, Krishnamachary B, Glunde K, Pathak AP, Bhujwala ZM. Applications of molecular MRI and optical imaging in cancer. *Future Med Chem*. 2010, 2:975-988. PMID2902367.

### **Book Chapter**

Penet MF, Glunde K, Jacobs MA, Mori N, Artemov D and Bhujwala ZM. Oncological Applications of MR Spectroscopy. In: *Molecular Imaging in Oncology*, Informa Publishing (2008).

### **D. Research Support**

#### **Current Research Projects**

2P50CA103175-06A2 (Bhujwala)

09/22/11 - 07/31/16

NCI JHU ICMIC Program

This center grant funds an *in vivo* Cellular and Molecular Imaging Center at Johns Hopkins. The program consists of four research components, four developmental projects, one career development award and four resources.

R01CA136756-01A1 (Bhujwala)

07/01/09-06/30/14

NCI

Imaging Hypoxia and Cancer Stem Cells

The goal of this project is to understand the role of the tumor microenvironment and choline metabolism in harboring or creating stem-like cancer cells.

R01CA073850 (Bhujwala)

04/01/97-11/30/14

NCI

Functional Imaging of the Metastatic Phenotype

The goal of this project is to determine if cancer cell dissemination occurs from hypoxic or normoxic tumor regions in metastasis permissive environments, and investigate the sequence of establishment of hypoxic foci in lymphatic metastatic sites and ascites.

**Completed Projects Within Last Three Years**

HERA Foundation OSB1 grant (Penet)

03/01/09-05/30/10

HERA Woman's Cancer Foundation

Ovarian Cancer Outside-the-box (OSB1) Seed Grant

Novel therapeutic approaches for imaging and targeting ovarian cancer

The goal of this application is to explore new avenues for imaging and targeting ovarian cancer.

R21CA140904-01 (Bhujwala)

07/01/09-06/30/11

NCI

Molecular Imaging of Cancer Cachexia

In this exploratory application, state-of-the-art imaging techniques will be used in combination with molecular characterization to understand cancer-induced cachexia and the cachexia cascade in preclinical tumor models.