

Contact Information

400 North River Rd. #227
West Lafayette, IN 47906
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mmpires@purdue.edu

EDUCATION

University of Pennsylvania (2009-present)

Post-doctoral Fellow
Research Advisor: Professor Bill DeGrado

Purdue University

Doctor of Philosophy in Chemistry (2003-2009)
Cumulative GPA: 4.00/4.00
Research Advisor: Professor Jean A. Chmielewski
June 2009

Ithaca College

B.S. in Chemistry with Honors
Research Advisor: Professor Vincent DeTuri
May 2003

PUBLICATIONS

Pires M, Hrycyna C, Chmielewski J. "Bivalent Probes of the Multidrug Transporter P-glycoprotein." *Biochemistry* (2006) 45, 11695-11702.

Pires M, DeTuri, V. "Structural, Energetic, and Infrared Spectra Insights into Methanol Clusters (CH₃OH)_n, for n = 2-12, 16, 20. ONIOM as an Efficient Method of Modeling Large Methanol Clusters." *Journal of Chemical Theory and Computation* (2007) 3, 1073-1082.

Pires M, Chmielewski J. "Fluorescence Imaging of Cellular Glutathione using Latent Rhodamine." *Organic Letters* (2008) 10, 837-840.

Pires M, Emmert D, Hrycyna C, Chmielewski J. "Inhibition of P-Glycoprotein-Mediated Taxol Resistance by Reversibly-Linked Quinine Homodimers." *Molecular Pharmacology* (2009) 75, 92-100.

Pires M, Chmielewski J. "Self-Assembly of Collagen Peptides into Microflorettes via Metal Coordination." *Journal of the American Chemical Society* (2009) 131, 2706-2712.

Pires M, Przybyla D, Chmielewski J. “Metal Collagen Framework for 3-D Cell Culture.” *Angewandte Chemie International Edition* (2009). In Press.

Namaja H, Emmert D, **Pires M**, Hrycyna C, Chmielewski J. “Inhibition of P-glycoprotein Transport and Binding Using a Galantamine Dimer.” *Biochemical and Biophysical Research Communications*. Submitted.

Pires M, Chmielewski J. “Selective Decoration of Metal Assembled Collagen Microspheres with His-Tagged Biomolecules.” Manuscript In Preparation.

Pires M, Lee JY, Chmielewski J. “Formation of Distinct Structures of Collagen Peptide Assemblies.” Manuscript In Preparation.

Pires M, Przybyla D, Chmielewski J. “Metal Assisted Assembly of Collagen Block Co-polymers.” Manuscript In Preparation.

PATENTS

“Reversing P-glycoprotein Mediated Drug Resistance”, Inventors: Jean Chmielewski, Christine Hrycyna, Marcos Pires, Predisclosure PRF Reference Number 64884, submitted September 17, 2007.

“Designer Collagen Materials for Tissue Engineering Applications”, Inventors: Jean Chmielewski, Marcos Pires, David Przybyla, Predisclosure PRF Reference Number 65801, submitted May 18, 2008.

BOOK CHAPTER

Pires M, Emmert D, & Hrycyna C “ABCB1 and ABCG2; Primary Determinants of Cellular and Tissue Permeability Barriers”, Book Chapter for: ABC Transporters. *In production*.

TECHNICAL SKILLS

- Experienced in organic synthesis (solution phase organic chemistry, solid phase peptide synthesis)
- Experienced in GC, HPLC, MS, DLS, NMR, UV Spectroscopy, CD Spectroscopy, Fluorescence Spectroscopy, SEM, AFM, TEM
- Extensively experienced in cell culture
- Experienced in various bioassays (gel electrophoresis, cellular fluorescence, cytotoxicity assay, affinity labeling, membrane vesicle preparation, flow cytometry, confocal microscopy, scintillation spectroscopy)
- Experienced in use of chemistry and protein related software (Gaussian, Macromodel, Maestro, PyMol)

TEACHING EXPERIENCE

Purdue University, West Lafayette

Teaching Assistant of Organic Chemistry Laboratory, 08/2003-2006

Head Teaching Assistant of Organic Chemistry CHEM 255/256, 2006-2007

Research Mentor of REU Student 05/2006-08/2006

PRESENTATIONS/CONFERENCES

Pires M, Chmielewski J. "Metal Triggered Self-Assembly of Collagen Peptides." American Peptide Symposium 2009 (poster).

Pires, M, Hrycyna C, Chmielewski J. "Inhibition of P-Glycoprotein-Mediated Taxol Resistance by Reversibly-Linked Quinine Homodimers." Purdue Cancer Center Scientific Retreat 2008 (poster).

Pires M, Chmielewski J. "Metal Controlled Collagen Self Assembly." Central Regional Meeting of the American Chemical Society 2008 (speaker).

Pires M, Hrycyna C, Chmielewski J. "Bivalent Probes and Inhibitors of the Multidrug Resistance Protein, P-glycoprotein." Herbert C. Brown Symposium 2008 (speaker).

Pires M, Hrycyna C, Chmielewski J. "Bivalent Inhibitors of P-glycoprotein." National Institute of Cancer 2007 (speaker).

Pires M, Chmielewski J. "Fluorescence Imaging of Cellular Glutathione using Latent Rhomaine." Korea Institute of Science and Technology Symposium 2007 (poster).

Pires M, Hrycyna C, Chmielewski J. "Homodimeric Inhibitors of P-glycoprotein." Herbert C. Brown Symposium 2007 (poster).

Pires M, Hrycyna C, Chmielewski J. "Novel Inhibitors of the Multidrug Resistance Protein P-glycoprotein." Herbert C. Brown Symposium 2006 (poster).

ACADEMIC HONORS

Herbert C. Brown Award 2008

Brown Symposium Poster Award 2007 – 1st Place

Purdue Research Foundation Fellowship

Phi Lambda Upsilon Chemistry Honor Society, Purdue University

Presidential Scholarship, Ithaca College

Charles A. Dana Research Scholarship

Summer 1998 (Cornell University)

Summer 1999 (Ithaca College)

Honors in Chemistry, Ithaca College 2003