

# Stanford

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## Michelle L. James

Assistant Professor of Radiology (Molecular Imaging Program at Stanford) and of Neurology

Radiology- Molecular Imaging Program at Stanford

### Bio

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#### ACADEMIC APPOINTMENTS

- Assistant Professor, Radiology - Rad/Molecular Imaging Program at Stanford
- Instructor, Radiology- Molecular Imaging Program at Stanford
- Assistant Professor, Neurology & Neurological Sciences
- Member, Bio-X

#### HONORS AND AWARDS

- Exceptional Mentor Award, American Medical Women's Association (2018)
- SNMMI Journal of Nuclear Medicine Editor's Choice - Best Article Award, Society of Nuclear Medicine and Molecular Imaging (2016)
- Suffrage Science Award, Medical Research Council (2016)
- Alavi-Mandell Award, Society of Nuclear Medicine and Molecular Imaging (2015)
- First Prize Poster & Abstract Award, TSPO Symposium on Microglia Imaging & Biology - Manchester, UK, - (2014)
- Poster Presentation Award, World Molecular Imaging Congress - Savannah, Georgia, - (2013)
- Travel Fellowship, Alzheimer's Association International Conference - Boston, USA, - (2013)
- Travel Award, World Molecular Imaging Congress - Kyoto, Japan, - (2010)
- Travel Award, International Symposium on Radiopharmaceutical Sciences - Aachen, Germany, - (2007)
- Best Oral Presentation Award, Royal Australian Chemistry Institute Drug Design Conference, - (2006)
- Australian Postgraduate Award, - (2005-2008)
- John A Lambertson Research Scholarship, - (2005-2008)
- Travel Award, International Symposium on Radiopharmaceutical Sciences - Iowa, USA, - (2005)
- First Class Honours in Pharmacology, - (2004)
- University Medal, The University of Sydney (2004)
- Dean's Honour List, - (2003)
- Roland H. Thorp Prize in Pharmacology, - (2003)

#### PROFESSIONAL EDUCATION

- Ph.D., University of Sydney , Pharmacology (2008)
- B.S., University of Sydney , Pharmacology/Medicinal Chemistry (2004)

## LINKS

- My Lab Site: <http://med.stanford.edu/jameslab.html>
- LinkedIn: <https://www.linkedin.com/in/michelle-l-james-93a44a14/>

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

The primary aim of my lab is to enable early detection and precision treatment of devastating brain diseases by developing translational molecular imaging agents for visualizing neuroimmune interactions underlying conditions such as Alzheimer's disease, multiple sclerosis, and stroke.

We are researching how the brain and its resident immune cells interact with the peripheral immune system at very early, through to late stages of disease. Our approach involves the discovery, characterization, and validation of clinically relevant immune cell biomarkers, followed by the design of novel positron emission tomography (PET) radiotracers specifically targeting these biomarkers. After preclinical validation, we translate promising imaging probes to the clinic for precision targeting of immunomodulatory therapeutics and real-time monitoring of treatment response.

## Teaching

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### COURSES

#### 2019-20

- Probes and Applications for Multi-modality Molecular Imaging of Living Subjects: BIOE 224, RAD 224 (Win)

#### 2018-19

- Probes and Applications for Multi-modality Molecular Imaging of Living Subjects: BIOE 224, RAD 224 (Win)

#### 2017-18

- Probes and Applications for Multi-modality Molecular Imaging of Living Subjects: BIOE 224, RAD 224 (Win)

### STANFORD ADVISEES

#### Doctoral Dissertation Reader (AC)

Kendra Lechtenberg, Surya Murty

#### Postdoctoral Faculty Sponsor

Aisling Chaney, Marc Stevens

#### Doctoral Dissertation Advisor (AC)

Mackenzie Carlson, Isaac Jackson

## Publications

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### PUBLICATIONS

- **[F-18]-SuPAR: A Radiofluorinated Probe for Noninvasive Imaging of DNA Damage-Dependent Poly(ADP-ribose) Polymerase Activity** *BIOCONJUGATE CHEMISTRY*  
Shuhendler, A. J., Cui, L., Chen, Z., Shen, B., Chen, M., James, M. L., Witney, T. H., Bazalova-Carter, M., Gambhir, S. S., Chin, F. T., Graves, E. E., Rao, J.  
2019; 30 (5): 1331–42
- **Microglial Modulation as a Target for Chronic Pain: From the Bench to the Bedside and Back.** *Anesthesia and analgesia*  
Haight, E. S., Forman, T. E., Cordonnier, S. A., James, M. L., Tawfik, V. L.  
2019; 128 (4): 737–46

- **Peripheral TREM1 responses to brain and intestinal immunogens amplify stroke severity** *Nature Immunology*  
Liu, Q., Johnson, E., et al  
2019
- **Longitudinal TSPO-PET imaging of peripheral and central myeloid cells in a mouse model of complex regional pain syndrome.** *Pain*  
Cropper, H. C., Johnson, E. M., Haight, E., Cordonnier, S. A., Chaney, A. M., Forman, T. E., Biswal, A., Stevens, M. Y., James, M. L., Tawfik, V. L.  
2019
- **TSPO-PET Imaging Using [18F]PBR06 is a Potential Translatable Biomarker for Treatment Response in Huntington's Disease: Preclinical Evidence with the p75<sup>NTR</sup> Ligand LM11A-31.** *Human molecular genetics*  
Simmons, D. A., James, M. L., Belichenko, N. P., Semaan, S., Condon, C., Kuan, J., Shuhendler, A. J., Miao, Z., Chin, F. T., Longo, F. M.  
2018
- **Successful treatment of chronic knee pain following localization by a sigma-1 receptor radioligand and PET/MRI: a case report** *JOURNAL OF PAIN RESEARCH*  
Cipriano, P., Lee, S., Yoon, D., Shen, B., Tawfik, V., Curtin, C., Dragoo, J. L., James, M., Mccurdy, C., Chin, F., Biswal, S.  
2018; 11: 2353–56
- **[18F]FSPG-PET reveals increased cystine/glutamate antiporter (xc-) activity in a mouse model of multiple sclerosis.** *Journal of neuroinflammation*  
Hoehne, A., James, M. L., Alam, I. S., Ronald, J. A., Schneider, B., D'Souza, A., Witney, T. H., Andrews, L. E., Cropper, H. C., Behera, D., Gowrishankar, G., Ding, Z., Wyss-Coray, et al  
2018; 15 (1): 55
- **PET Imaging of Neuroinflammation Using [11C]DPA-713 in a Mouse Model of Ischemic Stroke.** *Journal of visualized experiments : JoVE*  
Chaney, A. M., Johnson, E. M., Cropper, H. C., James, M. L.  
2018
- **PET Imaging of Neuroinflammation Using [11C]DPA-713 in a Mouse Model of Ischemic Stroke** *JoVE*  
Chaney, A., Johnson, E. M., Cropper, H. C., James, M. L.  
2018
- **11C-DPA-713 versus 18F-GE-180: A preclinical comparison of TSPO-PET tracers to visualize acute and chronic neuroinflammation in a mouse model of ischemic stroke.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*  
Chaney, A., Cropper, H. C., Johnson, E. M., Lechtenberg, K. J., Peterson, T. C., Stevens, M. Y., Buckwalter, M. S., James, M. L.  
2018
- **Imaging activated T cells predicts response to cancer vaccines.** *The Journal of clinical investigation*  
Alam, I. S., Mayer, A. T., Sagiv-Barfi, I., Wang, K., Vermesh, O., Czerwinski, D. K., Johnson, E. M., James, M. L., Levy, R., Gambhir, S. S.  
2018
- **[18F]FSPG-PET reveals increased cystine/glutamate antiporter (xc-) activity in a mouse model of multiple sclerosis** *Journal of Neuroinflammation*  
Hoehne, A., James, M. L., Alam, I. S., Ronald, J., Schneider, B., D'Souza, A., Witney, T. H., Andrews, L., Cropper, H., Behera, D., Gowrishankar, G., Ding, Z., Wyss-Coray, et al  
2018; 15 (1)
- **Multimodal assessment of SERS nanoparticle biodistribution post ingestion reveals new potential for clinical translation of Raman imaging** *BIOMATERIALS*  
Campbell, J. L., SoRelle, E. D., Ilovich, O., Liba, O., James, M. L., Qiu, Z., Perez, V., Chan, C. T., de la Zerda, A., Zavaleta, C.  
2017; 135: 42-52
- **Human umbilical cord plasma proteins revitalize hippocampal function in aged mice** *NATURE*  
Castellano, J. M., Mosher, K. I., Abbey, R. J., McBride, A. A., James, M. L., Berdnik, D., Shen, J. C., Zou, B., Xie, X. S., Tingle, M., Hinkson, I. V., Angst, M. S., Wyss-Coray, et al  
2017; 544 (7651): 488-?
- **[F]DASA-23 for Imaging Tumor Glycolysis Through Noninvasive Measurement of Pyruvate Kinase M2.** *Molecular imaging and biology*  
Beinat, C., Alam, I. S., James, M. L., Srinivasan, A., Gambhir, S. S.  
2017
- **[F-18]GE-180 PET Detects Reduced Microglia Activation After LM11A-31 Therapy in a Mouse Model of Alzheimer's Disease** *THERANOSTICS*

- James, M. L., Belichenko, N. P., Shuhendler, A. J., Hoehne, A., Andrews, L. E., Condon, C., Nguyen, T. V., Reiser, V., Jones, P., Trigg, W., Rao, J., Gambhir, S. S., Longo, et al  
2017; 7 (6): 1422-1436
- **Visualizing Nerve Injury in a Neuropathic Pain Model with [(18)F]FTC-146 PET/MRI.** *Theranostics*  
Shen, B., Behera, D., James, M. L., Reyes, S. T., Andrews, L., Cipriano, P. W., Klukinov, M., Lutz, A. B., Mavlyutov, T., Rosenberg, J., Ruoho, A. E., McCurdy, C. R., Gambhir, et al  
2017; 7 (11): 2794-2805
  - **Imaging B cells in a mouse model of multiple sclerosis using (64)Cu-Rituximab-PET.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*  
James, M. L., Hoehne, A., Mayer, A. T., Lechtenberg, K., Moreno, M., Gowrishankar, G., Ilovich, O., Natarajan, A., Johnson, E. M., Nguyen, J., Quach, L., Han, M., Buckwalter, et al  
2017
  - **Further validation to support clinical translation of [(18)F]FTC-146 for imaging sigma-1 receptors.** *EJNMMI research*  
Shen, B., James, M. L., Andrews, L., Lau, C., Chen, S., Palner, M., Miao, Z., Arksey, N. C., Shuhendler, A. J., Scatliffe, S., Kaneshige, K., Parsons, S. M., McCurdy, et al  
2015; 5 (1): 49-?
  - **PET imaging of tumor glycolysis downstream of hexokinase through noninvasive measurement of pyruvate kinase M2.** *Science translational medicine*  
Witney, T. H., James, M. L., Shen, B., Chang, E., Pohling, C., Arksey, N., Hoehne, A., Shuhendler, A., Park, J., Bodapati, D., Weber, J., Gowrishankar, G., Rao, et al  
2015; 7 (310): 310ra169-?
  - **Microglial Malfunction: The Third Rail in the Development of Alzheimer's Disease.** *Trends in neurosciences*  
Mhatre, S. D., Tsai, C. A., Rubin, A. J., James, M. L., Andreasson, K. I.  
2015; 38 (10): 621-636
  - **PET Imaging of Translocator Protein (18 kDa) in a Mouse Model of Alzheimer's Disease Using N-(2,5-Dimethoxybenzyl)-2-18F-Fluoro-N-(2-Phenoxyphenyl)Acetamide.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*  
James, M. L., Belichenko, N. P., Nguyen, T. V., Andrews, L. E., Ding, Z., Liu, H., Bodapati, D., Arksey, N., Shen, B., Cheng, Z., Wyss-Coray, T., Gambhir, S. S., Longo, et al  
2015; 56 (2): 311-316
  - **Antiviral drug ganciclovir is a potent inhibitor of microglial proliferation and neuroinflammation.** *journal of experimental medicine*  
Ding, Z., Mathur, V., Ho, P. P., James, M. L., Lucin, K. M., Hoehne, A., Alabsi, H., Gambhir, S. S., Steinman, L., Luo, J., Wyss-Coray, T.  
2014; 211 (2): 189-198
  - **PET Imaging of Stroke-Induced Neuroinflammation in Mice Using [F-18]PBR06** *MOLECULAR IMAGING AND BIOLOGY*  
Lartey, F. M., Ahn, G., Shen, B., Cord, K., Smith, T., Chua, J. Y., Rosenblum, S., Liu, H., James, M. L., Chernikova, S., Lee, S. W., Pisani, L. J., Tirouvanziam, et al  
2014; 16 (1): 109-117
  - **Evaluation of s-1 receptor radioligand 18F-FTC-146 in rats and squirrel monkeys using PET.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*  
James, M. L., Shen, B., Nielsen, C. H., Behera, D., Buckmaster, C. L., Mesangeau, C., Zavaleta, C., Vuppala, P. K., Jamalapuram, S., Avery, B. A., Lyons, D. M., McCurdy, C. R., Biswal, et al  
2014; 55 (1): 147-153
  - **A F-18-Labeled Saxitoxin Derivative for in Vivo PET-MR Imaging of Voltage-Gated Sodium Channel Expression Following Nerve Injury** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Hoehne, A., Behera, D., Parsons, W. H., James, M. L., Shen, B., Borgohain, P., Bodapati, D., Prabhakar, A., Gambhir, S. S., Yeomans, D. C., Biswal, S., Chin, F. T., Du Bois, et al  
2013; 135 (48): 18012-18015
  - **A (18)F-Labeled Saxitoxin Derivative for in Vivo PET-MR Imaging of Voltage-Gated Sodium Channel Expression Following Nerve Injury.** *Journal of the American Chemical Society*  
Hoehne, A., Behera, D., Parsons, W. H., James, M. L., Shen, B., Borgohain, P., Bodapati, D., Prabhakar, A., Gambhir, S. S., Yeomans, D. C., Biswal, S., Chin, F. T., Bois, et al  
2013; 135 (48): 18012-18015

- **Colony-stimulating factor 1 receptor (CSF1R) signaling in injured neurons facilitates protection and survival** *JOURNAL OF EXPERIMENTAL MEDICINE*  
Luo, J., Elwood, F., Britschgi, M., Villeda, S., Zhang, H., Ding, Z., Zhu, L., Alabsi, H., Getachew, R., Narasimhan, R., Wabl, R., Fainberg, N., James, et al  
2013; 210 (1): 157-172
- **Integrin-Targeted Molecular Imaging of Experimental Abdominal Aortic Aneurysms by 18F-labeled Arg-Gly-Asp Positron-Emission Tomography** *CIRCULATION: CARDIOVASCULAR IMAGING*  
Kitagawa, T., Kosuge, H., Chang, E., James, M. L., Yamamoto, T., Shen, B., Chin, F. T., Gambhir, S. S., Dalman, R. L., McConnell, M. V.  
2013; 1 (6): 950-956
- **New Positron Emission Tomography (PET) Radioligand for Imaging sigma-1 Receptors in Living Subjects** *JOURNAL OF MEDICINAL CHEMISTRY*  
James, M. L., Shen, B., Zavaleta, C. L., Nielsen, C. H., Mesangeau, C., Vuppala, P. K., Chan, C., Avery, B. A., Fishback, J. A., Matsumoto, R. R., Gambhir, S. S., McCurdy, C. R., Chin, et al  
2012; 55 (19): 8272-8282
- **A MOLECULAR IMAGING PRIMER: MODALITIES, IMAGING AGENTS, AND APPLICATIONS** *PHYSIOLOGICAL REVIEWS*  
James, M. L., Gambhir, S. S.  
2012; 92 (2): 897-965
- **Preclinical Evaluation of Raman Nanoparticle Biodistribution for their Potential Use in Clinical Endoscopy Imaging** *SMALL*  
Zavaleta, C. L., Hartman, K. B., Miao, Z., James, M. L., Kempen, P., Thakor, A. S., Nielsen, C. H., Sinclair, R., Cheng, Z., Gambhir, S. S.  
2011; 7 (15): 2232-2240
- **[F-18]FTC-146: A novel and highly selective PET ligand for visualizing sigma-1 receptors in living subjects** *8th International Symposium on Functional Neuroreceptor Mapping of the Living Brain*  
James, M. L., Shen, B., Zavaleta, C., Berganos, R. A., Mesangeau, C., Shaikh, J., Gambhir, S. S., Matsumoto, R. R., McCurdy, C. R., Chin, F. T.  
ACADEMIC PRESS INC ELSEVIER SCIENCE.2010: S123-S124
- **[C-11]-DPA-713 and [F-18]-DPA-714 as New PET Tracers for TSPO: A Comparison with [C-11]-(R)-PK11195 in a Rat Model of Herpes Encephalitis** *MOLECULAR IMAGING AND BIOLOGY*  
Doorduyn, J., Klein, H. C., Dierckx, R. A., James, M., Kassiou, M., De Vries, E. F.  
2009; 11 (6): 386-398
- **Initial Evaluation of C-11-DPA-713, a Novel TSPO PET Ligand, in Humans** *JOURNAL OF NUCLEAR MEDICINE*  
Endres, C. J., Pomper, M. G., James, M., Uzuner, O., Hammoud, D. A., Watkins, C. C., Reynolds, A., Hilton, J., Dannals, R. F., Kassiou, M.  
2009; 50 (8): 1276-1282
- **Comparative Evaluation of the Translocator Protein Radioligands C-11-DPA-713, F-18-DPA-714, and C-11-PK11195 in a Rat Model of Acute Neuroinflammation** *JOURNAL OF NUCLEAR MEDICINE*  
Chauveau, F., Van Camp, N., Dolle, F., Kuhnast, B., Hinnen, F., Damont, A., Boutin, H., James, M., Kassiou, M., Tavitian, B.  
2009; 50 (3): 468-476
- **Radiosynthesis of [F-18]DPA-714, a selective radioligand for imaging the translocator protein (18 kDa) with PET** *JOURNAL OF LABELLED COMPOUNDS & RADIOPHARMACEUTICALS*  
Damont, A., Hinnen, F., Kuhnast, B., Schollhorn-Peyronneau, M., James, M., Luus, C., Tavitian, B., Kassiou, M., Dolle, F.  
2008; 51 (7-8): 286-292
- **DPA-714, a new translocator protein-specific ligand: Synthesis, radiofluorination, and pharmacologic characterization** *JOURNAL OF NUCLEAR MEDICINE*  
James, M. L., Fulton, R. R., Vercoullie, J., Henderson, D. J., Garreau, L., Chalou, S., Dolle, F., Selleri, S., Guilloteau, D., Kassiou, M.  
2008; 49 (5): 814-822
- **C-11-DPA-713: A novel peripheral benzodiazepine receptor PET ligand for in vivo imaging of neuroinflammation** *JOURNAL OF NUCLEAR MEDICINE*  
Boutin, H., Chauveau, F., Thominiaux, C., Gregoire, M., James, M. L., Trebossen, R., Hantraye, P., Dolle, F., Tavitian, B., Kassiou, M.  
2007; 48 (4): 573-581
- **Development of Ligands for the Peripheral Benzodiazepine Receptor** *CURRENT MEDICINAL CHEMISTRY*  
James, M. L., Selleri, S., Kassiou, M.  
2006; 13 (17): 1991-2001
- **Improved synthesis of the peripheral benzodiazepine receptor ligand [C-11]DPA-713 using [C-11]methyl triflate** *APPLIED RADIATION AND ISOTOPES*

Thominiaux, C., Dolle, F., James, M. L., Bramouille, Y., Boutin, H., Besret, L., Gregoire, M. C., Valette, H., Bottlaender, M., Tavitian, B., Hantraye, P., Selleri, S., Kassiou, et al  
2006; 64 (5): 570-573

- **Synthesis and in vivo evaluation of a novel peripheral benzodiazepine receptor PET radioligand** *BIOORGANIC & MEDICINAL CHEMISTRY*  
James, M. L., Fulton, R. R., Henderson, D. J., Eberl, S., Melke, S. R., Thomson, S., Allan, R. D., Dolle, F., Fulham, M. J., Kassiou, M.  
2005; 13 (22): 6188-6194