



Samantha Reyes

Ph.D. Student in Biomedical Physics, admitted Autumn 2022

Bio

BIO

Research Interests: Preclinical and clinical PET imaging, novel tracer validation in vivo, B cell role in multiple sclerosis and pharmacokinetic modelling

Samantha is a Biomedical Physics PhD student with extensive experience in multi-modal molecular imaging of neurological diseases and a strong background in synthetic chemistry. She helped validate both a novel sigma-1 radiotracer, [18F]FTC-146, for its ability to detect molecular markers of neuropathic pain non-invasively and a [64Cu]hCD19-mAb radiotracer for imaging therapy-induced B cell depletion. She is well-versed in pharmacokinetic modeling, receptor occupancy studies, autoradiography, and cell-based assays. Moreover, is an expert in PET/MR imaging of neonatal mice.

HONORS AND AWARDS

- SNMMI Predoctoral Molecular Imaging Scholar Program Grant, Society of Nuclear Medicine and Molecular Imaging (SNMMI) (2025)
- Bio-X Stanford Interdisciplinary Graduate Fellowship, Stanford University (2024)
- Bio-X Student Travel Award, Bio-X Stanford University (2025)
- Women in Molecular Imaging Network (WIMIN) Scholar Award, World Molecular Imaging Society (WMIS)/World Molecular Imaging Congress (WMIC) (2025)
- Student Travel Stipend Award, World Molecular Imaging Society (WMIS)/World Molecular Imaging Congress (WMIC) (2025)
- Bio-X Student Travel Award, Bio-X Stanford University (2024)
- Young Investigators Award (Student Category, First Place), NCC-American Association for Physicists in Medicine Young Investigators Symposium (2024)
- ACTRIMS Educational Grant, Americas Committee for Treatment and Research in Multiple Sclerosis (2024)
- Women in Molecular Imaging Network (WIMIN) Scholar Award, World Molecular Imaging Society (WMIS)/World Molecular Imaging Congress (WMIC) (2021)
- Student Travel Stipend Award, World Molecular Imaging Society (WMIS)/World Molecular Imaging Congress (WMIC) (2021)

SERVICE, VOLUNTEER, AND COMMUNITY WORK

- Science education volunteer (2015)

LINKS

- James Lab Website: <https://med.stanford.edu/jameslab/team.html>

Publications

PUBLICATIONS

- **TREM1-PET imaging maps whole-body innate immune responses in a mouse model of metastatic melanoma.** *Scientific reports*
Falk, I. N., Chaney, A. M., Verma, R., Kuo, R. C., Reyes, S., Carlson, M., Kalita, M., Azevedo, C., Jackson, I. M., Green, J., Alam, I. S., Tran, A., Pant, et al
2026
- **A radiolabeled dendrimer non-invasively identifies and tracks innate immune cell activation in a mouse model of experimental autoimmune encephalomyelitis.** *Nature communications*
Kuo, R. C., Carlson, M. L., Reyes, S. T., Nagy, S. C., Kalita, M., Alam, I. S., Malik, N., Jackson, I. M., Acosta, C. J., Falk, I. N., Azevedo, E. C., Zhang, Y., Nichols, et al
2026
- **¹⁸F-MGX-110S detects proinflammatory innate immune responses in human cells and Alzheimer's disease mice with high sensitivity**
Kalita, M., Kuo, R., Reyes, S., Straniero, V., Nagy, S., D'Moore, D., Sundar, M., Setiadi, A., Mak, S., Tuffley, G., Pandrala, M., Marsango, S., Alam, et al
ELSEVIER SCIENCE INC.2025
- **Advancing In Vivo Detection of T-Cell Function: Development and Preclinical Evaluation of ⁸⁹Zr-Ivuxolimab, a Human OX40 PET Tracer.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*
Kalita, M., Kuo, R. C., Reyes, S. T., Colburg, D. R., Falk, I. N., Anders, D., Vermesh, O., Hayee, S., Azevedo, E. C., Nagy, S. C., Deal, E. M., Chen, A. A., Kong, et al
2025
- **Revealing the suppressors: A new PET imaging approach for detecting MDSCs before and after immunotherapy in a model of brain metastases**
Kuo, R., Verma, R., Reyes, S., Nagy, S., Kalita, M., D'moore, D., Ehsani, A., Pisani, L., Alam, I., Milligan, G., Lim, M., James, M.
SOC NUCLEAR MEDICINE INC.2025
- **Early detection and tracking of activated macrophages and microglia in a mouse model of multiple sclerosis using [¹⁸F]OP-801 PET imaging before and after a novel immunomodulatory drug**
Kuo, R., Carlson, M., Malik, N., Reyes, S., Nagy, S., Kalita, M., Alam, I., Jackson, I., Beinat, C., Acosta, C., Falk, I., Azevedo, C., Avci, et al
SOC NUCLEAR MEDICINE INC.2024
- **Illuminating pro-inflammatory myeloid cells in a murine model of multiple sclerosis using a new ¹⁸F-labeled GPR84-targeted radiotracer**
Reyes, S., Kalita, M., Kuo, R., Straniero, V., Marsango, S., Pandrala, M., Malik, N., Jain, P., Suigo, L., Nagy, S., Wu, T., Valoti, E., Milligan, et al
SOC NUCLEAR MEDICINE INC.2024
- **Development and comparison of two novel PET tracers for imaging proinflammatory receptor GPR84 in human cells and tissues**
Nagy, S., Kalita, M., Jackson, I., Reyes, S., Kuo, R., Malik, N., Pandrala, M., Zhang, B., Marsango, S., Straniero, V., Suigo, L., Valoti, E., Alam, et al
SOC NUCLEAR MEDICINE INC.2024
- **PET Imaging of Innate Immune Activation Using ¹¹C Radiotracers Targeting GPR84.** *JACS Au*
Kalita, M., Park, J. H., Kuo, R. C., Hayee, S., Marsango, S., Straniero, V., Alam, I. S., Rivera-Rodriguez, A., Pandrala, M., Carlson, M. L., Reyes, S. T., Jackson, I. M., Suigo, et al
2023; 3 (12): 3297-3310
- **Development and Initial Assessment of [¹⁸F]OP-801: a Novel Hydroxyl Dendrimer PET Tracer for Preclinical Imaging of Innate Immune Activation in the Whole Body and Brain.** *Molecular imaging and biology*
Carlson, M. L., Jackson, I. M., Azevedo, E. C., Reyes, S. T., Alam, I. S., Kellow, R., Castillo, J. B., Nagy, S. C., Sharma, R., Brewer, M., Cleland, J., Shen, B., James, et al
2023
- **Clinical Radiosynthesis and Translation of [¹⁸F]OP-801: A Novel Radiotracer for Imaging Reactive Microglia and Macrophages.** *ACS chemical neuroscience*
Jackson, I. M., Carlson, M. L., Beinat, C., Malik, N., Kalita, M., Reyes, S., Azevedo, E. C., Nagy, S. C., Alam, I. S., Sharma, R., La Rosa, S. A., Moradi, F., Cleland, et al
2023

- **Development and initial evaluation of a novel 11C-labeled PET tracer to image GPR84 expressing-myeloid cells during neuroinflammation**
Kalita, M., Park, J., Hayee, S., Marsango, S., Carlson, M., Reyes, S., Nagy, S., Straniero, V., Pandrala, M., Jackson, I., Alam, I., Valoti, E., Milligan, et al
SOC NUCLEAR MEDICINE INC.2023
- **Imaging CD19+ B Cells in an Experimental Autoimmune Encephalomyelitis Mouse Model using Positron Emission Tomography.** *Journal of visualized experiments : JoVE*
Reyes, S. T., Azevedo, E. C., Cropper, H. C., Nagy, S., Deal, E. M., Chaney, A. M., James, M. L.
2023
- **Discovery of a CSF-1R inhibitor and PET tracer for imaging of microglia and macrophages in the brain.** *Nuclear medicine and biology*
van der Wildt, B., Klockow, J. L., Miao, Z., Reyes, S. T., Park, J. H., Shen, B., Chin, F. T.
2022; 114-115: 99-107
- **Multimodal imaging of capsid and cargo reveals differential brain targeting and liver detargeting of systemically-administered AAVs.** *Biomaterials*
Seo, J. W., Ajenjo, J., Wu, B., Robinson, E., Raie, M. N., Wang, J., Tumbale, S. K., Buccino, P., Anders, D. A., Shen, B., Habte, F. G., Beinat, C., James, et al
2022: 121701
- **Brain cell signaling abnormalities are detected in blood in a murine model of Fragile X syndrome and corrected by Sigma-1 receptor agonist Blarcamesine.** *American journal of medical genetics. Part A*
Cogram, P., Deacon, R. M., Klamer, D., Rebowe, N., Sprouse, J., Reyes, S. T., Missling, C. U., Kaufmann, W. E.
2022
- **Radiosynthesis and initial preclinical evaluation of [11C]AZD1283 as a potential P2Y12R PET radiotracer.** *Nuclear medicine and biology*
Jackson, I. M., Buccino, P. J., Azevedo, E. C., Carlson, M. L., Luo, A. S., Deal, E. M., Kalita, M., Reyes, S. T., Shao, X., Beinat, C., Nagy, S. C., Chaney, A. M., Anders, et al
2022
- **A Clinical PET Imaging Tracer ([18F]DASA-23) to Monitor Pyruvate Kinase M2 Induced Glycolytic Reprogramming in Glioblastoma.** *Clinical cancer research : an official journal of the American Association for Cancer Research*
Beinat, C., Patel, C. B., Haywood, T., Murty, S., Naya, L., Castillo, J. B., Reyes, S. T., Phillips, M., Buccino, P., Shen, B., Park, J. H., Koran, M. E., Alam, et al
2021
- **Effects of the sigma-1 receptor agonist blarcamesine in a murine model of fragile X syndrome: neurobehavioral phenotypes and receptor occupancy.** *Scientific reports*
Reyes, S. T., Deacon, R. M., Guo, S. G., Altimiras, F. J., Castillo, J. B., van der Wildt, B., Morales, A. P., Park, J. H., Klamer, D., Rosenberg, J., Oberman, L. M., Rebowe, N., Sprouse, et al
2021; 11 (1): 17150
- **BLZ945 derivatives for PET imaging of colony stimulating factor-1 receptors in the brain.** *Nuclear medicine and biology*
van der Wildt, B., Miao, Z., Reyes, S. T., Park, J. H., Klockow, J. L., Zhao, N., Romero, A., Guo, S. G., Shen, B., Windhorst, A. D., Chin, F. T.
2021; 100-101: 44-51
- **Evaluation of carbon-11 labeled 5-(1-methyl-1H-pyrazol-4-yl)-N-(2-methyl-5-(3-(trifluoromethyl)benzamido)phenyl)nicotinamide as PET tracer for imaging of CSF-1R expression in the brain.** *Bioorganic & medicinal chemistry*
van der Wildt, B., Nezam, M., Kooijman, E. J., Reyes, S. T., Shen, B., Windhorst, A. D., Chin, F. T.
2021; 42: 116245
- **GABA Measurement in a Neonatal Fragile X Syndrome Mouse Model Using 1H-Magnetic Resonance Spectroscopy and Mass Spectrometry.** *Frontiers in molecular neuroscience*
Reyes, S. T., Mohajeri, S. n., Krasinska, K. n., Guo, S. G., Gu, M. n., Pisani, L. n., Rosenberg, J. n., Spielman, D. M., Chin, F. T.
2020; 13: 612685
- **Visualizing Nerve Injury in a Neuropathic Pain Model with [(18)F]FTC-146 PET/MRI.** *Theranostics*
Shen, B. n., Behera, D. n., James, M. L., Reyes, S. T., Andrews, L. n., Cipriano, P. W., Klukinov, M. n., Lutz, A. B., Mavlyutov, T. n., Rosenberg, J. n., Ruoho, A. E., McCurdy, C. R., Gambhir, et al
2017; 7 (11): 2794-2805

- **Use of labeled tomato lectin for imaging vasculature structures.** *Histochemistry and cell biology*
Robertson, R. T., Levine, S. T., Haynes, S. M., Gutierrez, P., Baratta, J. L., Tan, Z., Longmuir, K. J.
2015; 143 (2): 225-34