




Jai Woong Seo

Casual - Non-Exempt, Rad/Molecular Imaging Program at Stanford

 NIH Biosketch available Online

Publications

PUBLICATIONS

- **Development of an in situ CAR-T cell protocol through optical and PSMA-targeted PET imaging.** *Proceedings of the National Academy of Sciences of the United States of America*
Zhang, N., Seo, J. W., Robinson, E., Rivera-Rodriguez, A., Wang, J., Guo, Y., Czerwinski, D. K., Kim, H. R., Tumbale, S. K., Raie, M. N., Jan, B. L., Engudar, G., Sallets, et al
2025; 122 (24): e2504950122
- **Spatial transcriptomic analysis drives PET imaging of tight junction protein expression in pancreatic cancer theranostics.** *Nature communications*
Wang, J., Seo, J. W., Kare, A. J., Schneider, M., Pandrala, M., Tumbale, S. K., Raie, M. N., Engudar, G., Zhang, N., Guo, Y., Zhong, X., Ferreira, S., Wu, et al
2024; 15 (1): 10751
- **PET imaging of focused-ultrasound enhanced delivery of AAVs into the murine brain.** *Theranostics*
Ajenjo, J., Seo, J. W., Foiret, J., Wu, B., Raie, M. N., Wang, J., Fite, B. Z., Zhang, N., Malek, R., Beinat, C., Malik, N., Anders, D. A., Ferrara, et al
2023; 13 (15): 5151-5169
- **Hardwiring tissue-specific AAV transduction in mice through engineered receptor expression.** *Nature methods*
Zengel, J., Wang, Y. X., Seo, J. W., Ning, K., Hamilton, J. N., Wu, B., Raie, M., Holbrook, C., Su, S., Clements, D. R., Pillay, S., Puschnik, A. S., Winslow, et al
2023
- **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
- **Positron emission tomography imaging of novel AAV capsids maps rapid brain accumulation.** *Nature communications*
Seo, J. W., Ingham, E. S., Mahakian, L. n., Tumbale, S. n., Wu, B. n., Aghevlian, S. n., Shams, S. n., Baikoghli, M. n., Jain, P. n., Ding, X. n., Goeden, N. n., Dobрева, T. n., Flytzanis, et al
2020; 11 (1): 2102
- **CD8+ T-cell density imaging with ⁶⁴Cu-labeled cys-diabody informs immunotherapy protocols.** *Clinical cancer research : an official journal of the American Association for Cancer Research*
Seo, J. W., Tavare, R., Mahakian, L. M., Silvestrini, M. T., Tam, S., Ingham, E. S., Salazar, F. B., Borowsky, A. D., Wu, A. M., Ferrara, K. W.
2018
- **Self-assembled 20-nm Cu-64-micelles enhance accumulation in rat glioblastoma** *JOURNAL OF CONTROLLED RELEASE*
Seo, J., Ang, J., Mahakian, L. M., Tam, S., Fite, B., Ingham, E. S., Beyer, J., Forsayeth, J., Bankiewicz, K. S., Xu, T., Ferrara, K. W.
2015; 220: 51-60
- **The pharmacokinetics of Zr-89 labeled liposomes over extended periods in a murine tumor model** *NUCLEAR MEDICINE AND BIOLOGY*

- Seo, J., Mahakian, L. M., Tam, S., Qin, S., Ingham, E. S., Meares, C. F., Ferrara, K. W.
2015; 42 (2): 155–63
- **Cu-64-Labeled LyP-1-Dendrimer for PET-CT Imaging of Atherosclerotic Plaque** *BIOCONJUGATE CHEMISTRY*
Seo, J., Baek, H., Mahakian, L. M., Kusunose, J., Hamzah, J., Ruoslahti, E., Ferrara, K. W.
2014; 25 (2): 231–39
 - **Liposomal Cu-64 Labeling Method Using Bifunctional Chelators: Poly(ethylene glycol) Spacer and Chelator Effects** *BIOCONJUGATE CHEMISTRY*
Seo, J., Mahakian, L. M., Kheirulomoom, A., Zhang, H., Meares, C. F., Ferdani, R., Anderson, C. J., Ferrara, K. W.
2010; 21 (7): 1206–15
 - **A Novel Method to Label Preformed Liposomes with (CU)-C-64 for Positron Emission Tomography (PET) Imaging** *BIOCONJUGATE CHEMISTRY*
Seo, J., Zhang, H., Kukis, D. L., Meares, C. F., Ferrara, K. W.
2008; 19 (12): 2577–84
 - **Microbubble-Enhanced Focused Ultrasound-Assisted Delivery of Adeno-Associated Viruses in Brain Tumors with PET Imaging Monitoring**
Guo, Y., Foiret, J., Seo, J., Zhang, N., Wu, B., Raie, M., Tumbale, S., Ferrara, K.
CELL PRESS.2024: 606-607
 - **PET Imaging of *In Situ*-Engineered CAR-T Cells in B Cell Lymphoma with ⁶⁸Ga-PSMA-11**
Zhang, N., Seo, J., Robinson, E., Rivera-Rodriguez, A., Wang, J., Guo, Y., Wu, B., Tumbale, S. K., Raie, M. N., Inayathullah, M., Czerwinski, D. K., Levy, R., Ferrara, et al
CELL PRESS.2024: 69-70
 - **PAM and FUS-assisted local AAV gene delivery into the brain of Alzheimer's disease murine models assessed by quantitative PET reporter gene**
Ajenjo, J., Seo, J., Foiret, J., Wu, B., Raie, M., Wang, J., Guo, Y., Zhang, N., Tumbale, S., Ferrara, K.
ELSEVIER SCIENCE INC.2023: S141-S142
 - **Assessment of [⁶⁴Cu]Cu-FAP-2286 in immunocompetent mice bearing pancreatic ductal adenocarcinoma (PDAC) tumors**
Seo, J., Ajenjo, J., Wang, J., Wu, B., Raie, M., Tumbale, S., Ferrara, K.
ELSEVIER SCIENCE INC.2023: S196
 - **CD3 and CD8 targeting of ionizable lipid nanoparticles for in vivo mRNA delivery to T cells.**
Robinson, E. R., Kare, A. J., Kheirulomoom, A., Inayathullah, M., Tumbale, S. K., Wu, B., Raie, M. N., Seo, J. W., Salazar, F. B., Paulmurugan, R., Wu, A. M., Ferrara, K. W.
AMER ASSOC CANCER RESEARCH.2022
 - **Pre-clinical evaluation of immunoPET imaging using agonist CD40 monoclonal antibody in pancreatic tumor-bearing mice.** *Nuclear medicine and biology*
Aghevlian, S., Wu, B., Raie, M. N., Tumbale, S. K., Kare, A. J., Seo, J. W., Ferrara, K. W.
2021; 98-99: 8–17
 - **In situ T-cell transfection by anti-CD3-conjugated lipid nanoparticles leads to T-cell activation, migration, and phenotypic shift.** *Biomaterials*
Kheirulomoom, A., Kare, A. J., Ingham, E. S., Paulmurugan, R., Robinson, E. R., Baikoghli, M., Inayathullah, M., Seo, J. W., Wang, J., Fite, B. Z., Wu, B., Tumbale, S. K., Raie, et al
2021; 281: 121339
 - **Positron emission tomography imaging of adeno-associated virus serotype 9-tetracystein (AAV9-TC) labeled with a multichelator**
Seo, J., Mahakian, L., Ingham, E., Tumbale, S., Shams, S., Silva, E., Ferrara, K.
WILEY.2019: S40–S41
 - **Enhanced delivery of AAV-like nanoparticles after blood-brain barrier disruption in a mouse model**
Foiret, J., Seo, J., Zhang, H., Kakwere, H., Mahakian, L. M., Tam, S., Ferrara, K. W., IEEE
IEEE.2019: 884–87
 - **A Scalable Method for Squalenylation and Assembly of Multifunctional ⁶⁴Cu-Labeled Squalenoylated Gemcitabine Nanoparticles.** *Nanotheranostics*

- Tucci, S. T., Seo, J. W., Kakwere, H., Kheirloom, A., Ingham, E. S., Mahakian, L. M., Tam, S., Tumbale, S., Baikoghli, M., Cheng, R. H., Ferrara, K. W.
2018; 2 (4): 387–402
- **Dynamic contrast enhanced MRI detects changes in vascular transport rate constants following treatment with thermally-sensitive liposomal doxorubicin** *JOURNAL OF CONTROLLED RELEASE*
Fite, B. Z., Kheirloom, A., Foiret, J. L., Seo, J. W., Mahakian, L. M., Ingham, E. S., Tam, S. M., Borowsky, A. D., Curry, F. E., Ferrara, K. W.
2017; 256: 203–13
 - **2-Acetyl-7-hydroxy-6-methoxy-1-methyl-1,2,3,4-tetrahydroisoquinoline exhibits anti-inflammatory properties and protects the nigral dopaminergic neurons** *EUROPEAN JOURNAL OF PHARMACOLOGY*
Son, H., Han, S., Lee, J., Lee, C., Seo, J., Chi, D., Hwang, O.
2016; 771: 152–61
 - **Ultrasound ablation enhances drug accumulation and survival in mammary carcinoma models** *JOURNAL OF CLINICAL INVESTIGATION*
Wong, A. W., Fite, B. Z., Liu, Y., Kheirloom, A., Seo, J. W., Watson, K. D., Mahakian, L. M., Tam, S. M., Zhang, H., Foiret, J., Borowsky, A. D., Ferrara, K. W.
2016; 126 (1): 99–111
 - **Multifunctional Nanoparticles Facilitate Molecular Targeting and miRNA Delivery to Inhibit Atherosclerosis in ApoE(-/-) Mice** *ACS NANO*
Kheirloom, A., Kim, C., Seo, J., Kumar, S., Son, D., Gagnon, M. J., Ingham, E. S., Ferrara, K. W., Jo, H.
2015; 9 (9): 8885–97
 - **Effect of Alkyl Length of Peptide-Polymer Amphiphile on Cargo Encapsulation Stability and Pharmacokinetics of 3-Helix Micelles** *BIOMACROMOLECULES*
Dube, N., Seo, J. W., Dong, H., Shu, J. Y., Lund, R., Mahakian, L. M., Ferrara, K. W., Xu, T.
2014; 15 (8): 2963–70
 - **AETIQ: A Novel Synthetic Compound with Anti-inflammatory Properties in Activated Microglia** *INFLAMMATION*
Son, H., Shin, N., Shin, E., Chi, D., Seo, J., Lee, C., Hwang, O.
2014; 37 (3): 766–774
 - **Comparison of PET Imaging with Cu-64-Liposomes and F-18-FDG in the 7,12-Dimethylbenz[a]anthracene (DMBA)-Induced Hamster Buccal Pouch Model of Oral Dysplasia and Squamous Cell Carcinoma** *MOLECULAR IMAGING AND BIOLOGY*
Mahakian, L. M., Farwell, D., Zhang, H., Seo, J., Poirier, B., Tinling, S. P., Afify, A. M., Haynam, E. M., Shaye, D., Ferrara, K. W.
2014; 16 (2): 284–92
 - **A Physiological Perspective on the Use of Imaging to Assess the In Vivo Delivery of Therapeutics** *ANNALS OF BIOMEDICAL ENGINEERING*
Qin, S., Fite, B. Z., Gagnon, M. J., Seo, J. W., Curry, F., Thorsen, F., Ferrara, K. W.
2014; 42 (2): 280–98
 - **Quantitation of nanoparticle accumulation in flow using optimized microfluidic chambers** *JOURNAL OF DRUG TARGETING*
Kusunose, J., Gagnon, M. J., Seo, J. W., Ferrara, K. W.
2014; 22 (1): 48–56
 - **Multimodal imaging enables early detection and characterization of changes in tumor permeability of brain metastases** *JOURNAL OF CONTROLLED RELEASE*
Thorsen, F., Fite, B., Mahakian, L. M., Seo, J. W., Qin, S., Harrison, V., Johnson, S., Ingham, E., Caskey, C., Sundstrom, T., Meade, T. J., Harter, P. N., Skaftnesmo, et al
2013; 172 (3): 812–22
 - **The atypical mechanosensitive microRNA-712 derived from pre-ribosomal RNA induces endothelial inflammation and atherosclerosis** *NATURE COMMUNICATIONS*
Son, D., Kumar, S., Takabe, W., Kim, C., Ni, C., Alberts-Grill, N., Jang, I., Kim, S., Kim, W., Kang, S., Baker, A. H., Seo, J., Ferrara, et al
2013; 4: 3000
 - **Inhibition of Mechanosensitive MicroRNA, mir-712 Decreases Endothelial Dysfunction and Atherosclerosis**
Kumar, S., Son, D. J., Takabe, W., Kim, C., Ni, C. W., Alberts-Grill, N., Kim, S. O., Kim, W., Seo, J., Ferrara, K., Jo, H.
LIPPINCOTT WILLIAMS & WILKINS.2013

- **Evaluation of Doxorubicin-Loaded 3-Helix Micelles as Nanocarriers** *BIOMACROMOLECULES*
Dube, N., Shu, J. Y., Dong, H., Seo, J. W., Ingham, E., Kheirloom, A., Chen, P., Forsayeth, J., Bankiewicz, K., Ferrara, K. W., Xu, T.
2013; 14 (10): 3697–3705
- **A phantom for visualization of three-dimensional drug release by ultrasound-induced mild hyperthermia** *MEDICAL PHYSICS*
Lai, C., Kruse, D., Seo, J., Kheirloom, A., Ferrara, K. W.
2013; 40 (8): 083301
- **A comparison of image contrast with Cu-64-labeled long circulating liposomes and F-18-FDG in a murine model of mammary carcinoma** *AMERICAN JOURNAL OF NUCLEAR MEDICINE AND MOLECULAR IMAGING*
Ormsby, A., Zhang, H., Seo, J., Mahakian, L. M., Caskey, C. F., Ferrara, K. W.
2013; 3 (1): 32–43
- **Long-Circulating 15 nm Micelles Based on Amphiphilic 3-Helix Peptide-PEG Conjugates** *ACS NANO*
Dong, H., Dube, N., Shu, J. Y., Seo, J. W., Mahakian, L. M., Ferrara, K. W., Xu, T.
2012; 6 (6): 5320–29
- **New synthetic method for benzofurans from 2-(cyanomethyl)phenyl derivatives** *TETRAHEDRON*
Kim, H., Seo, J., Lee, M., Shin, D., Kim, H., Cho, H., Lee, B., Chi, D.
2012; 68 (21): 3942–47
- **A novel compound PTIQ protects the nigral dopaminergic neurones in an animal model of Parkinson's disease induced by MPTP** *BRITISH JOURNAL OF PHARMACOLOGY*
Son, H., Lee, J., Shin, N., Choi, J., Seo, J., Chi, D., Lee, C., Kim, E., Choe, H., Hwang, O.
2012; 165 (7): 2213–27
- **Ultrasound Increases Nanoparticle Delivery by Reducing Intratumoral Pressure and Increasing Transport in Epithelial and Epithelial-Mesenchymal Transition Tumors** *CANCER RESEARCH*
Watson, K. D., Lai, C., Qin, S., Kruse, D. E., Lin, Y., Seo, J., Cardiff, R. D., Mahakian, L. M., Beegle, J., Ingham, E. S., Curry, F., Reed, R. K., Ferrara, et al
2012; 72 (6): 1485–93
- **Specific penetration and accumulation of a homing peptide within atherosclerotic plaques of apolipoprotein E-deficient mice** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Hamzah, J., Kotamraju, V. R., Seo, J. W., Agemy, L., Fogal, V., Mahakian, L. M., Peters, D., Roth, L., Gagnon, M. J., Ferrara, K. W., Ruoslahti, E.
2011; 108 (17): 7154–59
- **Positron emission tomography imaging of the stability of Cu-64 labeled dipalmitoyl and distearoyl lipids in liposomes** *JOURNAL OF CONTROLLED RELEASE*
Seo, J., Qin, S., Mahakian, L. M., Watson, K. D., Kheirloom, A., Ferrara, K. W.
2011; 151 (1): 28–34
- **Novel Method to Label Solid Lipid Nanoparticles with Cu-64 for Positron Emission Tomography Imaging** *BIOCONJUGATE CHEMISTRY*
Andreozzi, E., Seo, J., Ferrara, K., Louie, A.
2011; 22 (4): 808–18
- **Longitudinal Investigation of Permeability and Distribution of Macromolecules in Mouse Malignant Transformation Using PET** *CLINICAL CANCER RESEARCH*
Rygh, C. B., Qin, S., Seo, J. W., Mahakian, L. M., Zhang, H., Adamson, R., Chen, J. Q., Borowsky, A. D., Cardiff, R. D., Reed, R. K., Curry, F. E., Ferrara, K. W.
2011; 17 (3): 550–59
- **Fast and Easy Drying Method for the Preparation of Activated [F-18]Fluoride Using Polymer Cartridge** *BULLETIN OF THE KOREAN CHEMICAL SOCIETY*
Seo, J., Lee, B., Lee, S., Oh, S., Chi, D.
2011; 32 (1): 71–76
- **Copper-Doxorubicin as a Nanoparticle Cargo Retains Efficacy with Minimal Toxicity** *MOLECULAR PHARMACEUTICS*
Kheirloom, A., Mahakian, L. M., Lai, C., Lindfors, H. A., Seo, J., Paoli, E. E., Watson, K. D., Haynam, E. M., Ingham, E. S., Xing, L., Cheng, R., Borowsky, A. D., Cardiff, et al
2010; 7 (6): 1948–58

- **An optical and microPET assessment of thermally-sensitive liposome biodistribution in the Met-1 tumor model: Importance of formulation** *JOURNAL OF CONTROLLED RELEASE*
Paoli, E. E., Kruse, D. E., Seo, J. W., Zhang, H., Kheirloom, A., Watson, K. D., Chiu, P., Stahlberg, H., Ferrara, K. W.
2010; 143 (1): 13–22
- **Longitudinal investigation of permeability and distribution of macromolecules in mouse tumor development and malignant transformation using PET**
Rygh, C. B., Seo, J. W., Qin, S. P., Mahakian, L. M., Zhang, H., Kukis, D. L., Chan, J. Q., Cheng-Liao, J., Reed, R. K., Ferrara, K. W.
FEDERATION AMER SOC EXP BIOL.2010
- **An Imaging-Driven Model for Liposomal Stability and Circulation** *MOLECULAR PHARMACEUTICS*
Qin, S., Seo, J., Zhang, H., Qi, J., Curry, F. E., Ferrara, K. W.
2010; 7 (1): 12–21
- **Imaging nanoparticle stability and activation in vivo**
Ferrara, K. W., Seo, J. W., Zhang, H., IEEE
IEEE.2009: 4580+
- **Syntheses of tetrahydroisoquinoline derivatives that inhibit NO production in activated BV-2 microglial cells** *EUROPEAN JOURNAL OF MEDICINAL CHEMISTRY*
Seo, J., Srisook, E., Son, H., Hwang, O., Cha, Y., Chi, D.
2008; 43 (6): 1160–70
- **Dynamic imaging of arginine-rich heart-targeted vehicles in a mouse model** *BIOMATERIALS*
Zhang, H., Kusunose, J., Kheirloom, A., Seo, J. W., Qi, J., Watson, K. D., Lindfors, H. A., Ruoslahti, E., Sutcliffe, J. L., Ferrara, K. W.
2008; 29 (12): 1976–88
- **Convenient one-pot synthesis of 2,2-bis-(4-hydroxyphenyl)-cyclopentanone** *JOURNAL OF ORGANIC CHEMISTRY*
Seo, J., Kim, H., Lee, B., Katzenellenbogen, J. A., Chi, D.
2008; 73 (2): 715–18
- **An efficient F-18 labeling method for PET study: Huisgen 1,3-dipolar cycloaddition of bioactive substances and F-18-labeled compounds** *TETRAHEDRON LETTERS*
Sirion, U., Kim, H., Lee, J., Seo, J., Lee, B., Lee, S., Oh, S., Chi, D.
2007; 48 (23): 3953–57
- **Synthesis and biodistribution of fluorine-18-labeled fluorocyclofenils for imaging the estrogen receptor** *NUCLEAR MEDICINE AND BIOLOGY*
Seo, J., Chi, D., Dence, C. S., Welch, M. J., Katzenellenbogen, J. A.
2007; 34 (4): 383–90
- **Fluorine-substituted cyclofenil derivatives as estrogen receptor ligands: Synthesis and structure-affinity relationship study of potential positron emission tomography agents for imaging estrogen receptors in breast cancer** *JOURNAL OF MEDICINAL CHEMISTRY*
Seo, J. W., Comminos, J. S., Chi, D. Y., Kim, D. W., Carlson, K. E., Katzenellenbogen, J. A.
2006; 49 (8): 2496–2511
- **Syntheses of NAMDA derivatives inhibiting NO production in BV-2 cells stimulated with lipopolysaccharide** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*
Seo, J. W., Srisook, E., Son, H. J., Hwang, O., Cha, Y. N., Chi, D. Y.
2005; 15 (14): 3369–73
- **Hydroxylation of alkyl halides with water in ionic liquid: Significantly enhanced nucleophilicity of water** *JOURNAL OF ORGANIC CHEMISTRY*
Kim, D. W., Hong, D. J., Seo, J. W., Kim, H. S., Kim, H. K., Song, C. E., Chi, D. Y.
2004; 69 (9): 3186–89
- **Syntheses and radical scavenging activities of resveratrol derivatives** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*
Lee, H. J., Seo, J. W., Lee, B. H., Chung, K. H., Chi, D. Y.
2004; 14 (2): 463–66