

# Stanford

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## Corinne Beinat

Instructor, Radiology - Rad/Molecular Imaging Program at Stanford

### Bio

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#### ACADEMIC APPOINTMENTS

- Instructor, Radiology - Rad/Molecular Imaging Program at Stanford

#### HONORS AND AWARDS

- Agnes Campbell Postgraduate Prizes, The University of Sydney (2009, 2010, 2011, 2012, 2013, 2014)
- SIRO Top-up Scholarship, CSIRO Materials Science and Engineering, Ian Wark Laboratory (2010-2013)
- The University Postgraduate Award Scholarship, The University of Sydney (2010-2014)
- The John A Lamberton Scholarship, The University of Sydney (2010-2014)
- The R J W Le Fèvre Research Travelling Scholarship, The School of Chemistry, University of Sydney (2013)

#### BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, World Molecular Imaging Society (2015 - present)
- Member, Royal Australian Chemical Society (2009 - present)

### Research & Scholarship

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#### CURRENT RESEARCH AND SCHOLARLY INTERESTS

My current research areas of interest include developing new strategies for: 1) novel radioligand and radiotracer development for various targets involved in brain cancer, 2) preclinical animal models of glioblastoma, and 3) clinical translation of useful radiopharmaceuticals for early-detection of disease and monitoring therapy.

#### CLINICAL TRIALS

- [18F]DASA-23 and PET Scan in Evaluating Pyruvate Kinase M2 Expression in Patients With Intracranial Tumors or Recurrent Glioblastoma and Healthy Volunteers, Recruiting

### Teaching

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#### COURSES

##### 2021-22

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

##### 2020-21

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

## Publications

### PUBLICATIONS

- **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
- **Tumor treating fields (TTFields) impairs aberrant glycolysis in glioblastoma as evaluated by [18F]DASA-23, a non-invasive probe of pyruvate kinase M2 (PKM2) expression** *Neoplasia*  
Patel, C. B., Beinat, C., Xie, Y., Chang, E., Gambhir, S. S.  
2021; 23 (1): 58-67
- **Minicircles for a two-step blood biomarker and PET imaging early cancer detection strategy.** *Journal of controlled release : official journal of the Controlled Release Society*  
Robinson, E. R., Gowrishankar, G., D'Souza, A., Kheirrolomoom, A., Haywood, T., Hori, S. S., Chuang, H. Y., Zeng, Y., Tumbale, S., Aalipour, A., Beinat, C., Alam, I. S., Sathirachinda, et al  
2021
- **Ultra-high-frequency radio-frequency acoustic molecular imaging with saline nanodroplets in living subjects.** *Nature nanotechnology*  
Chen, Y. S., Zhao, Y. n., Beinat, C. n., Zlitni, A. n., Hsu, E. C., Chen, D. H., Achterberg, F. n., Wang, H. n., Stoyanova, T. n., Dionne, J. n., Gambhir, S. S.  
2021
- **PET reporter gene imaging and ganciclovir-mediated ablation of chimeric antigen receptor T-cells in solid tumors.** *Cancer research*  
Murty, S., Labanieh, L., Murty, T., Gowrishankar, G., Haywood, T., Alam, I. S., Beinat, C., Robinson, E., Aalipour, A., Klysz, D. D., Cochran, J. R., Majzner, R. G., Mackall, et al  
2020
- **Evaluation of Glycolytic Response to Multiple Classes of Anti-glioblastoma Drugs by Noninvasive Measurement of Pyruvate Kinase M2 Using [F-18]DASA-23** *MOLECULAR IMAGING AND BIOLOGY*  
Beinat, C., Patel, C. B., Xie, Y., Gambhir, S. S.  
2020; 22 (1): 124–33
- **Human biodistribution and radiation dosimetry of [18F]DASA-23, a PET probe targeting pyruvate kinase M2.** *European journal of nuclear medicine and molecular imaging*  
Beinat, C. n., Patel, C. B., Haywood, T. n., Shen, B. n., Naya, L. n., Gandhi, H. n., Holley, D. n., Khalighi, M. n., Iagaru, A. n., Davidzon, G. n., Gambhir, S. S.  
2020
- **Intravital imaging reveals synergistic effect of CAR T-cells and radiation therapy in a preclinical immunocompetent glioblastoma model** *Oncoimmunology*  
Murty, S., Haile, S. T., Beinat, C., Aalipour, A., Alam, I. S., Murty, T., Shaffer, T. M., Patel, C. B., Graves, E. E., Mackall, C. L., Gambhir, S. S.  
2020; 9 (1)
- **EVALUATION OF [18F]DASA-23 FOR NON-INVASIVE MEASUREMENT OF ABERRANTLY EXPRESSED PYRUVATE KINASE M2 IN GLIOMA: FIRST-IN-HUMAN STUDY**  
Patel, C., Beinat, C., Haywood, T., Murty, S., Xie, Y., Recht, L., Nagpal, S., Thomas, R., Khalighi, M., Gandhi, H., Holley, D., Gambhir, S.  
OXFORD UNIV PRESS INC.2019: 169
- **TUMOR TREATING FIELDS LEADS TO CHANGES IN MEMBRANE PERMEABILITY AND INCREASED PENETRATION BY ANTI-GLIOMA DRUGS**  
Chang, E., Patel, C., Beinat, C., Young, C., Flores, T., Zeng, Y., Joubert, L., Arami, H., Natarajan, A., Sinclair, R., Gambhir, S.  
OXFORD UNIV PRESS INC.2019: 93
- **Evaluation of [18F]DASA-23 for non-invasive measurement of aberrantly expressed pyruvate kinase M2 in glioblastoma: preclinical and first in human studies**  
Beinat, C., Patel, C., Haywood, T., Murty, S., Alam, I., Xie, Y., Gandhi, H., Holley, D., Gambhir, S.  
SOC NUCLEAR MEDICINE INC.2019
- **Engineered immune cells as highly sensitive cancer diagnostics** *NATURE BIOTECHNOLOGY*  
Aalipour, A., Chuang, H., Murty, S., D'Souza, A. L., Park, S., Gulati, G. S., Patel, C. B., Beinat, C., Simonetta, F., Martinic, I., Gowrishankar, G., Robinson, E. R., Aalipour, et al

2019; 37 (5): 531-+

- **Evaluation of Glycolytic Response to Multiple Classes of Anti-glioblastoma Drugs by Noninvasive Measurement of Pyruvate Kinase M2 Using [18F]DASA-23.** *Molecular imaging and biology : MIB : the official publication of the Academy of Molecular Imaging*  
Beinat, C., Patel, C. B., Xie, Y., Gambhir, S. S.  
2019
- **The characterization of 18F-hGTS13 for molecular imaging of xC- transporter activity with positron emission tomography.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*  
Beinat, C. n., Gowrishankar, G. n., Shen, B. n., Alam, I. S., Robinson, E. n., Haywood, T. n., Patel, C. B., Azevedo, E. C., Castillo, J. n., Ilovich, O. n., Koglin, N. n., Schmitt-Willich, H. n., Berndt, et al  
2019
- **Engineered immune cells as highly sensitive cancer diagnostics.** *Nature biotechnology*  
Aalipour, A. n., Chuang, H. Y., Murty, S. n., D'Souza, A. L., Park, S. M., Gulati, G. S., Patel, C. B., Beinat, C. n., Simonetta, F. n., Martini#, I. n., Gowrishankar, G. n., Robinson, E. R., Aalipour, et al  
2019
- **Positron emission tomography reporter gene strategy for use in the central nervous system** *PNAS*  
Haywood, T., Beinat, C., Gowrishankar, G., Patel, C. B., Alam, I. S., Murty, S., Gambhir, S. S.  
2019
- **A NOVEL METABOLIC PET TRACER STRATEGY TO DETERMINE EARLY EFFECTS OF TUMOR TREATING FIELDS (TTFIELDS)**  
Patel, C., Beinat, C., Xie, Y., Haywood, T., Murty, S., Chang, E., Gambhir, S.  
OXFORD UNIV PRESS INC.2018: 32
- **COMPARISON OF THREE METABOLIC PET RADIOTRACERS IN GLIOBLASTOMA: CELL CULTURE AND ANIMAL STUDIES**  
Beinat, C., Patel, C., Murty, S., Haywood, T., Park, J., Xie, Y., Gambhir, S.  
OXFORD UNIV PRESS INC.2018: 34
- **EVALUATION OF GLYCOLYTIC RESPONSE TO SEVEN CLASSES OF ANTI-GLIOBLASTOMA DRUGS BY NON-INVASIVE MEASUREMENT OF PYRUVATE KINASE M2**  
Beinat, C., Patel, C., Xie, Y., Gambhir, S.  
OXFORD UNIV PRESS INC.2018: 33-34
- **A novel synthesis of 6''-[18 F]-fluoromaltotriose as a PET tracer for imaging bacterial infection.** *Journal of labelled compounds & radiopharmaceuticals*  
Namavari, M. n., Gowrishankar, G. n., Srinivasan, A. n., Gambhir, S. S.  
2018
- **The Utility of [18F]DASA-23 for Molecular Imaging of Prostate Cancer with Positron Emission Tomography.** *Molecular imaging and biology : MIB : the official publication of the Academy of Molecular Imaging*  
Beinat, C. n., Haywood, T. n., Chen, Y. S., Patel, C. B., Alam, I. S., Murty, S. n., Gambhir, S. S.  
2018
- **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
- **receptor.** *EJNMMI research*  
Palner, M., Beinat, C., Banister, S., Zanderigo, F., Park, J. H., Shen, B., Hjoernevik, T., Jung, J. H., Lee, B. C., Kim, S. E., Fung, L., Chin, F. T.  
2016; 6 (1): 80-?
- **Effects of common anesthetic agents on [F-18] flumazenil binding to the GABA(A) receptor** *EJNMMI RESEARCH*  
Palner, M., Beinat, C., Banister, S., Zanderigo, F., Park, J. H., Shen, B., Hjoernevik, T., Jung, J. H., Lee, B. C., Kim, S. E., Fung, L., Chin, F. T.  
2016; 6
- **The Recent Development of alpha(7) Nicotinic Acetylcholine Receptor (nAChR) Ligands as Therapeutic Candidates for the Treatment of Central Nervous System (CNS) Diseases** *CURRENT PHARMACEUTICAL DESIGN*  
Beinat, C., Banister, S. D., Herrera, M., Kassiou, M.  
2016; 22 (14): 2134-2151

- **Pharmacology of Indole and Indazole Synthetic Cannabinoid Designer Drugs AB-FUBINACA, ADB-FUBINACA, AB-PINACA, ADB-PINACA, 5F-AB-PINACA, 5F-ADB-PINACA, ADBICA, and 5F-ADBICA** *ACS CHEMICAL NEUROSCIENCE*  
Banister, S. D., Moir, M., Stuart, J., Kevin, R. C., Wood, K. E., Longworth, M., Wilkinson, S. M., Beinat, C., Buchanan, A. S., Glass, M., Connor, M., McGregor, I. S., Kassiou, et al  
2015; 6 (9): 1546-1559
- **Effects of Bioisosteric Fluorine in Synthetic Cannabinoid Designer Drugs JWH-018, AM-2201, UR-144, XLR-11, PB-22, 5F-PB-22, APICA, and STS-135** *ACS CHEMICAL NEUROSCIENCE*  
Banister, S. D., Stuart, J., Kevin, R. C., Edington, A., Longworth, M., Wilkinson, S. M., Beinat, C., Buchanan, A. S., Hibbs, D. E., Glass, M., Connor, M., McGregor, I. S., Kassiou, et al  
2015; 6 (8): 1445-1458
- **Structure-activity relationships of synthetic cannabinoid designer drug RCS-4 and its regioisomers and C4 homologues** *FORENSIC TOXICOLOGY*  
Banister, S. D., Stuart, J., Conroy, T., Longworth, M., Manohar, M., Beinat, C., Wilkinson, S. M., Kevin, R. C., Hibbs, D. E., Glass, M., Connor, M., McGregor, I. S., Kassiou, et al  
2015; 33 (2): 355-366
- **The Therapeutic Potential of alpha(7) Nicotinic Acetylcholine Receptor (alpha(7) nAChR) Agonists for the Treatment of the Cognitive Deficits Associated with Schizophrenia** *CNS DRUGS*  
Beinat, C., Banister, S. D., Herrera, M., Law, V., Kassiou, M.  
2015; 29 (7): 529-542
- **Structure-activity relationship studies of SEN12333 analogues: Determination of the optimal requirements for binding affinities at alpha 7 nAChRs through incorporation of known structural motifs** *EUROPEAN JOURNAL OF MEDICINAL CHEMISTRY*  
Beinat, C., Reekie, T., Banister, S. D., O'Brien-Brown, J., Xie, T., Olson, T. T., Xiao, Y., Harvey, A., O'Connor, S., Coles, C., Grishin, A., Kolesik, P., Tsanaktsidis, et al  
2015; 95: 277-301
- **Ether analogues of DPA-714 with subnanomolar affinity for the translocator protein (TSPO)** *EUROPEAN JOURNAL OF MEDICINAL CHEMISTRY*  
Banister, S. D., Beinat, C., Wilkinson, S. M., Shen, B., Bartoli, C., Selleri, S., Da Pozzo, E., Martini, C., Chin, F. T., Kassiou, M.  
2015; 93: 392-400
- **Recent Advances in the Development of Sigma-1 Receptor Ligands** *Australian Journal of Chemistry*  
Manohar, M., Banister, S. D., Beinat, C., O'Brien-Brown, J., Kassiou, M.  
2015; 68 (4): 600-609
- **Effects of bioisosteric fluorine in synthetic cannabinoid designer drugs JWH-018, AM-2201, UR-144, XLR-11, PB-22, 5F-PB-22, APICA, and STS-135.** *ACS chemical neuroscience*  
Banister, S. D., Stuart, J. n., Kevin, R. C., Edington, A. n., Longworth, M. n., Wilkinson, S. M., Beinat, C. n., Buchanan, A. S., Hibbs, D. E., Glass, M. n., Connor, M. n., McGregor, I. S., Kassiou, et al  
2015; 6 (8): 1445-58
- **Ether analogues of DPA-714 with subnanomolar affinity for the translocator protein (TSPO)** *European Journal of Medicinal Chemistry*  
Banister, S. D., Beinat, C., Wilkinson, S. M., Shen, B., Bartoli, C., Selleri, S., Da Pozzo, E., Martini, C., Chin, F. T., Kassiou, M.  
2015; 93: 392-400
- **Investigations of amide bond variation and biaryl modification in analogues of alpha 7 nAChR agonist SEN12333** *EUROPEAN JOURNAL OF MEDICINAL CHEMISTRY*  
Beinat, C., Reekie, T., Hibbs, D., Xie, T., Olson, T. T., Xiao, Y., Harvey, A., O'Connor, S., Coles, C., Tsanaktsidis, J., Kassiou, M.  
2014; 84: 200-205
- **Structure-activity relationships of N-substituted 4-(trifluoromethoxy) benzamidines with affinity for GluN2B-containing NMDA receptors** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*  
Beinat, C., Banister, S. D., Hoban, J., Tsanaktsidis, J., Metaxas, A., Windhorst, A. D., Kassiou, M.  
2014; 24 (3): 828-830
- **A practical synthesis of (1S,4S)-2,5-diazabicyclo[2.2.1]heptane** *TETRAHEDRON LETTERS*  
Beinat, C., Banister, S. D., McErlean, C. S., Kassiou, M.  
2013; 54 (39): 5345-5347
- **Consequences of linker length alteration of the alpha 7 nicotinic acetylcholine receptor (nAChR) agonist, SEN12333** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*

Beinat, C., Banister, S. D., van Prehn, S., Doddareddy, M. R., Hibbs, D., Sako, M., Chebib, M., Thao Tran, T., Al-Muhtasib, N., Xiao, Y., Kassiou, M.  
2012; 22 (7): 2380-2384

- **Trishomocubane as a scaffold for the development of selective dopamine transporter (DAT) ligands** *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*  
Banister, S. D., Moussa, I. A., Beinat, C., Reynolds, A. J., Schiavini, P., Jorgensen, W. T., Kassiou, M.  
2011; 21 (1): 38-41
- **Design, Synthesis, and Structure-Affinity Relationships of Regioisomeric N-Benzyl Alkyl Ether Piperazine Derivatives as sigma-1 Receptor Ligands** *JOURNAL OF MEDICINAL CHEMISTRY*  
Moussa, I. A., Banister, S. D., Beinat, C., Giboureau, N., Reynolds, A. J., Kassiou, M.  
2010; 53 (16): 6228-6239
- **Insights into Structure-Activity Relationships and CNS Therapeutic Applications of NR2B Selective Antagonists - See more at: <http://www.eurekaselect.com/72752/article#sthash.FVkeRGWN.dpuf>** *Current Medicinal Chemistry*  
Beinat, C., Banister, S., Moussa, I., Reynolds, A. J., McErlean, C. S., Kassiou, M.  
2010 ; 17 (34): 4166-90
- **Development of Vesicular Acetylcholine Transporter Ligands: Molecular Probes for Alzheimers Disease - See more at: <http://www.eurekaselect.com/71948/article#sthash.dsWtg2ps.dpuf>** *Current Bioactive Compounds*  
Giboureau, N., Aumann, K. M., Beinat, C., Kassiou, M.  
2010; 27: 129-155