

# PD Dr. Nicolas BEZIERE

## Personal Data

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Status/Function:		Group Leader – Inflammation and Infection Imaging
Scientific focus:		Preclinical multimodal imaging of Inflammation and Infection
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Affiliations		Werner Siemens Imaging Center, Department of Preclinical Imaging and Radiopharmacy, Eberhard Karls University of Tübingen, Germany Cluster of Excellence iFIT (EXC 2180) "Image Guided and Functionally Instructed Tumor Therapies", Eberhard Karls University of Tübingen, Germany

## Education and qualifications

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2023	Habilitation (Privatdozent) at the Faculty of Medicine Eberhard Karls University Tübingen, D.
2005 - 2008	Doctor of Philosophy (Ph.D.) in Medicinal and Pharmaceutical Chemistry (Université du Droit et de la Santé Lille II, F).
2005 - 2006	Mastère in Drug Conception (Université du Droit et de la Santé Lille II, F).
2004 - 2005	Master in Drug Design (Université du Droit et de la Santé Lille II, F).
2002 – 2005	Chemical Engineering Degree. Chemical Engineering School, so called "French Grande Ecole" (equivalent to competitive Master's degree) (Ecole Nationale Supérieure de Chimie de Lille, F).
2000 - 2002	Intensive two-year university foundation course preparing for the competitive entrance examination to the French "Grandes Ecoles" / Engineering Schools ("Classes Préparatoires aux Grandes Ecoles"). Physics and Chemistry majors

## Work Experience

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Since 2017	Group Leader for Inflammation and Infection Imaging at the Werner Siemens Imaging Center (University of Tübingen, D).
2010 - 2016	Post-doctoral researcher and Group leader of the Optoacoustic and Theranostics laboratory at the Institute for Biological and Medical Imaging (Helmholtz Zentrum München / Technische Universität München, D).
2008 – 2010	Post-doctoral researcher at the Pharmacological and Toxicological Chemistry and Biochemistry Laboratory (UMR 8601, National Center for Scientific Research, Paris, F). Post-doctoral research on electron paramagnetic resonance for spectroscopy and imaging.
2005 - 2008	PhD Candidate in Pharmaceutical Chemistry focusing on the design and synthesis of novel therapeutic solutions for prostate cancer therapy: Optimization of the cyclooxygenase inhibition concept for prostate cancer chemotherapy. Qualification: "summa cum laude".

## Teaching Experience

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2019-2020	Medicine didactics course at the Eberhard Karls University of Tübingen (Medizindidaktische Qualifikation I) certified.
Since 2019	Medical Student: 1 to 1 tutoring (Studienpaten – Lernportfolio Program).
Since 2017	Teaching preclinical imaging theory and applications at the Bachelor, Master (Lectures, practical courses and seminars) and Professional Scientist level (Workshops).
2010 - 2016	Various seminars on novel biomedical imaging techniques

## Additional Qualifications and Skills

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Frequent reviewer for various scientific journals.

Regular session (co-)chair and panel reviewer for the European Molecular Imaging Meeting and World Molecular Imaging Conference.

Frequent reviewer of national / international grant proposals.

## Publications

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In total over 35 original research work publications, 3 review articles, including publications above IF 20. The resulting h-index (Scopus) is 19.

Selected publications:

\*: equal contribution. \*\*: corresponding author(s).

**Beziere, N.** & Ntziachristos, V. Optoacoustic imaging: an emerging modality for the gastrointestinal tract. *Gastroenterology* 141, 1979-1985, 2011.

**Beziere, N.**, von Schacky, C., Kosanke, Y., Kimm, M., Nunes, A., Licha, K., Aichler, M., Walch, A., Rummeny, E. J., Ntziachristos, V. & Meier, R. Optoacoustic imaging and staging of inflammation in a murine model of arthritis. *Arthritis Rheumatol* 66, 2071-2078, 2014.

**Beziere, N.**, Lozano, N., Nunes, A., Salichs, J., Queiros, D., Kostarelos, K. & Ntziachristos, V. Dynamic imaging of PEGylated indocyanine green (ICG) liposomes within the tumor microenvironment using multi-spectral optoacoustic tomography (MSOT). *Biomaterials* 37, 415-424, 2015.

**Beziere, N.\*\*** & Ntziachristos, V. Optoacoustic imaging of naphthalocyanine: potential for contrast enhancement and therapy monitoring. *J Nucl Med* 56, 323-328, 2015.

Du, Y.\*, Jiang, Q.\*, **Beziere, N.\***, Song, L., Zhang, Q., Peng, D., Chi, C., Yang, X., Guo, H., Diot, G., Ntziachristos, V., Ding, B., Tian, J. DNA Nanostructure–Gold Nanorod Hybrids for Enhanced in vivo Optoacoustic Imaging and Photothermal Therapy. *Advanced Materials* 28(45), 10000-10007, 2016.

Reber, J., Willershäuser, M., Karlas, A., Paul-Yuan, K., Diot, G., Franz, D., Fromme, T., Ovsepian, S. V., **Beziere, N.**, Dubikovskaya, E., Karampinos, D. C., Holzapfel, C., Hauner, H., Klingenspor, M., Ntziachristos, V. Non-invasive measurement of brown fat metabolism based on optoacoustic imaging of hemoglobin gradients. *Cell Metab.* 27(3), 689-701, 2018.

**Beziere, N.\***, Fuchs, K.\*, Maurer, A., Reischl, G., Brück, J., Ghoreschi, K., Fehrenbacher, B., Carvajal Berrio, D., Schenke-Layland, K., Kohlhofer, U., Quintanilla-Martinez, L., Gawaz, M., Kneilling, M., Pichler, B. Imaging fibrosis in inflammatory diseases: targeting the exposed extracellular matrix. *Theranostics* 9(10), 2868-2881, 2019.

Henneberg, S., Hasenberg, A., Maurer, A., Neumann, F., Bornemann, L., Gonzales-Menendez, I., Kraus, A., Hasenberg, M., Thorntorn, C.R., Pichler, B.J., Gunzer, M.\*\*, **Beziere, N.\*\*** Antibody-guided in vivo imaging of *Aspergillus fumigatus* lung infections during anti-fungal azole treatment. *Nat. Commun* 12, 1707, 2021.

Schwenck, J., Maurer, A., **Beziere, N.**, Francesco, F., Boschetti, F., Geistlich, S., Seyfried, D., Gunzer, M., Reischl, G., Wehrmüller, J., Ehrlichmann, W., Horger, M., Gatidis, S., Davies, G., Vogel, R., la Fougère, C., Pichler, B.J., Thornton, C. Antibody-guided Molecular Imaging of Aspergillus Lung Infections in Leukemia Patients. *J. Nucl. Med. Illustrated Post*, 2022.

Isser, S., Maurer, A., Reischl, G., Schaller, M., Gonzalez-Menendez, I., Quintanilla-Martinez, L., Gawaz, M., Pichler, B.J., **Beziere, N.\*\*** Radiolabeled GPVI-Fc for PET Imaging of Multiple Extracellular Matrix Fibers: A New Look into Pulmonary Fibrosis Progression. *J. Nucl. Med.* 64(6), 940-945, 2023.

## Invited Talks

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- 09.2023 **Bézière, N.** *Molecular imaging of infections: towards pathogen-specificity*. World Molecular Imaging Conference 2023, Prague, Czech Republic.
- 03.2023 **Bézière, N.** *Infection Imaging: Looking forward*. Introductory talk to the Infection Imaging Scientific Session, European Molecular Imaging Meeting 2023, Salzburg, Austria.
- 07.2022 **Bézière, N.**, *Innovative methods for experimental and clinical imaging for the detection of invasive Aspergillosis*. Summer meeting of the Paul Ehrlich Society, Königswinter, Germany.
- 03.2022 **Bézière, N.** *Imaging of the lungs: Novel radiotracers for diagnosis and therapy monitoring*. IAEA Technical Meeting "Radiolabelled Molecules for Diagnosis and Therapy of Infection and Inflammation", Vienna, Austria.
- 01.2022 **Bézière, N.** *Molecular imaging of infections: towards pathogen-specific imaging*. Joint Microbiological Colloquium, Cluster of Excellence "Controlling Microbes to Fight Infections", Tübingen, Germany.
- 10.2021 **Bézière, N.** *Imaging fungal infections using radiolabeled antibodies*. Imaging of Infections symposium, World Molecular Imaging Conference 2021, Virtual.
10. 2019 **Bézière, N.** *Imaging disruption of the Extra-Cellular Matrix using a GPVI fusion protein*. KFO 274 Closing Symposium 2019 / 1st Symposium „Platelets". Tübingen, Germany,
- 02.2019 **Bézière, N.** *New Molecular-Functional Imaging Technologies and Therapeutic Strategies for Theranostic of Invasive Aspergillosis and Imaging Fibrosis*. Tübingen – PSI Symposium,
- 01.2019 **Bézière, N.** *Imaging Fibrosis*. Stanford-Tübingen Symposium on Imaging Cancer Immunotherapy, Stanford, USA.
- 11.2015 **Bézière, N.** and Ntziachristos, V. *Optoacoustic Imaging: Light and sound for cancer imaging*. Physical chemistry of the cell: innovative bioimaging 2015, Saclay, France.
- 03.2015 **Bézière, N.** and Ntziachristos, V. *Optoacoustic Imaging: Getting more from light and sound*. Session introduction talk. European Molecular Imaging Meeting 2015, Tübingen, Germany.
- 02.2015 **Bézière, N.** and Ntziachristos, V. *Optoacoustic Imaging: Light and sound for cancer imaging*. 21th Annual Meeting of the German Society for Gene Therapy, Vienna, Austria.
- 05.2014 **Bézière, N.** *Pushing the limits of biomedical imaging using light and sound: the optoacoustic solution*. HELENA Lecture series Structural and Imaging Biology Workshop 2014, Munich, Germany.
- 11.2013 **Bézière, N.** *Multispectral optoacoustic tomography of indocyanine green-encapsulating liposomes in-vivo*. Nanosystem Initiative Munich workshop: Young ideas in Nanoscience, Munich, Germany.
- 01.2013 **Bézière, N.** *Opto-acoustic imaging methods and applications: a powerful new approach to nano-particle imaging*. dPGS Workshop, Berlin, Germany.
- 10.2012 **Bézière, N.** *Opto-acoustic imaging methods and applications: a powerful new approach to nano-*

*particle imaging*. NanoDrug 2012, Rome, Italy.

02.2012 **Bézière, N.** *Optoacoustic imaging: Achievements and Challenges*. COST Action Meeting, Torino, Italy.

## Professional Memberships

2018 - now Founding member of the Oncology and Immunotherapy interest group of the European Society for Molecular Imaging

2013 - now Member of the European Society for Molecular Imaging

2013 – now Member of the World Molecular Imaging Society

2013 - 2016 Associate member of the Nanosystem Initiative Munich Cluster of Excellence.

## Research Grants and Fellowships

Project title	Funding source	Amount	Period	Role
Molecular imaging of idiopathic pulmonary fibrosis: the interplay between senescence and fibrosis	Universität Tübingen: <i>fortune</i> -Programm.	150k€	04.2019 – 04.2022	Project leader.
Inhibiting macrophages and T-cell interaction: Blocking the B7-H4 pathway to improve immunotherapy response	Stanford-Tübingen initiative	80k€ (Tübingen) + 27k€ (Stanford)	09.2020 - 03.2022	Co-project leader with H. Daldrup-Link
PET/MRI imaging of macrophage responses to radiation and immunotherapy	Stanford-Tübingen initiative	63.7k€ (Tübingen) + 45k€ (Stanford) + 18k€ (shared)	09.2020 - 03.2022	Co-project leader with A. Martins (Tübingen), E. Graves and J. Klockow (Stanford)
Cellular Senescence Network: New Imaging Tools for Arthritis Imaging	NIH “Cellular Senescence Network”	50k€/year	09.2021 – in progress	Co-PI with Prof Daldrup Link (Stanford)
Real-time imaging of gut microbiome modulation	DFG Excellence Cluster EXC2180 CMFI Collaborative Research Grant	217.1k€ (Beziere) 57.3k€(Maier)	09.2022 – 09.2025	PI., with co-PI Prof. Maier (Tübingen)
Multimodal preclinical imaging of <i>Aspergillus fumigatus</i> invasion and treatment	DFG Research Grant (Sachbeihilfe)	340.3k€ (Beziere) 209k€ (Gunzer)	04.2023 – 04.2026	PI, with co-PI Prof Gunzer (UDE)

## Awards and Honours

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2014	Poster Award: European Molecular Imaging Meeting 2014 (Antwerp, Belgium).
2007	Poster Award: 21st Franco-Belgian pharmaceutical chemistry days (Namur, Belgium).
2006	Poster Award: 20st Franco-Belgian pharmaceutical chemistry days (Lille, France).
2004 - 2005	Fellowship for Master studies on academic criteria (3 837 €).