

# BRECKWOLDT, MICHAEL, DR. MED., PH.D

## GENERAL INFORMATION



### Clinical Resident / Post Doc

University Hospital Heidelberg, Department of Neuroradiology  
Im Neuenheimer Feld 400  
69120 Heidelberg, Germany

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## ACADEMIC EDUCATION & QUALIFICATION

Year(s)	Education
2003 – 2010	Medical Doctor, Medical School, Technical University Munich, LMU Munich New York University, Oxford University and University of Sydney

## SCIENTIFIC EDUCATION & QUALIFICATION

Year(s)	Education
2016	Habilitand Neuroradiology, Advisor: M. Bendszus
2014	PhD (Summa cum laude), "Imaging of mitochondrial redox signals in neuronal physiology and pathology" Institute for Neuroscience, TU Munich, Clinical Neuroimmunology, LMU Munich Advisors: M. Kerschensteiner, T. Misgeld
2012	MD thesis (Summa cum laude), "Molecular imaging of inflammation using magnetic resonance imaging in mouse models of stroke and multiple sclerosis." Neuroradiology Department, TU Munich, Advisor: C. Zimmer
2010-2013	PhD Student Institute for Neuroscience, TU Munich, Institute for Clinical Neuroimmunology, LMU Munich Advisors: M. Kerschensteiner, T. Misgeld
2006-2007	Research Fellow, "Molecular Imaging of Inflammation using MRI." Center for Molecular Imaging Research, Center for Systems Biology, Massachusetts General Hospital, Harvard Medical School, Advisors: R. Weissleder, J. Chen

## PROFESSIONAL EXPERIENCE

Year(s)	Experience
7/2013 –	Residency in Radiology, Department of Neuroradiology, University Hospital Heidelberg Rotations: Radiology Department (DKFZ); Neurology Department; Stroke Unit; Pediatric Radiology, Radiology Department (Thorax Clinic)
2015 – 2016	Post-doc Clinical Cooperation Unit Neuroimmunology & Brain Tumor Immunology Unit, German Cancer Research Center (DKFZ), Heidelberg, Advisor: M. Platten Physician-Scientist Fellowship, University of Heidelberg

## OTHER QUALIFICATIONS/ROLES/RESPONSIBILITIES

Year(s)	
2016	Marc Dünzl Prize, German Society of Neuroradiology, Young Investigator Award, German Society of Neuroradiology
2016	Best lecture award, ISMRM workshop on molecular and cellular MRI, Amsterdam
2014	Neurowind Prize for experimental neurology
2011-2013	PhD Fellowship by the Reemtsma Foundation (Max Planck Society)
2005-2013	Study and PhD Scholarship, German National Academic Foundation (Studienstiftung)

2008	Kurt-Decker Prize, Young Investigator Award, German Society of Neuroradiology
2006-2007	MD scholarship for basic scientific research, Böhringer Ingelheim Fonds

## SELECTED PUBLICATIONS

- Bunse L, Pusch S, Bunse T, Sahm F, Sanghvi K, Friedrich M, Alansary D, Sonner JK, Green E, Deumelandt K, Kilian M, Neftel C, Uhlig S, Kessler T, von Landenberg A, Berghoff AS, Marsh K, Steadman M, Zhu D, Nicolay B, Wiestler B, [Breckwoldt MO](#), Al-Ali R, Karcher-Bausch S, Bozza M, Oezen I, Kramer M, Meyer J, Habel A, Eisel J, Poschet G, Weller M, Preusser M, Nadji-Ohl M, Thon N, Burger MC, Harter PN, Ratliff M, Harbottle R, Benner A, Schrimpf D, Okun J, Herold-Mende C, Turcan S, Kaulfuss S, Hess-Stumpp H, Bieback K, Cahill DP, Plate KH, Hänggi D, Dorsch M, Suvà ML, Niemeyer BA, von Deimling A, Wick W, Platten M. Suppression of antitumor T cell immunity by the oncometabolite (R)-2-hydroxyglutarate. **Nat Med** 2018;24(8):1192-1203
- Costa da Silva M, Breckwoldt MO, Vinchi F, Correia MP, Stojanovic A, Thielmann CM, Meister M, Muley T, Warth A, Platten M, Hentze MW, Cerwenka A, Muckenthaler MU. Iron Induces Anti-tumor Activity in Tumor-Associated Macrophages. **Front Immunol** 2017;8:1479
- Breckwoldt MO, Gradl J, Hähnel S, Hielscher T, Wildemann B, Diem R, Platten M, Wick W, Heiland S, Bendszus M. Increasing the sensitivity of MRI for the detection of multiple sclerosis lesions by long axial coverage of the spinal cord: a prospective study in 119 patients. **J Neurol** 2017;264(2):341–349
- Kirschbaum K, Sonner JK, Zeller MW, Deumelandt K, Bode J, Sharma R, Krüwel T, Fischer M, Hoffmann A, Costa da Silva M, Muckenthaler MU, Wick W, Tews B, Chen JW, Heiland S, Bendszus M, Platten M, [Breckwoldt MO](#). In vivo nanoparticle imaging of infiltrating macrophages and activated microglia can serve as a marker of disease severity in a mouse model of multiple sclerosis. **Proc Natl Acad Sci U S A** 2016;113(46):13227–13232
- [Breckwoldt MO](#), Aroundas AA, Aon MA, Bendszus M, O'Rourke B, Schwarzländer M, Dick TP, Kurz FT. Mitochondrial redox and pH signaling occurs in axonal and synaptic organelle clusters. **Sci Rep** 2016;6:23251
- Fujikawa Y, Roma LP, Sobotta MC, Rose AJ, Diaz MB, Locatelli G, [Breckwoldt MO](#), Misgeld T, Kerschensteiner M, Herzig S, Müller-Decker K, Dick TP. Mouse redox histology using genetically encoded probes. **Sci Sign** 2016;9(419):rs1
- [Breckwoldt MO](#)\*, Bode J\*, Kurz FT, Hoffmann A, Ochs K, Ott M, Deumelandt K, Krüwel T, Schwarz D, Fischer M, Helluy X, Milford D, Kirschbaum K, Solecki G, Chiblak S, Abdollahi A, Winkler F, Wick W, Platten M, Heiland S, Bendszus M, Tews B. Correlated magnetic resonance imaging and ultramicroscopy (MR-UM) is a tool kit to assess the dynamics of glioma angiogenesis. **Elife** 2016;5:e11712 \*equal contribution
- [Breckwoldt MO](#), Pfister F, Bradley PM, Marinković P, Williams PR, Brill MS, Plomer B, Schmalz, A, St. Clair DK, Naumann R, Griesbeck O, Schwarzländer M, Godinho L, Bareyre FM, Dick TP, Kerschensteiner M\*, Misgeld T\*. Multi-parametric optical analysis of redox signals during neuronal physiology and pathology in vivo. **Nat Med** 2014;20(5):555-60
- [Breckwoldt MO](#)\*, Chen JW\*, Stangenberg L, Aikawa E, Rodriguez E, Qiu S, Moskowitz M, Weissleder R. Tracking the inflammatory response in stroke in by sensing the enzyme myeloperoxidase. **Proc Natl Acad Sci U S A** 2008;105(47):18584-9 \*equal contribution
- Chen JW, [Breckwoldt MO](#), Aikawa E, Chiang G, Weissleder R. Myeloperoxidase-targeted imaging of active inflammatory lesions in murine experimental autoimmune encephalomyelitis. **Brain** 2008;131(Pt 4):1123-33