

Name Dr. phil. nat. Roland Nitschke

Date of birth 05.07.1957

Current position Academic Director, Head of Life Imaging Center (LIC)

Research development of microscope methods and equipment, high resolution microscopy, cell signaling and physiology

Address Albert-Ludwigs-Universität Freiburg. Life Imaging Center (LIC)
Habsburgerstr.49 and Schänzlestr. 18, 79104 Freiburg, Germany

Education **1976-1982** Study of Biology and Biochemistry at the University of Frankfurt
1982-1986 Diploma and PhD student in the Laboratory of Prof. H. Fasold, Institute of Biochemistry and Paul-Ehrlich-Institute in Frankfurt (Dipl. biol. and Dr. phil. nat.)

Professional Experience **1986** Postdoc at the MPI of Biophysics, Frankfurt (Group of Prof. R. Greger)
1986-1992 Postdoc Institute of Physiology, University Freiburg (Prof. R. Greger)
1992-1993 Fogarty Research Fellow, National Institute of Health (NIH), Bethesda, MD, (Prof. K. Spring, Laboratory of Kidney and Electrolyte Research)
1993-1994 Visiting fellow at the NHLBI/Laboratory of Kidney and Electrolyte Metabolism, NIH, Bethesda, MD
1994-2000 Group leader, Institute of Physiology II, University of Freiburg
2001-2007 Head of Life Imaging Center at Institute of Biology I, Akad. Oberrat
2002-2007 Head of Imaging Core Facility of the Medical Faculty, University Freiburg
Since 2007 Head Life Imaging Center (LIC) at the Center for Biological Systems Analysis (ZBSA), joint Imaging Core Facility of the University Freiburg
2012 Academic Director of Life Imaging Center

Awards **1984-1985** Scholarship of the Hermann-Schlosser-Foundation (DEGUSSA)
1985-1986 Scholarship for junior scientists awarded by the HESSEN state
1992-1993 Fogarty Research Fellowship of the National Institute of Health (NIH)
1993-1994 NIH Visiting fellowship

Other scientific activities **2004 - present** Member, European Light microscopy Initiative (ELMI)
2005 Organizer International Meeting Trends in Microscopy (TIM 2005) "From static spots to dynamic proteome visualization and beyond" in Freiburg
2010 - 2017 Co-Founder and Vice Chair of German-Biolmaging, the German Light Microscopy Network
2010 - 2017 German Coordinator for EuroBiolmaging together with Elisa May (Konstanz)
2014 Organizer International Meeting Trends in Microscopy (TIM 2014) "Keeping pace with techniques, increasing resolution and data flood" in Freiburg
2016 – present Member of DIN-Normenausschuss Feinmechanik und Optik NA 027-01-04 AA Microscopes
2017 – present Member of ISO/TC 172/SC 5 Microscopes and endoscopes
2017- 2020 Co-Founder and Vice Chair of German Biolmaging - Gesellschaft für Mikroskopie und Bildanalyse e.V.
2020 Co-organizer Trends in Microscopy 2020 (TIM), Münsingen
2020 Founder and co-coordinator of the International initiative for "Quality Assessment and Reproducibility for Instruments & Images in Light Microscopy" – QUAREP-LiMi
2021 - present Industry coordinator GermanBiolmaging

Referee American Journal of Physiology, Biology Open, Cell Calcium, Cellular Physiology and Biochemistry, Current Biology, German Research Foundation (DFG), Journal Microscopy, Kidney & Blood Pressure Research, Pflügers Archiv, Science Foundation Ireland, Methods and Applications in Fluorescence, Nephron, Federal Ministry of Education and Research (BMBF), Wellcome Trust, Swiss National Science Foundation, UK Medical Research Council

Grants

1994 - 2000 Grant from the German National Science Foundation) (Ni 451/1-1, 451/1-2 and 451/1-3): Localisation and control of Ca²⁺-signals in epithelial cells

Since 1994 Collaboration with Carl Zeiss Microscopy: Development of confocal microscope techniques and equipment

1996 - 1999 Grant from the Albert-Ludwigs-Universität Freiburg: Ca²⁺-signaling in podocytes

Since 2001 18 grants for large equipment microscopes (DFG 91b)

2001 - 2012 Grant from the DFG in the CRC592 project Z2

2005 Grant from the DFG HiLight Microscopy

2006 - 2010 Grants (3 projects) from the German Federal Ministry of research and Education (BMBF) in “Systems biology of the Liver” (HEPATOSYS)

2008 - 2017 Grants (3 projects) in the Cluster of Excellence 294 (BIOSS - Centre of Biological Signalling Studies)

2015 - 2018 Central project Z2 DFG CRC1140 KIDGEM (Kidney Disease – from Genes to Mechanisms)

2016 - 2020 DFG-Core Facility Grant Microscopy and Image Analysis Platform (MIAP-Freiburg)

2020 – 2023 I3D:bio - Informationsinfrastruktur für Bioimaging-Daten

2020 – 2022 BMWI WIPANO grant–FluMiKal Standardisierung und Normung von Messmethoden zur Charakterisierung von Fluoreszenz-Mikroskopen mit Fluoreszenz-basierten Kalibrierwerkzeugen

Publications 115 full publications, 6 book chapters, 3 printed talks and more than 190 abstracts at national and international meetings

Industry

Collaborations

since 1994 Carl Zeiss Microscopy, Jena and Göttingen
Confocal and wide field microscopy – Hard- and software

since 2006 ibidi GmbH, Munich, development of fluid chambers and related equipment

2005 - 2008 Nikon GmbH, development of BioStation with perfusion

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Google Scholar https://scholar.google.de/citations?user=-e_5bl8AAAAJ&hl=en

Important publications:

1. Boehm U, Nelson G, Brown CM, Bagley S, Bajcsy P, Bischof J, Dauphin A, Dobbie IM, Eriksson JE, Faklaris O, Fernandez-Rodriguez J, Ferrand A, Gelman L, Gheisari A, Hartmann H, Kukat C, Laude A, Mitkovski M, Munck S, North AJ, Rasse TM, Resch-Genger U, Schuetz LC, Seitz A, Strambio-De-Castillia C, Swedlow JR, **Nitschke R**. QUAREP-LiMi: a community endeavor to advance quality assessment and reproducibility in light microscopy. *Nat. Methods* (2021), May 21. doi: 10.1038/s41592-021-01162-y. PMID: 34021279.
2. Viau,A., Bienaimé,F., Lukas,K., Todkar,A.P., Knoll,M., Yakulov,T.A., Hofherr,A., Kretz,O., Helmstädter,M., Reichardt,W., Braeg,S., Aschman,T., Merkle,A., Pfeifer,D., Dumit,VI., Gubler,M.C., **Nitschke,R.**, Huber,T.B., Terzi,F., Dengjel,J., Grahammer,F., Köttgen,M., Busch,H., Boerries,M., Walz,G., Triantafylloulou,A., Kuehn,E.W. Cilia-localized LKB1 regulates chemokine signaling, macrophage recruitment, and tissue homeostasis in the kidney. *EMBO J.* 37(15) (2018) doi: 10.15252/embj.201798615. PMID: 29925518
3. Schachtrup,C., Ryu,J.K., Mammadzada,K., Khan,A.S., Carlton,P.M., Perez,A., Christian,F., Le,M.N., Vagena,E., Baeza-Raja,B., Rafalski,V., Chan,J.P., **Nitschke,R.**, Houslay,M.D., Ellisman,M.H., Wyss-Coray,T., Palop,J.J., and Akassoglou,K. Nuclear pore complex remodeling by p75 cleavage controls TGF-beta signaling and astrocyte functions. *Nat. Neurosci.* 18(8) (2015), 1077-80.
4. Thedieck,K., Holzwarth,B., Prentzell,M-T., Boehlke,C., Kläsener,K., Ruf,S., Sonntag,A. G., Maerz,G., Grellscheid, S-N., Kremmer,E., **Nitschke,R.**, Kuehn,E.W., Jonker,J.W., Groen,A.K., Reth,M., Hall,M.N., Baumeister,R. Inhibition of mTORC1 by Astrin and stress granules prevents apoptosis in cancer cells *Cell* 15;154(4) (2013), 859-874.
5. Ronneberger,O., Liu,K., Rath,M., Ruebeta,D., Mueller,T., Skibbe,H., Drayer,B., Schmidt,T., Filippi,A., **Nitschke,R.**, Brox,T., Burkhardt,H., and Driever,W. ViBE-Z: a framework for 3D virtual colocalization analysis in zebrafish larval brains. *Nat. Methods* 17, 9(7) (2012), 735-42.
6. Tay,T.L., Ronneberger,O., Ryu,S., **Nitschke,R.**, Driever,W. Analysis of the Catecholaminergic projectome reveals integration of ascending and descending dopaminergic systems in Zebrafish, *Nat. Comm.* 2 (2011), 171 doi:10.1038 /ncomms1171.
7. Lienkamp,S., Ganner,A., Boehlke,C., Schmidt,T., Arnold,S., Schäfer,T., Romaker,D., Schuler,J., Hoff,S., Powelske,C., Eifler,A., Krönig,C., Bullerkotte,A., **Nitschke,R.**, Kuehn,E.W., Kim,E., Burkhardt,H., Brox,T., Ronneberger,O., Gloy,J., Walz,G. Inversin relays Frizzled-8 signals to promote proximal pronephros development, *Proc. Natl. Acad. Sci. U.S.A.*, 107(47) (2010), 20388-20393.
8. Boehlke,C., Kotsis,F., Patel,V., Voelker,H., Bredt,S., Beyer,T., Müller,K., Herbst,M., Hornung,M., Doerken,M., Köttgen,M., **Nitschke,R.**, Igarashi,P., Walz,G. Kuehn,E.W. Primary cilia regulate mTORC1 activity and cell size through Lkb1, *Nat. Cell. Bio.*, 11 (2010), 1115-1122.
9. Ditengou,F.A., Teale,W.D., Kochersperger,P., Flittner,K.A., Kneuper,I., van der Graaff,E., Nziengui,H., Pinoso,F., Li,X., **Nitschke,R.**, Laux,T., Palme,K. Mechanical induction of lateral root initiation in Arabidopsis thaliana. *Proc. Natl. Acad. Sci. U.S.A.*, 105 (2008), 18818-18823.
10. Resch-Genger,U., Grabolle,M., Cavaliere-Jaricot,S., **Nitschke,R.**, Nann,T. Quantum dots versus organic dyes as fluorescent labels. *Nat. Methods*, 5 (2008), 763-775.