MARISA KAROW

Born on January 21th, 1979 in Munich
Born Ciccarella

CONTACT INFORMATION

Work Address	FAU Erlangen-Nürnberg Institute of Biochemistry Fahrstrasse 17 91054 Erlangen
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CURRENT POSITION

2019	Associate Professor, Friedrich-Alexander University Erlangen-Nürnberg

PROFESSIONAL CAREER

2014-2019	Group Leader (E14) at the BMC, Physiological Genomics, LMU
2010-2014	Postdoctoral scientist at the Department of Physiological Genomics, LMU Munich, mentored by Prof. Benedikt Berninger
2009-2011	Postdoctoral fellow (Grant by the Max Kade Foundation) at the Department of Genetics, Stanford University, School of Medicine, mentored by Prof. Michele Calos (June 2009 - October 2010) and intermediate stay from May 2011-November 2011 for revision of manuscript Karow et al. (*Stem Cells*, 2011)
2008-2009	Postdoctoral fellow at the Division of Clinical Chemistry and Clinical Biochemistry, LMU Munich, mentored by PD Dr.Alexander Faussner

EDUCATION

2004-2008	PhD in Biology at the Division of Clinical Chemistry and Clinical Biochemistry, LMU Munich, supervisor: Prof. Marianne Jochum co-supervisor: Prof. Thomas Cremer (Faculty of Biology, Human Biology, LMU Munich) "Der Wnt/β-Catenin Signaltransduktionsweg in humanen und murinen mesenchymalen Stammzellen: Analyse einzelner Signalkomponenten und deren funktioneller Bedeutung in Proliferations- und Invasionsprozessen"
2003	Undergraduate Studies at the Division of Clinical Chemistry and Clinical Biochemistry, LMU Munich, supervision: Prof. Marianne Jochum, co-supervision: Prof. Thomas Cremer (Faculty of Biology, Human Biology, LMU

AWARDS/FELLOWSHIPS/HONORS

2016	Travel Grant for *SFN Annual Meeting*, GSCN
2013	*Wissenschaftspreis „Medizinische Grundlagenforschung"* of the Glaxo Smith Kline Foundation http://www.gsk-stiftung.de/tag/dr-marisa-karow/
2012	Associate member *Faculty of 1000*
2012	ISSCR 10th Annual Meeting, Travel Award
2009	Max Kade Foundation New York, Postdoctoral Fellowship
2007	Young Researcher Travel Grant for Keystone Symposium *Wnt-Signaling in Development and Disease*, Tebu-Bio

2005	Travel Fellowship for Keystone Symposium *Molecular Regulation of Stem Cells*, Glaxo Smith Kline Foundation
2004	Poster Scholarship for Keystone Symposium *Stem Cells,* NIH

GRANTS

2019	DFG Research Grant "Deciphering the molecular landscape of intermediate states during direct neuronal reprogramming" (8/2019-8/2022)
2019	Member of the Bavarian Research Network "Interaktion von humanen Gehirnzellen" ForInter funded by the Bavarian State Ministry of State and Arts *Dissecting the functional heterogeneity of human brain pericytes and their cellular interactions by employing 2D culture models and 3D organoid systems.* (3/2019-3/2023)
2017	Schram Foundation *Regulation of gene expression in induced human neurons by patterning factors and neuronal activity* (4/2017-4/2020)
2014	"Bayerische Forschungsallianz" for the establishment of international collaborations (5/2014-12/2014)
2014	Wings for Life foundation *Transformation of scar components into myelinating oligodendrocytes – a novel approach to facilitate spinal cord regeneration.* 4/2014-6/2016)
2013	Award from the "Frauenbeauftragte der LMU München"
2013	Member of the Bavarian Research Network "humane induzierte pluripotente Stammzellen" ForIPS funded by the Bavarian State Ministry of State and Arts *Programming and Reprogramming of striatal interneurons from human induced pluripotent cells and pericytes.* (8/2013-8/2017)
2008	Förderung für Forschung und Lehre (FöFoLe) LMU Munich,
2008	Friedrich-Baur-Stiftung Sachbeihilfe auf apparative Ergänzung

ORGANIZER OF SYMPOSIA/MEETINGS

Local Organizer Abcam Meeting *Programming and Reprogramming of the Brain*
April 2017, BMC Munich
Symposium at the XIII European Meeting on Glial Cells in Health and Disease 2017 entitled: *Pericytes in Health and Disease*
Participating speakers: Christian Göritz (Co-Organizer), Paula Dore-Duffy, Berislav Zlokovich

Symposium at the 11th Göttingen Meeting of the German Neuroscience Society 2015 (Germany) entitled: *Modeling evolution, neuronal development and neurodegenerative disorders using mammalian induced puripotent stem cells*
Participating speakers: Carol Marchetto, Silvia Cappello, Beate Winner

ORIGINAL PUBLICATIONS in chronological order

1. Hölters J*, **Ciccarella M***, Drechsel M, Geissler C, Gülkan H, Böcker W, Schieker M, Jochum M, Mutschler W, Neth P. **(2005)**. Nonviral genetic modification mediates effective transgene expression and functional RNA interference in human mesenchymal stem cells. *J. Gene Med*. 7(6):718-728.

2. Neth P*, **Ciccarella M***, Egea V, Hoelters J, Jochum M, Ries C. **(2006)**. Wnt signaling regulates the invasion capacity of human mesenchymal stem cells. *Stem Cells*; 24 (8):1892-1903.

3. Ries C, Egea V, **Karow M**, Kolb H, Jochum M, Neth P. **(2007)**. MMP-2, MT1-MMP, and TIMP-2 are essential for the invasive capacity of human mesenchymal stem cells: differential regulation by inflammatory cytokines. *Blood.*;109(9):4055-4063.

4. **Karow M**, Popp T, Egea V, Ries C, Jochum M, and Neth P. **(2008).** Wnt signaling in mouse mesenchymal stem cells: Impact on proliferation, invasion and MMP-expression. *J Cell Mol Med*. 13(8B):2506-20.

5. Ilmer M, **Karow M**, Jochum M, and Neth P. **(2009)**. Human Osteoblast Derived Factors Induce Early Osteogenesis in Human Mesenchymal Stem Cells. *Tissue Eng Part A*. 15(9):2397-409.

6. Ring L, Peröbner I, **Karow M,** Jochum M, Neth P, Faussner A. **(2011)**. Reporter gene HEK 293 cells and WNT-Frizzled-fusion proteins as tools to study WNT signaling pathways. *Biol Chem*. 392(11):1011-20.

7. Nakahata AM, Mayer B, Ries C, de Paula CA, **Karow M**, Neth P, Sampaio MU, Jochum M, Oliva ML. **(2011)**. The effect of a plant proteinase inhibitor from Enterolobium contortisiliquum on human tumor cell lines. *Biol Chem*.392(4):327-36.

8. **Karow M, Chavez CL, Farruggio AP, Geisinger JM, Keravala A, Jung WE, Lan F, Wu JC, Chen-Tsai Y, Calos MP. **(2011)**. Site-specific recombinase strategy to create induced pluripotent stem cells efficiently with plasmid DNA. *Stem Cells*. 29(11):1696-704.

9. Peröbner I, **Karow M,** Jochum M, Neth P. **(2012)**. LRP6 mediates Wnt/β-catenin signaling and regulates adipogenic differentiation in human mesenchymal stem cells.*Int J Biochem Cell Biol.* 2012 Nov;44(11):1970-82.

10. Lan F, Liu J, Narsinh KH, Hu S, Han L, Lee AS, **Karow M,** Nguyen KH, Nag D, Calos MP, Robbins RC, Wu, JC. **(2012)**. Safe Genetic Modification of Cardiac Stem Cells Using a Site-Specific Integration Technique. *Circulation.*126: S20-S28.

11. **Karow M*. Sánchez R*, Schichor C, Masserdotti G, Ortega F, Heinrich C, Gascón S, Khan M, Lie DC, Dellavalle A, Cossu G, Goldbrunner R, Götz M, Berninger B. **(2012)**. Reprogramming of pericyte-derived cells of the adult human brain into induced neuronal cells*. Cell Stem Cell*. 11(4):471-476.

12. Zhao C, Farruggio AP, Chavez CL, Bjornson CRR, Geisinger JL, Neal TM, **Karow M**, Calos MP. **(2014)**. Recombinase-Mediated Reprogramming and Dystrophin Gene Addition in mdx Mouse Induced Pluripotent Stem Cells. *PLOS One*, Apr 29;9(4):e96279.

13. **Karow M**, Schichor C, Beckervordersandforth R, Berninger B. (**2014**) Lineage-Reprogramming of Pericyte-Derived Cells of the Adult Human Brain into Induced Neurons. *Journal of Visualized Experiments*, May 12;(87).

14. Gascón S, Murenu E, Masserdotti G, Ortega F, Russo GL, Petrik D, Deshpande A, Heinrich C, **Karow M**, Robertson SP, Schroeder T, Beckers J, Irmler M, Berndt C, Angeli JP, Conrad M, Berninger B, Götz M. (**2015**) Identification and Successful Negotiation of a Metabolic Checkpoint in Direct Neuronal Reprogramming. Cell Stem Cell. 2016 Mar 3;18(3):396-409.

15. **Karow M#, Camp GJ*, Falk S, Gerber T, Pataskar A, Gac-Santel M, Kageyama J, Brazovskaja A, Garding A, Fan Wengiang, Riedemann T, Casamassa A, Schichor C, Götz M, Tiwari VK, Treutlein B, Berninger B. (**2018**) Direct pericyte-to-neuron reprogramming via unfolding of a neural stem cell-like program. *Nat Neurosci*. 2018 Jul;21(7):932-940

16. Peron S, Miyakoshi LM, Brill MS, Ortega F, Karow M, Gascon S, Berninger B. (2018) Programming of neural progenitors of the adult subependymal zone towards a glutamatergic identity by neurogenin2. *bioRxiv* doi:10.1101/171686

* these authors contributed equally to this work
# co-corresponding author
** *three most important publications*

REVIEW ARTICLES in chronological order

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1. Neth P, Ries C, **Karow M**, Egea V, Ilmer M, and Jochum M. **(2007)**. The Wnt signal transduction pathway in stem cells and cancer cells: Influence on cellular invasion. *Stem Cell Rev*. 3, 18-29.

2. **Karow M.**, Calos MP. **(2011)**. The therapeutic potential of phiC31 integrase as a gene therapy system. *Expert Opin Biol Ther*. 2011 Oct;11(10):1287-96.

3. **Karow M**. **(2013)**. Mountaineering pericytes-a universal key to tissue repair? *Bioessays*. 2013 Sep;35(9):771-4.

4. **Karow M,** Berninger B. (**2015**) In-TOX-icating neurogenesis. *EMBO J*. 2015 Apr 1;34(7):832-834.

5. Falk S and **Karow M**. (**2018**) Natural and forced neurogenesis – similar and yet different? *Cell Tissue Res*. 2018 Jan;371(1):181-187 [*Epub 2017*