Martin Zenke, PhD, Professor of Cell Biology

Research Profile Extended Research Profile

Personal Data

Name and Academic Title	**Martin Zenke** – PhD, Professor 07.08.1953 in Korbach/Waldeck (Germany)
Current Position	Senior Professor of Cell Biology, RWTH Aachen University
Wikipedia	https://en.wikipedia.org/wiki/Martin_Zenke

Affiliation

Institution	**RWTH Aachen University**
Institute/Department **Address**	Department of Hematology, Oncology and Stem Cell Transplantation Department of Medicine IV RWTH Aachen University Medical School Pauwelsstrasse 30 52074 Aachen, Germany martin.zenke@rwth-aachen.de www.molcell.de www.stemcellfactory.de

University Education

1979 - 1982	Graduate studies in Molecular and Cell Biology, Institute for Virus Research, German Cancer Research Center (DKFZ), Heidelberg, Germany
1972 – 1978	Studies in Chemistry/Biochemistry and Medicine, Philipps-University, Marburg, Germany

Academic Qualifications

1992	Lecture qualification (Habilitation) in Molecular Genetics, Faculty of Life Sciences, Vienna University, Vienna, Austria
1982	PhD, Faculty of Life Sciences, Ruprecht-Karls-University, Heidelberg, Germany
1978	Diplom (Master), Chemistry/Biochemistry, Philipps-University, Marburg, Germany

Scientific Career

Since 2022	Senior Professor of Cell Biology, c/o Department of Hematology, Oncology and Stem Cell Transplantation, Department of Medicine IV, RWTH Aachen University Medical School, RWTH Aachen University, Aachen, Germany
2003 - 2022	Professor of Cell Biology (C4) and Chairman, Institute for Biomedical Engineering, Department of Cell Biology, RWTH Aachen University Medical School and Helmholtz Institute for Biomedical Engineering, RWTH, Aachen, Germany
2011 - 2014	Managing Director Helmholtz Institute for Biomedical Engineering (3 years legislative period), RWTH Aachen University, Aachen, Germany
1995 - 2003	Research Group Leader (C3), Max-Delbrück-Center for Molecular Medicine (MDC), Berlin, Germany
1988 - 1995	Junior Scientist and Group Leader, Institute of Molecular Pathology (IMP), Vienna, Austria
1985 - 1988	EMBL Fellow and Staff Scientist with Thomas Graf and Hartmut Beug, Differentiation Programme, European Molecular Biology Laboratory (EMBL), Heidelberg, Germany
1982 - 1985	Postdoctoral Fellow with Pierre Chambon, Université Louis Pasteur and Laboratoire de Genetique Moleculaire des Eucaryotes (LGME), Strasbourg, France

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Functions

Editorial Board *Journal Biological Chemistry (since 2015)*

Member of "*Gene Technology Report*", Berlin Institute of Health, BIH, Berlin, Germany (since 2013)

Initiator and coordinator of *StemCellFactory* project (www.stemcellfactory.de; since 2010)

Member of "*Central Ethics Committee for Stem Cell Research*", Federal Ministry of Education and Research (BMBF) and Federal Ministry of Health (BMG), Berlin, Germany (since 2008)

Secondary affiliation at the Faculty of Mathematics, Computer Science and Natural Sciences, RWTH Aachen University, Aachen, Germany (since 2005)

Steering Committee "*Stem Cell Network North Rhine-Westphalia*", Düsseldorf, Germany (since 2004)

Ad hoc Review Activities (Journals, selection):

Genes & Development, EMBO Journal, Blood, Development, EMBO Reports, Nature Biotech., Nature Rev. Mol. Cell Biol., Genome Biol., J. Gene Med., Gene, J. Mol. Med., J. Cell Sci., Int. J. Biochem. Cell Biol., Oncogene, Differentiation, Cancer Letters, Immunobiology, Proc. Nat. Acad. Sci. USA, BBA, Cells Tissues Organs, Mol. Thera., PLoS Biology, Exp. Hematol., J. Biochem., J. Immunol., PLoS ONE, Trends Biotechn., Exp. Opin. Biol. Ther., Stem Cells; Eur. J. Cell Biol., Dev. Biol., Nucl. Acid Res., Stem Cells Dev., PLoS Genomics, J. Biol. Chem., Scientific Reports, Immunity, J. Exp Med., Nature Commun., Nature Immunol., Stem Cell Reports

Ad hoc Review Activities (Institutions, selection):

European Commission, Brussels, Belgium; German Research Foundation (DFG), Bonn, Germany; Human Frontier Science Program (HFSP), Strasbourg, France; Ministere de la Recherche de la France, Paris, France; NOW-Council, Earth and Life, Den Haag, The Netherlands; Boehringer Ingelheim Fonds, Ingelheim, Germany; Austrian Science Fund (FWF), Vienna, Austria; Center National de la Recherche Scientifique (CNRS), Paris, France; National Medical Research Council (NMRC) Singapur; Norwegian Research Council, Oslo, Norway; Spanish Ministry of Science and Innovation, Madrid, Spain; Medical Research Council (MRC), London, UK; Alexander von Humboldt Foundation, Bonn, Germany; Melinda and Bill Gates Foundation, Seattle, USA; European Research Council (ERC), Brussels, Belgium

Important publications

Ma, Z., Toledo, M. A. S., Wanek, P., Mabrouk, M. H. E., Smet, F Pulak, R., Pieske, S., Piotrowski, T., Herfs, W., Brecher, C., Schmitt, R. H., Wagner, W., and Zenke, M. (2022). Cell cluster sorting in automated differentiation of patient-specific induced pluripotent stem cells towards blood cells. *Frontiers in Bioengineering and Biotechnology* 10, 755983.

Toledo, M. A. S., Gatz, M., Sontag, S., Gleixner, K. V., Eisenwort, G., Feldberg, K., Hamouda, A. E. I., Kluge, F., Guareschi, R., Rossetti, G., Sechi, A. S., Dufva, O. M. J., Mustjoki, S. M., Maurer, A., Schüler, H. M., Goetzke, R., Braunschweig, T., Kaiser, A., Panse, J., Jawhar, M., Reiter, A., Hilberg, F., Ettmayer, P., Wagner, W., Koschmieder, S., Brümmendorf, T. H., Valent, P., Chatain, N., and Zenke, M. (2021). Nintedanib targets KIT D816V neoplastic cells derived from induced pluripotent stem cells of systemic mastocytosis. *Blood* 135, 2070-2084. with Commentary by Dorrance, A. (2021). „Mast"ering drug discovery with iPSCs. *Blood* 137, 1993-1994, 2021.

Lampert, A., Bennett, D. L., McDermott, L. A., Neureiter, A., Eberhardt, E., Winner, B., and Zenke, M. (2020). Human sensory neurons derived from pluripotent stem cells for disease modelling and personalized medicine. *Neurobiol. Pain* 8, 100055.

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Li, Z., Schulz, M. H., Look, T., Begemann, M., Zenke, M., and Costa, I. G. (2019). Identification of transcription factor binding sites using ATAC-seq. *Genome Biology* 20, 45.

Meents, J. E., Bressan, E., Sontag, S., Foerster, A., Hautvast, P., Rösseler, C., Hampl, M., Schüler, H., Goetzke, R., Chi Le, T. K., Kleggetveit, I. P., Le Cann, K., Kerth, C., Rush, A. M., Rogers, M., Kohl, Z., Schmelz, M., Wagner, W., Jørum, E., Namer, B., Winner, B., Zenke, M., and Lampert, A. (2019). The role of Nav1.7 in human nociceptors: insights from human iPS cell-derived sensory neurons of erythromelalgia patients. *Pain,* 160, 1327-1341.

Sontag, S., Förster, M., Qin, J., Wanek, P., Mitzka, S., Schüler, H. M., Koschmieder, S., Rose-John, S., Seré, K., and Zenke, M. (2017). Modelling IRF8 deficient human hematopoiesis and dendritic cell development with engineered induced pluripotent stem cells. *Stem Cells* 35, 898-908.

Gusmão, E. G., Allhoff, M., Zenke, M., and Costa, I. G. (2016). Analysis of computational footprinting methods for DNase sequencing experiments. *Nature Methods* 13, 303-309.

Lin, Q., Chauvistré, H., Costa, I. G., Gusmão, E. G., Mitzka, S., Haenzelmann, S., Baying, B., Klisch, T., Moriggl, R., Hennuy, B., Smeets, H., Hoffmann, K., Benes, V., Seré, K., and Zenke, M. (2015). Epigenetic program and transcription factor circuitry of dendritic cell development. *Nucleic Acids Res.* 43, 9680-9693.

Seré, K., Baek, J.-H., Ober-Blöbaum, J., Müller-Newen, G., Tacke, F., Yokota, Y., Zenke, M., and Hieronymus, T. (2012). Two distinct types of Langerhans cells populate the skin during steady state and inflammation. *Immunity* 37, 905-919. with Commentary by Romani, N., Tripp, C. H. and Stoitzner, P. (2012). Langerhans cells come in waves. *Immunity* 37, 766-768.

Felker, P., Seré, K., Lin, Q., Becker, C., Hristov, M., Hieronymus, T., and Zenke, M. (2010). TGF-β1 accelerates dendritic cell differentiation from common dendritic cell progenitors and directs subset specification towards conventional dendritic cells. *J. Immunol.* 185, 5326-5335.

Ko, K., Araúzo-Bravo, M. J., Tapia, N., Kim, J., Lin, Q., Bernemann, C., Han, D. W., Gentile, L., Reinhardt, P., Greber, B., Schneider, R. K., Kliesch, S., Zenke, M., and Schöler, H. R. (2010). Human adult germline stem cells in question. *Nature* 465, E1; discussion E3.

Kim, J. B., Zaehres, H., Wu, G., Gentile, L., Sebastiano, V., Ko, K., Araúzo-Bravo, M. J., Ruau, D., Han, D. W., Zenke, M., and Schöler, H. R. (2008). Pluripotent stem cells induced from adult neural stem cells by reprogramming with two factors. *Nature* 454, 646-650.

Ruau, D., Ensenat-Waser, R., Dinger, T. C., Vallabhapurapu, D. S., Rolletschek, A., Hacker, C., Hieronymus, T., Wobus, A. M., Müller, A. M. and Zenke, M. (2008). Pluripotency associated genes are reactivated by chromatin modifying agents in neurophere cells. *Stem Cells* 26, 920-926.

Hacker, C., Kirsch, R. D., Ju, X.-S., Hieronymus, T., Gust, T. C., Kuhl, C., Jorgas, T., Kurz, S. M., Rose-John, S., Yokota, Y. and Zenke, M. (2003). Transcriptional profiling identifies Id2 function in dendritic cell development. *Nature Immunol.* 4, 380-386.

Panzenböck, B., Bartunek, P., Mapara, M. and Zenke, M. (1998). Growth and differentiation of human stem cell factor/erythropoietin-dependent erythroid progenitor cells in vitro. *Blood* 92, 3658-3668.

Briegel, K., Bartunek, P., Stengl, G., Lim, K.-C., Beug, H., Engel, J. D., and Zenke, M. (1996). Regulation and function of transcription factor GATA-1 during red blood cell differentiation. *Development* 122, 3839-3850.

Boehmelt, G., Madruga, J., Dörfler, P., Briegel, K., Schwarz, H., Enrietto, P. and Zenke, M. (1995). Dendritic cell progenitor is transformed by a conditional v-rel estrogen receptor fusion protein v-relER. *Cell* 80, 341-352.

Briegel, K., Lim, K.-C., Plank, C., Beug, H., Engel, J. D., and Zenke, M. (1993). Ectopic expression of a conditional GATA-2/estrogen receptor chimera arrests erythroid differentiation in a hormone-dependent manner. *Genes Dev.* 7, 1097-1109.

Disela, C., Glineur, C., Bugge, T., Sap, J., Stegl, G., Dodgson, J., Stunnenberg, H., Beug, H., and Zenke, M. (1991). v-erbA overexpression is required to extinguish c-erbA function in erythroid cell differentiation and regulation of the erbA target gene CAII. *Genes Dev*. 5, 2033-2047.

Zenke, M., Steinlein, P., Wagner, E., Cotten, M., Beug, H., and Birnstiel, M. L. (1990). Receptor-mediated endocytosis of transferrin-polycation conjugates: An efficient way to introduce DNA into hematopoietic cells. *Proc. Natl. Acad. Sci.* USA 87, 3655-3659.

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Zenke, M., Muñoz, A., Sap, J., Vennström, B. and Beug, H. (1990). v-erbA oncogene activation entails the loss of hormone-dependent regulator activity of c-erbA. *Cell* 61, 1035-1049.

Zenke, M., Kahn, P., Disela, C., Vennström, B., Leutz, A., Keegan, K., Hayman, M., Choi. H.R., Yew, N., Engel, D., and Beug, H. (1988). v-erbA specifically suppresses transcription of the avian erythrocyte anion transporter (band 3) gene. *Cell* 52, 107-119.

Davidson, I., Fromental, C., Augereau, P., Wildeman, A.G., Zenke, M. and Chambon, P. (1986). Cell-type specific protein binding to the enhancer of Simian Virus 40 in nuclear extracts. *Nature* 323, 544-548.

Wildeman, A. G., Zenke, M., Schatz, C., Wintzerith, M., Grundström, T., Matthes, H., Takahashi, K., and Chambon, P. (1986). Specific protein binding to the Simian Virus 40 enhancer *in vitro. Mol. Cell. Biol.* 6, 2098-2105.

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Takahashi, K., Vigneron, M., Matthes, H., Wildeman, A., Zenke, M., and Chambon, P. (1986). Requirement of stereospecific alignments for initiation from the Simian Virus 40 early promoter. *Nature* 319, 121-126.

Zenke, M., and Sauer, G. (1982). Spliced and unspliced virus specific RNA sequences are associated with purified Simian Virus 40 chromatin. *Nucleic Acids Res.* 10, 4543-4550.

All publications:

PubMed https://pubmed.ncbi.nlm.nih.gov/?term=zenke+m&sort=date

Google Scholar https://scholar.google.de/scholar?hl=de&as_sdt=0%2C5&q=Martin+Zenke&btnG=