

## Catharina (Carien) M. Niessen

### Personal Data

Title	Prof. Dr.
First name	Catharina (Carien) M.
Name	Niessen
Current position	Full Professor, permanent Head Department Cell Biology of the Skin / CECAD
Current institution(s)/ site(s), country	Department Cell Biology of the Skin/CECAD Faculty of Medicine, University of Cologne, Germany
ORCID	0000-0002-4892-9391

### Qualifications and Career

Stages	Periods and Details
Doctorate	1991–1996, Prof. Anton Berns and Prof. Arnoud Sonnenberg, Graduate School of Oncology, The Netherlands Cancer Institute, University of Amsterdam, The Netherlands
Master	Biology, 1986–1991, Utrecht University, The Netherlands

### Stages of Academic/Professional Career

Full Professor (W3)	2022–present, University of Cologne, Germany
Associate Professor (W2)	2019–2021, University of Cologne, Germany
Associate Professor (W2)	2008–2018, Department of Dermatology and Venerology, University of Cologne, Germany
Research Group Leader	2002–2008, Center for Molecular Medicine Cologne (CMMC), University of Cologne, Germany
Postdoctoral Fellow	1997–2001, Memorial Sloan-Kettering Cancer Center, New York, NY, USA
Postdoctoral Fellow	1996, The Netherlands Cancer Institute, Amsterdam, The Netherlands

### Activities in the Research System

#### Institutional Responsibilities (selected)

2022–present	Standing Committee Member, Max Planck Institute for Biology of Ageing, Cologne, Germany
2020–present	Selection Committee Member, Cologne Clinical Science Program (CCSP)
2019–present	Spokesperson, CECAD Cluster of Excellence EXC 2030 (DFG) “Cellular Stress Responses in Aging-associated Diseases”, University of Cologne, Germany
2019–present	Coordinator, KPA “Aging-associated Diseases”, University of Cologne, Germany
2014–present	Executive Board Member, Center for Molecular Medicine Cologne (CMMC), University of Cologne, Germany
2014–present	Spokesperson, Focus Area of the Medical Faculty “Metabolism and Homeostatic Principles in Metabolism and Tissue Regeneration”, University of Cologne, Germany
2014–2020	Executive Board Member, Graduate School for Biological Sciences (GSfBS), University of Cologne, Germany

- 2013–2018 Head, Cologne Graduate School of Ageing Research (CGA), CECAD/MPI AGE, Cologne, Germany
- 2009–2021 Vice Spokesperson and Spokesperson (since 2015), CRC 829 (DFG) “Molecular Mechanisms Regulating Skin Homeostasis”, University of Cologne, Germany
- 2007–2018 Coordinator, Research Platform B “Education and Career Development, Gender Equality, and Public Outreach”, CECAD Cluster of Excellence EXC 229 (DFG) “Cellular Stress Responses in Aging-associated Diseases”, University of Cologne, Germany
- 2007–2013 Initiator and Head, CECAD Graduate School

#### Service to the Scientific Community (selected)

- 2024–present Standing Committee Member, Evaluation of International Max Planck Centers, Max Planck Society, Munich, Germany
- 2024–present Selection Committee Member, Alexander von Humboldt Professorship Awards, Alexander von Humboldt Foundation, Berlin, Germany
- 2024–present SAB Member, Research Center for Cellular Nanoanalytics, Osnabrück, Germany
- 2024–present SAB Member, Research Focus Area “Engineering for Health”, Technical University Braunschweig, Germany
- 2023–present Review Panel Member, Women Professorships, Helmholtz Association, Berlin, Germany
- 2021–2022 SAB Member, Leibniz-Institute for Aging Research (FLI), Jena, Germany
- 2018–present Editorial Board Member, Journal of Cell Biology
- 2017–present Section Editor, Journal of Investigative Dermatology
- 2017–2019 Committee Member, Committee on Diversity and Inclusion, Society of Investigative Dermatology (SID)
- 2016–2024 Member and Chair (2020-2024), DFG Fachkollegium “Basics of Life Sciences and Medicine”, Bonn, Germany
- 2015–present Member, International Medical and Scientific Advisory Panel of Dystrophic Epidermolysis Bullosa Research Association (DEBRA), Vienna, Austria
- 2015–2017 Vice Chair and Chair, Gordon Research Conference, Epithelial Differentiation and Keratinization
- 2014–2020 Vice President and President, German Society for Cell Biology (DGZ), Heidelberg, Germany
- 2008–2013 Board Member, European Society for Dermatological Science (ESDR), Geneva, Switzerland
- 1999–2001 Member, First Postdoc Committee, Memorial Sloan Kettering Cancer Center, New York, NY, USA

### Scientific Results

#### Category A

Rübsam, M.<sup>#</sup>, Püllen, P., Tellkamp, F., Bianco, A., Pescoller, M., Bloch, W., Green, K.J., Merkel, R., Hoffmann, B., Wickström, S.A., and Niessen, C.M.<sup>#</sup> (2023). Polarity signaling balances epithelial contractility and mechanical resistance. **Sci Rep** 13:7743. doi: 10.1038/s41598-023-33485-5. (open access)

Koester, J., Miroshnikova, Y.A., Ghatak, S., Chacón-Martínez, C.A., Morgner, J., Li, X.P., Atanassov, I., Altmüller, J., Birk, D.E., Koch, M., Bloch, W., Bartusel, M., **Niessen, C.M.**, Rada-Iglesias, A., and Wickström, S.A. (2021). Niche stiffening compromises hair follicle stem cell potential during ageing by reducing bivalent promoter accessibility. **Nat Cell Biol** 23:771–781. doi: 10.1038/s41556-021-00705-x. (open access)

Nava, M.M.\*, Miroshnikova, Y.A.\*, Biggs, L.C., Whitefield, D.B., Metge, F., Boucas, J., Vihinen, H., Jokitalo, E., Li, X.P., Arcos, J.M.G., Hoffmann, B., Merkel, R., **Niessen, C.M.**, Dahl, K.N., and Wickström, S.A. (2020). Heterochromatin-driven nuclear softening protects the genome against mechanical stress-induced damage. **Cell** 181:800–817. doi: 10.1016/j.cell.2020.03.052. (open access)

Peters, F.\*, Tellkamp, F.\*, Brodesser, S., Wachmuth, E., Tosetti, B., Karow, U., Bloch, W., Utermohlen, O., Krönke, M., and **Niessen, C.M.** (2020). Murine epidermal ceramide synthase 4 is a key regulator of skin barrier homeostasis. **J Invest Dermatol** 140:1927–1937. doi: 10.1016/j.jid.2020.02.006. (open access)

Vorhagen, S.\*, Kleefisch, D.\*, Persa, O.D., Graband, A., Schwickert, A., Saynisch, M., Leitges, M., **Niessen, C.M.**<sup>#</sup>, and Iden, S.<sup>#</sup> (2020). Shared and independent functions of aPKC $\lambda$  and Par3 in skin tumorigenesis. **Oncogene** 37:5136–5146. doi: 10.1038/s41388-018-0313-1. (open access)

Miroshnikova, Y.A.\*, Le, H.Q.\*, Schneider, D.\*, Thalheim, T., Rübsam, M., Bremicker, N., Polleux, J., Kamprad, N., Tarantola, M., Wang, I., Balland, M., **Niessen, C.M.**, Galle, J., and Wickström, S.A. (2018). Adhesion forces and cortical tension couple cell proliferation and differentiation to drive epidermal stratification. **Nat Cell Biol** 20:69–80. doi: 10.1038/s41556-017-0005-z. (open access)

Günschmann, C., Stachelscheid, H., Akyüz, M.D., Schmitz, A., Missero, C.<sup>#</sup>, Brüning, J.C.<sup>#</sup>, and **Niessen, C.M.**<sup>#</sup> (2017). Insulin/IGF-1 controls epidermal morphogenesis via regulation of FoxO-mediated p63 inhibition. **Dev Cell** 26:176–87. doi: 10.1016/j.devcel.2013.05.017. (open access)

Rübsam, M., Mertz, A.F., Kubo, A., Marg, S., Jüngst, C., Goranci-Buzhala, G., Schauss, A.C., Horsley, V., Dufresne, E., Moser, M., Ziegler, W., Amagai, M., Wickström, S.A., and **Niessen, C.M.** (2017). E-cadherin integrates mechanotransduction and EGFR signaling to control junctional tissue polarization and tight junction positioning. **Nat Commun** 8:1250. doi: 10.1038/s41467-017-01170-7. (open access)

Niessen, M.T., Scott, J., Zielinski, J., Vorhagen, S., Blanpain, C., Leitges, M.<sup>#</sup>, and **Niessen, C.M.**<sup>#</sup> (2013). aPKC $\lambda$  controls epidermal homeostasis and stem cell fate through regulation of division orientation. **J Cell Biol** 202:887–900. doi: 10.1083/jcb.201307001. (open access)

Stachelscheid, H.\*, Ibrahim, H.\*, Koch, L.\*, Schmitz, A., Tschardtke, M., Wunderlich, F.T., Scott, J., Michels, C., Haase, I., Wickenhauser, C., Brüning, J.C.<sup>#</sup>, and **Niessen, C.M.**<sup>#</sup> (2008). Epidermal Insulin/IGF-1 signaling control interfollicular morphogenesis and proliferative potential through Rac activation. **EMBO J** 27:2091–101. doi: 10.1038/emboj.2008.141. (open access)

\* shared first authorship, # shared corresponding authorship

## Category B

### *Preprints, Reviews, and Commentaries (Non-peer-reviewed, selected)*

Johannes, L., Rübsam, M., Löhr, J., Ding, X., Eming, S.<sup>#</sup>, **Niessen, C.M.**<sup>#</sup>, and Schwarz, G.<sup>#</sup> (2024). Novel, postnatal manifestation of an epidermal barrier defect in a mouse model of isolated sulfite oxidase deficiency. **bioRxiv**. doi: 10.1101/2024.03.14.584870.

**Niessen, C.M.** and Plachta, N.A. (2020). Emerging mechanisms driving cell differentiation *in vivo* (Editorial). **Curr Opin Cell Biol** 67:iii–v. doi: 10.1016/j.ceb.2020.10.003. (open access)

Rübsam M. and **Niessen C.M.** (2020). Stretch exercises for stem cells expand the skin. **Nature** 584:196–198. doi: 10.1038/d41586-020-02158-y. (open access)

Persa, O.D. and **Niessen, C.M.** (2019). Epithelial polarity limits EMT. **Nat Cell Biol** 21:299–300. doi: 10.1038/s41556-019-0284-7. (open access)

### *Books and Book Chapters*

**Niessen, C.M.** and Alpha S. Yap, Editors (2017). Cell-Cell Junctions. 2nd edition, Cold Spring Harbor Perspectives in Biology, New York, NY, USA, LCCN 2917025817. (Book)

### *Public Outreach Activities (selected)*

2024	Contribution to DFG Youtube Movie “Fachkollegien der DFG”, DFG, Bonn, Germany
2023	Talk, Semesterabschluss, Verein zur Förderung des Gasthörer- und Seniorenstudium, “Chancen der Alterungsforschung: Wo stehen wir und wo gehen wir hin”, University of Cologne, Germany
2023	Talk, Science in the Cologne City Hall Lecture Series, “Chancen der Altersforschung: Erkenntnisse für ein gesundes Altern”, Cologne, Germany
2022–present	Initiator and Contributor, CECAD Primary School Program “Everyone is a Scientist”
2021	Youtube Movie and Lecture, 50 <sup>th</sup> Anniversary of the European Society for Dermatological Research (ESDR), “50 years of Cell Biology in Skin Research”

### **Academic Distinctions**

2019–present	Elected Member, Leopoldina (German National Academy of Sciences)
2016	Rudi Cormane Lectureship Award, Annual European Society for Dermatological Research Meeting (ESDR)
2008	German Cancer Aid Associate Professorship (W2)
2006	ROSA “Skin Dryness” Award
2005	ISP & SCUR Award
1999–2001	Charles A. Dana Fellowship Award
1998	Fellowship Award, KWF Dutch Cancer Society