

## NEREO KALEBIC, PhD

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Born in Split, Croatia, on the 4th of May 1984

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### CURRENT POSITIONS

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- 2020 Group leader at Center for Neurogenomics, Human Technopole, Milan, Italy
- 2020 Guest scientist at Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG), Dresden, Germany

### SCIENTIFIC BIOGRAPHY

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- 2020- **Research Group Leader**  
Center for Neurogenomics, Human Technopole, Milan, Italy
- 2013-2019 **Postdoctoral fellow** – Wieland Huttner lab  
Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG), Dresden, Germany
- 2012 **Visiting scholar** - Martin Chalfie lab  
Columbia University, New York City, NY, USA
- 2008-2013 **PhD student** – Paul Heppenstall lab  
European Molecular Biology Laboratory (EMBL), Monterotondo (Rome), Italy
- 2006-2007 **MSc student** – Srecko Gajovic lab  
Croatian Institute for Brain Research, School of Medicine, University of Zagreb, Croatia

### EDUCATION

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- 2012 **PhD – Molecular Biology**  
European Molecular Biology Laboratory (EMBL) in cooperation with  
Ruprecht-Karls University of Heidelberg, Faculty of Biosciences, Heidelberg, Germany
- 2007 **Master of Science – Molecular Biology**  
University of Zagreb, Faculty of Science, Zagreb, Croatia

### SELECTED FELLOWSHIPS AND AWARDS

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- 2013-2015 **EMBO long-term fellowship** for Postdoctoral research in the Huttner lab  
Max Planck Institute of Molecular Cell Biology and Genetics, Dresden, Germany  
• Title: "Identification and functional analysis of genes regulating the evolutionary expansion of the neocortex in gyrencephalic mammals". (ALTF 861-2013)
- 2012 **EMBO short-term fellowship**
- 2017 FENS, IBRO-PERC and The Brain Prize for the Brain Conference on Cortex Evolution and Development, Copenhagen, Denmark

### PRESENTATIONS AT SCIENTIFIC MEETINGS AND INSTITUTES

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#### Invited seminars and conference talks (selected):

- 2020 RIKEN Center of Integrative Medical Sciences, Yokohama, Japan
- 2020 Invited talk at the symposium: New Frontiers in Neuroscience, Kanazawa, Japan

2019	Plenary talk at the conference: National congress on regenerative medicine, Moscow, Russia
2019	European Institute of Oncology, Milan, Italy
2019	Plenary talk at the conference: Trisomy 21 research society meeting, Barcelona, Spain
2019	Human Technopole junior group leader interviews, Milan, Italy
2019	Max Planck Research Group Leader Symposium, Berlin, Germany
2019	Center for Advanced European Studies and Research, Bonn, Germany
2018	Invited talk at the conference: Volga Neuroscience meeting, Russia
2016	EMBO Fellows' Meeting, Heidelberg, Germany
2016	MTZ, Medizinisch-Theoretisches Zentrum, Dresden, Germany
2013	DZNE, German Institute for Neurodegenerative Diseases, Bonn, Germany
2013	IMBA, Institute for Molecular Biotechnology, Vienna, Austria
2013	IMP, Institute of Molecular Pathology, Vienna, Austria

#### Poster presentations (selected):

2017	FENS Brain Conference: Cortex Evolution and Development, Copenhagen, Denmark
2016	Neuroscience 2016, Society for Neuroscience Meeting, San Diego, USA
2015	6 <sup>th</sup> EMBO Meeting, Birmingham, UK
2012	EMBL and CRG conference "Perspectives in Translational Medicine", Barcelona, Spain
2011	Neuroscience 2011, Society for Neuroscience Meeting, Washington DC, USA

#### **TEACHING**

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2019	Guest Lecturer "Genome and epigenome editing", Masters SS 2019, Technische Universität (TU) Dresden, Germany
2019	Speaker and instructor - EMBO course "Mouse Genome Engineering", MPI-CBG, Dresden, Germany.
2018	Guest Lecturer "Genome and epigenome editing", Masters SS 2018, TU Dresden, Germany
2017	Guest Lecturer "Genome and epigenome editing", Masters SS 2017, TU Dresden, Germany
2017	Speaker and instructor - EMBO course "Mouse Genome Engineering", MPI-CBG, Dresden, Germany.
2015	Lecturer and instructor - Predoc practical course, MPI-CBG, Dresden, Germany.

#### **MENTORING**

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2017-2018	Mentor on the MSc Research Thesis: Carlotta Gilardi, University of Trieste (Italy) at MPI-CBG
2012-2013	Mentor on the MSc Research Thesis: Simona Sorrentino, University of Bologna (Italy) at EMBL

#### **OTHER APPOINTMENTS (selected)**

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Since 2014	<b>Deputy leader on Licenses for Animal Experiments</b> for research of neurogenesis in mice and ferrets at MPI-CBG, Dresden, Germany. Licenses: TVV 2/2015, TVV 5/2015, TVV 21/2017, TVV 77/2017.
Since 2013	<b>Reviewer in scientific journals</b> – <i>Cell Stem Cell, Journal of Cell Science, Cell Reports, Scientific Reports, Review Editor for Frontiers in Neuroscience</i>

#### **LANGUAGES**

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Mother tongue: Croatian	Independent: French, German
Proficient: English, Italian	Basic: Russian

## LIST OF PUBLICATIONS

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### Research articles (\*\*, selected recent articles)

Xing L, [Kalebic N](#), Namba T, Vaid S, Wimberger P, Huttner WB. Serotonin receptor 2A activation promotes evolutionarily relevant basal progenitor proliferation in the developing neocortex. *Neuron*, *accepted*.

Güven A, [Kalebic N](#), Long KR, Florio M, Vaid S, Brandl H, Stenzel D, Huttner WB. Extracellular matrix-inducing Sox9 promotes both basal progenitor proliferation and gliogenesis in developing neocortex. *eLife*, 2020, DOI: 10.7554/eLife.49808

Namba T, Doczi J, Pinson A, Xing L, [Kalebic N](#), Wilsch-Brauninger M, Long K, Vaid S, Lauer J, Bogdanova A, Borgonovo B, Wimberger P, Chinopoulos C, Huttner WB. Human-specific ARHGAP11B acts in mitochondria to expand neocortical progenitors by glutaminolysis. *Neuron*, 2020, DOI: 10.1016/j.neuron.2019.11.027.

Kostic M, Paridaen JTML, Long KR, [Kalebic N](#), Langen B, Wimberger P, Kawasaki H, Namba T, Huttner WB. YAP activity is necessary and sufficient for basal progenitor abundance and proliferation in the developing neocortex. *Cell Reports*, 2019, DOI: 10.1016/j.celrep.2019.03.091.

\*\* [Kalebic N](#), Gilardi C, Stepien B, Wilsch-Brauninger M, Long K, Namba T, Florio M, Langen B, Lombardot B, Shevchenko A, Kilimann M, Kawasaki H, Wimberger P & Huttner WB. Neocortical expansion due to increased proliferation of basal progenitors is linked to changes in their morphology. *Cell Stem Cell*, 2019, DOI: 10.1016/j.stem.2019.02.017.

\*\* [Kalebic N](#), Gilardi C, Albert M, Namba T, Long KR, Kostic M, Langen B, Huttner WB. Human-specific ARHGAP11B induces hallmarks of neocortical expansion in developing ferret neocortex. *eLife*, 2018; DOI: 10.7554/eLife.41241.

Long KR, Newland B, Florio M, [Kalebic N](#), Langen B, Kolterer A, Wimberger P & Huttner WB. Extracellular matrix components HAPLN1, lumican and collagen I cause hyaluronic acid-dependent folding of the developing human neocortex. *Neuron*, 2018, DOI: 10.1016/j.neuron.2018.07.013.

Tavano S, Taverna E, [Kalebic N](#), Haffner C, Namba T, Dahl A, Wilsch-Brauninger M, Paridaen JTML & Huttner WB. Insm1 induces neural progenitor delamination in developing neocortex via downregulation of the adherens junction belt-specific protein Plekha7. *Neuron*, 2018, DOI: 10.1016/j.neuron.2018.01.052.

Albert M, [Kalebic N](#), Florio M, Lakshmanaperumal N, Haffner C, Henry I & Huttner WB. Epigenome profiling and editing of neocortical progenitor cells during development. *EMBO J*, 2017, DOI: 10.15252/embj.201796764.

\*\* [Kalebic N](#), Taverna E, Tavano S, Wong FK, Suchold D, Winkler S, Huttner WB & Sarov, M. CRISPR/Cas9-induced disruption of gene expression in mouse embryonic brain and single neural stem cells in vivo. *EMBO Reports*, 2016, DOI 10.15252/embr.201541715.

Morley S, Qi Y, Iovino L, Andolfi L, Guo D, [Kalebic N](#), Castaldi L, Tischer C, Portulano C, Bolasco G, Shirlekar K, Fusco C, Asaro A, Fermani F, Sundukova M, Matti U, Reymond L, De Ninno A, Businaro L, Johnsson K, Lazzarino M, Ries J, Schwab Y, Hu J & Heppenstall PA. Acetylated tubulin is essential for touch sensation in mice. *eLife*, 2016, 5: e20813. DOI: 10.7554/eLife.20813.

[Kalebic N](#), Sorrentino S, Perlas E, Bolasco G, Martinez C & Heppenstall PA. alpha-TAT1 is the major alpha-tubulin acetyltransferase in mice. *Nature Communications*, 2013, 4:1962 DOI: 10.1038/ncomms2962.

[Kalebic N](#), Martinez C, Perlas E, Hublitz P, Bilbao-Cortes D, Fiedorczuk K, Andolfo A & Heppenstall PA. Tubulin Acetyltransferase alpha-TAT1 Destabilizes Microtubules Independently of Its Acetylation Activity. *Molecular and Cellular Biology*, 2013, 33 (6), 1114-1123.

Topalidou I\*, Keller C\*, Kalebic N\*, Nguyen KCQ, Somhegyi H, Politi KA, Heppenstall PA, Hall DH & Chalfie M. Genetically Separable Functions of the MEC-17 Tubulin Acetyltransferase Affect Microtubule Organization. **Current Biology**, 2012, 22, 1057-1065. (\* equal contribution).

### Hypothesis and Opinion articles:

Kalebic N & Huttner WB. Basal progenitor morphology and neocortex evolution. **Trends in Neurosciences**, in press (*Opinion*).

### Methodology articles:

Kalebic N, Langen B, Helppi J, Kawasaki H and Huttner WB. In vivo targeting of neural progenitor cells in ferret neocortex by in utero electroporation. **J Vis Exp**, e61171, doi:10.3791/61171 (2020).

### Review articles and book chapters:

Gilardi C & Kalebic N. Ferret as a model system for neocortex development. **Front in Cell and Dev Biol**, in preparation. (*invited review*)

Kalebic N & Huttner WB. CRISPR/Cas9-based genome and epigenome editing in neuroscience research. In: Vaschetto, LM (ed.), **CRISPR-/Cas9 Based Genome Editing for Treating Genetic Disorders and Diseases**, in preparation (*book chapter*)

Kalebic N & Huttner WB. Neural progenitor cells in neocortex development and evolution. **Opera Med Physiol**, in press. (*invited review*)

Kalebic N, Long KR & Huttner WB. Neocortex Expansion in Development and Evolution: The Cell Biology of Neural Stem and Progenitor Cells and the Impact of Human-Specific Gene Expression. In: Kaas, J (ed.), **Evolution of Nervous Systems**, 2017, 2e. vol. 3, pp. 73–89. Oxford: Elsevier. (*book chapter*)

### Other publications (non-peer reviewed):

Kalebic N & Huttner WB. What underlies the evolutionary increase in the proliferative potential of cortical progenitors? **Opera Med Physiol**, 2018 Vol.4 (S1), (*conference abstract*).

Seijo I, Kalebic N, Kunerth S, Kulhei J. In die dritte Dimension mit „Wow-Effekt“ - Zellen in 3D und Echtzeit beobachten. Biospektrum 2019.

Kalebic N, Kanrai P, Kulhei J. 3D-Zellkulturen während der Entwicklung verfolgen. Photonik 2019.