Eils, Roland, PhD (Z02)

Personal Data

Title	Prof. Dr.
First name	Roland
Name	Eils
Current position	Founding director of the Digital Health Center at Berlin Institute of Health at Charité, Chair and Full Professor for Digital Health at Charité – Universitätsmedizin Berlin; permanent position
Current institution(s)/site(s), country	Berlin Institute of Health at Charité – Universitätsmedizin Berlin, Kapelle-Ufer 2, 10117 Berlin, Germany Health Data Science Unit, University of Heidelberg, Germany
Identifiers/ORCID	ORCID-ID: 0000-0002-0034-4036

Qualifications and Career

Stages	**Periods and Details**
Degree programme: Mathematics and Informatics	1984 – 1990, Diploma, RTWH Aachen, Aachen, Germany
Doctorate: PhD thesis	27.09.1995: Supervisors: Hans-Georg Bock, Willi Jäger, *"3D reconstruction, mathematical modeling and simulation of chromatin structures in cell nuclei",* University of Heidelberg, Germany
Stages of academic/ professional career:	
Since 2018	Founding Director and Professor for Digital Health of the Digital Health Center at Berlin Institute of Health (BIH) at Charité – Universitätsmedizin Berlin, Germany
Since 2018	Honorary Professor for Health Data Science at University of Heidelberg, Germany
2011 – 2018	Founding and Acting Director BioQuant - Systems Biology Center Heidelberg University, Germany
2004 – 2018	Ordinarius of Bioinformatics & Functional Genomics, Heidelberg University, Germany
2002 – 2018	Head of Division “Theoretical Bioinformatics” (B080), DKFZ Heidelberg, Germany
2010 – 2011	Visiting Professor at Harvard Medical School, Harvard University, USA
2000 – 2003	Head of the Biofuture Junior Group „Intelligent bioinformatics systems“ at the German Cancer Research Center (DKFZ), Heidelberg, Germany
1996 – 1999	Group Head, “Structure & Function in Cell Biology”, Heidelberg University , Germany
1996	Guest Researcher at Université de Grenoble, France

Engagement in the Research System

- Coordinator of HEALTH-X dataLOFT (Legitimierter, Offener und Föderierter Gesundheitsdatenraum in Gaia-X“) (since 2021)
- Member of the Organizing Committee of the Human Cell Atlas initiative (since 2017)
- Coordinator of the HiGHmed Medical Informatics Consortium (since 2016)
- Coordinator Helmholtz Initiative on Synthetic Biology (2012 – 2014)

Scientific Results

Category A, * corresponding author, # open access

1. Buergel T. Steinfeldt J, Ruyoga G, Pietzner M, Bizzarri D, Vojinovic D, Upmeier Zu Belzen J, Loock L, Kittner P, Christmann L, Hollmann N, Strangalies H, Braunger JM, Wild B, Chiesa ST, Spranger J, Klostermann F, van den Akker EB, Trompet S, Mooijaart SP, Sattar N, Jukema JW, Lavrijssen B, Kavousi M, Ghanbari M, Ikram MA, Slagboom E, Kivimaki M, Langenberg C, Deanfield J, **Eils R*,** Landmesser U. Metabolomic profiles predict individual multidisease outcomes. **Nat Med** 2022; 28:2309-2320. doi:10.1038/s41591-022-01980-3. #
2. Loske J, Röhmel J, Lukassen S, Stricker S, Magalhães VG, Liebig JR, Chua RL, Thürmann L, Messingschlager M, Seegebarth A, Timmermann B, Klages S, Ralser M, Sawitzki B, Sander LE, Corman VM, Conrad C, Laudi S, Binder M, Trump S, **Eils R***, Mall MA, Lehmann I. Pre-activated antiviral innate immunity in the upper airways controls early SARS-CoV-2 infection in children. **Nat Biotechnol** 2022; 40:319–324. doi:10.1038/s41587-021-01037-9.
3. Trump S, Lukassen S, Anker MS, Chua RL, Liebig J, Thürmann L, Corman VM, Binder M, Loske J, Klasa C, Krieger T, Hennig BP, Messingschlager M, Pott F, Kazmierski J, Twardziok S, Albrecht JP, Eils J, Hadzibegovic S, Lena A, Heidecker B, Bürgel T, Steinfeldt J, Goffinet C, Kurth F, Witzenrath M, Völker MT, Müller SD, Liebert UG, Ishaque N, Kaderali L, Sander LE, Drosten C, Laudi S*, **Eils R***, Conrad C*, Landmesser U*, Lehmann I*. Hypertension delays viral clearance and exacerbates airway hyperinflammation in patients with COVID-19. **Nat Biotechnol** 2021; 39:705–716. doi:10.1038/s41587-020-00796-1.
4. Chua RL, Lukassen S, Trump S, Hennig BP, Wendisch D, Pott F, Debnath O, Thürmann L, Kurth F, Völker MT, Kazmierski J, Timmermann B, Twardziok S, Schneider S, Machleidt F, Müller-Redetzky H, Maier M, Krannich A, Schmidt S, Balzer F, Liebig J, Loske J, Suttorp N, Eils J, Ishaque N, Liebert UG, von Kalle C, Hocke A, Witzenrath M, Goffinet C, Drosten C, Laudi S*, Lehmann I, Conrad C*, Sander LE* , **Eils R***. COVID-19 severity correlates with airway epithelium-immune cell interactions identified by single-cell analysis. **Nat Biotechnol** 2020; 38:970-979, doi:10.1038/s41587-020-0602-4.
5. Zapatka M, Borozan I, Brewer DS, Iskar M, Grundhoff A, Alawi M, Desai N, Cooper CS, **Eils R**, Ferretti V, Lichter P*. The landscape of viral association in human cancers. **Nat Gen** 2020; 52:320-330. doi: 10.1038/s41588-019-0558-9. #
6. Upmeier zu Belzen J, Bürgel T, Holderbach S, Bubeck F, Adam L, Gandor C, Klein M, Mathony J, Pfuderer PL, Platz L, Przybilla M, Schwendemann M, Heid D, Hoffmann MD, Jendrusch M, Schmelas C, Waldhauer M, Lehmann I, Niopek D, **Eils R***. Leveraging

implicit knowledge in neural networks for functional dissection and engineering of proteins. **Nat Mach Intell** 2019; 1:225-235. doi:10.1038/s42256-019-0049-9.

7. Northcott PA, Buchhalter I, Morrissy AS, Hovestadt V, Weischenfeldt J, Ehrenberger T, Gröbner S, Segura-Wang M, Zichner T, Rudneva VA, Warnatz HJ, Sidiropoulos N, Phillips AH, Schumacher S, Kleinheinz K, Waszak SM, Erkek S, Jones DTW, Worst BC, Kool M, Zapatka M, Jäger N, Chavez L, Hutter B, Bieg M, Paramasivam N, Heinold M, Gu Z, Ishaque N, Jäger-Schmidt C, Imbusch CD, Jugold A, Hübschmann D, Risch T, Amstislavskiy V, Gonzalez FGR, Weber UD, Wolf S, Robinson GW, Zhou X, Wu G, Finkelstein D, Liu Y, Cavalli FMG, Luu B, Ramaswamy V, Wu X, Koster J, Ryzhova M, Cho YJ, Pomeroy SL, Herold-Mende C, Schuhmann M, Ebinger M, Liau LM, Mora J, McLendon RE, Jabado , Kumabe, T, Chuah E, Ma Y, Moore RA, Mungall AJ, Mungall KL, Thiessen N, Tse K, Wong T, Jones SJM, Witt O, Milde T, Von Deimling A, Capper D, Korshunov A, Yaspo ML, Kriwacki R, Gajjar A, Zhang J, Beroukhim R, Fraenkel E, Korbel JO, Brors B, Schlesner M, **Eils R***, Marra MA*, Pfister SM*, Taylor MD*, Lichter P*. The whole-genome landscape of medulloblastoma subtypes. **Nature** 2017; 547:311-317. doi:10.1038/nature22973. #
8. Bauer T, Trump S, Ishaque N, Thurmann L, Gu L, Bauer M, Bieg M, Gu,ZG, Weichenhan D, Mallm JP, Roder S, Herberth G, Takada E, Mucke O, Winter M, Junge KM, Grutzmann K, Rolle-Kampczyk U, Wang Q, Lawerenz C, Borte M, Polte T, Schlesner M, Schanne M, Wiemann S, Georg C, Stunnenberg HG, Plass C, Rippe K, Mizuguchi J, Herrmann C, **Eils R***, Lehmann I. Environment-induced epigenetic reprogramming in genomic regulatory elements in smoking mothers and their children. **Mol System Biol** 2016; 12. doi:10.15252/msb.20156520. #
9. Gu Z, **Eils R**, Schlesner M, Complex heatmaps reveal patterns and correlations in multidimensional genomic data. **Bioinformatics** 2016; 32:2847-2849. doi: 10.1093/bioinformatics/btw313.
10. Jäger N, Schlesner M, Jones David TW, Raffel, S, Mallm JP, Junge KM, Weichenhan D, Bauer T, Ishaque N, Kool M, Northcott PA, Korshunov A, Drews RM, Koster J, Versteeg R, Richter , Hummel, M, Mack SC, Taylor MD, Witt H, Swartman B, Schulte-Bockholt D, Sultan M, Yaspo ML, Lehrach H, Hutter B, Brors B, Wolf S, Plass C, Siebert R, Trumpp A, Rippe K, Lehmann I, Lichter P, Pfister SM, **Eils R***. Hypermutation of the Inactive X Chromosome Is a Frequent Event in Cancer. **Cell** 2013; 155:567-581. doi:10.1016/j.cell.2013.09.042. #

Academic Distinctions

- Member of the National Academy of Sciences Leopoldina (since 2018)
- HMLS (Heidelberg Molecular Life Sciences) Investigator Award (100.000€, shared with Hellmut Augustin) (2014)
- Advisor of the Grand Prize Winner Team of iGEM (International Genetically Engineered Machine competition) (2013, 2014)
- Appointment for Program Director and Full Professor for Quantitative Biology at Cold Spring Harbor Laboratory, New York (2011, declined)
- Microsoft Research Award “Computational Tools for Advancing Science” (2005)

- Award for New Innovative Research by the Helmholtz Association “Systems Biology of Complex Diseases (2005)