

Prof. Dr. Georg Fuellen, Dipl.-Inf., M.Sc.

Tel: +49 381 494 7360
Email: fuellen@uni-rostock.de
Title/Position W3-Professor, *Medical Bioinformatics* and Director, *Institute for Biostatistics and Informatics in Medicine and Ageing Research*

Education

1992 Diplom in Computer Science, Universität des Saarlandes.
1993 Master of Science in Chemistry, MIT, Cambridge, USA.
2000 Dr. rer. nat., Universität Bielefeld.

Career/Employment

1992-1993 Visiting Scientist / Graduate Student, MIT, Cambridge, USA.
1994 Programmer in the US startup Creation Mechanics.
1994-2000 Scientific Staff, Universität Bielefeld.
2000-2001 Scientific Staff, Lehrstuhl für systematische Zoologie, Bochum.
2000-2004 Adjunct Lecturer (bezahlter Lehrauftrag 2 SWS), Universität Bielefeld.
2001-2006 Assistant Professor (Wissenschaftlicher Assistent), Medizinische Fakultät, Münster.
2006-2008 W2-Professor, Bioinformatik, Institut für Mathematik & Informatik, Greifswald.
2008- W3-Professor and Director, IBIMA, Medizinische Fakultät, Rostock.

Research Fields

i) Main field: Medical Bioinformatics
ii) Other fields: Systems Biology, Data Integration, Machine Learning; Molecular Ageing Research, Stem Cell Research; Embryology
iii) Current research interest: Network Biology & Differential Data Analysis, Biomarkers, Small-Molecule Effects, Ontologies; Neurodegeneration and Neuroregeneration, Leukemia, Ageing, Mouse Embryology.

10 Publications

Uyar B, Palmer D, Kowald A, Murua Escobar H, Barrantes I, Moller S, Akalin A, **Fuellen G**. Single-Cell Analyses of Aging, Inflammation and Senescence. *Ageing Research Reviews*. 2020; in press.

Fuellen G, Liesenfeld O, Kowald A, Barrantes I, Bastian M, Simm A, Jansen L, Tietz-Latza A, Quandt D, Franceschi C, Walter M (2020). The preventive strategy for pandemics in the elderly is to collect in advance samples & data to counteract chronic inflammation (inflammaging). *Ageing Res Rev*. 62: 101091.

Fuellen G, Jansen L, Cohen AA, Luyten W, Gogol M, Simm A, Saul N, Cirulli F, Berry A, Antal P, Köhling R, Wouters B, Möller S. Health and Aging: Unifying Concepts, Scores, Biomarkers and Pathways. *Aging Dis*. 2019 Aug 1;10(4):883-900.

Hamed M, Gladbach Y, Möller S, Fischer S, Ernst M, Struckmann S, Storch A, **Fuellen G** (2018). A workflow for the integrative transcriptomic description of molecular pathology and the suggestion of normalizing compounds, exemplified by Parkinson's disease. *Sci Rep*. 2018; 8(1): 7937.

Cohen AA, Legault V, **Fuellen G**, Fülöp T, Fried LP, Ferrucci L (2018). The risks of biomarker-based epidemiology: Associations of circulating calcium levels with age, mortality, and frailty vary substantially across populations. *Exp Gerontol*. 107: 11-17.

Ernst M, Du Y, Warsow G, Hamed M, Endlich N, Endlich K, Murua Escobar H, Sklarz LM, Sender S, Junghanß C, Möller S, **Fuellen G***, Struckmann S* (2017). FocusHeuristics - expression-data-driven network optimization and disease gene prediction. *Sci Rep*. 16; 7: 42638. (*co-corresponding authors).

Moeller M, Pink C, Endlich N, Endlich K, Grabe HJ, Völzke H, Dörr M, Nauck M, Lerch MM, Köhling R, Holtfreter B, Kocher T, **Fuellen G**. Mortality is associated with inflammation, anemia, specific diseases and treatments, and molecular markers. *PLoS One*. 2017 Apr 19;12(4): e0175909.

Ohde D, Moeller M, Brenmoehl J, Walz C, Ponsuksili S, Schwerin M, **Fuellen G***, Hoefflich A* (2016). Advanced Running Performance by Genetic Predisposition in Male Dummerstorf Marathon Mice (DUhTP) Reveals Higher Sterol Regulatory Element-Binding Protein (SREBP) Related mRNA Expression in the Liver and Higher Serum Levels of Progesterone. *PLoS One*. 11(1): e0146748. (*co-corresponding authors).

Ernst M, Abu Dawud R, Kurtz A, Schotta G, Taher L, **Fuellen G** (2015). Comparative computational analysis of pluripotency in human and mouse stem cells. *Sci Rep*. 5: 7927.

Moeller M, Hirose M, Mueller S, Roof C, Baltrusch S, Ibrahim S, Junghanss C, Wolkenhauer O, Jaster R, Köhling R, Kunz M, Tiedge M, Schofield PN, **Fuellen G** (2014). Inbred mouse strains reveal biomarkers that are pro-longevity, antilongevity or role switching. *Aging Cell*. 13(4): 729-38.

Funding

	Title	Remarks	Budget, incl. overheads
2020-2014, Karls Erdbeerhof	ErdBEHR – Erdbeeren (strawberries) and Biomarkers for the Extension of Healthspan by Rejuvenation	<i>Strawberries contain large amounts of fisetin, which could have a “senotherapeutic” effect;</i> joint with Institut für Laboratoriumsmedizin	142.666€ ; total project volume: 322.000€
2019-2022, BMBF	AntifibrotiX , Preclinical development of an antifibrotic for use after glaucoma surgery, including analysis of the mechanism of action with a cell model, next-generation sequencing and bioinformatics	Joint project with partners in Rostock (N. Grabow, O. Stachs)	958.915,40€ total project volume: 1.760.082€
2019-2022, BMBF	SASKIt , Senescence-Associated Systems-Diagnostics-Kit for Cancer and Stroke	Joint project with partners in Rostock (O. Wolkenhauer, R. Jaster, C. Junghanß, L. Henze, U. Walter, R. Köhling)	576.186€ ; total project volume: 2.097.430,62€
2019-2020, BMBF	HeLiXbyS , Healthy Life Extension by Senolytics	<i>Support for submission of an EU application</i>	128.257,66€
2016-2020, DFG	Multi-Omics Embryology , Understanding the impact of ovarian stimulation on oocyte and embryo quality by tandem RNA and protein expression analysis of oocyte and preimplantation embryonic stages	Research Grant with Prof. Taher, Erlangen (formerly Rostock) and PD Boiani, Münster	84.950€ ; total project volume: 449.130€
2015-2020, EU	Aging with elegans , Drug screening for health span extension in worms, mice and humans	Horizon-2020-Project coordinated in Leuven; head of WP6: Bioinformatics	387.500€ ; total project volume: 7.305.147€
2013-2016, BMBF	Mechanisms of Life , Drug screening for stem cell research and disease intervention	approved as a single project, with experimental partners in Rostock (C. Junghanß, R. Guthoff/ K.-P. Schmitz/ A. Jünemann), in Greifswald and Berlin	1.209.482€
2011-2015, BMBF	ROSage , Reactive Oxygen Species and the Dynamics of Ageing -- A Mito-chondrial Multi-gene, Multi-organ Approach	Joint project with Lübeck und Leipzig, Coordinators R. Köhling, G. Fuellen , O. Wolkenhauer; co-applicants UMR: C. Junghanß, M. Tiedge, S. Baltrusch, R. Jaster	222.008€ ; total project volume: 2.356.720€
2009-2015, DFG	E-Pluri-Net (1. funding period), Machine Learning and Evolutionary Comparison of Pluripotency Players and Networks & E Pluribus Unum (2. funding period), Understanding and Influencing Pluripotency and Reprogramming by Integrative Bioinformatics	In the context of the SPP 1356, Pluripotency and Cellular Reprogramming	347.600€