

## Alessandro Ori, PhD

### PERSONAL INFORMATION

Date of birth: 23/09/1981

Nationality: Italian

Researcher identifier(s): [orcid.org/0000-0002-3046-0871](https://orcid.org/0000-0002-3046-0871)

<https://publons.com/researcher/2901394/alessandro-ori/>

URL for web site: <http://www.leibniz-fli.de/research/research-groups/ori/>

<https://orilab.net/>

Twitter: [@AOri\\_lab](https://twitter.com/AOri_lab)

### EDUCATION

- 2010      PhD, Biochemistry  
University of Liverpool, UK  
Supervisor Prof. D.G. Fernig  
Thesis title: *“Analysing the heparin interactome: from biochemistry to systems biology”*  
Main research focus: Biochemistry/Proteomics/Systems biology
- 2006      Master, Biotechnology  
Università degli Studi di Bologna, Italy  
Main research focus: Cancer biology

### PROFESSIONAL EXPERIENCE

- 09/2015 –      Junior Group Leader  
Leibniz Institute on Aging – Fritz Lipmann Institute (FLI), Jena, Germany  
Main research focus: Proteomics of Aging
- 2010 – 2015      Postdoctoral fellow, Martin Beck lab  
Structural and Computational Biology Unit, European Molecular Biology  
Laboratory (EMBL), Heidelberg, Germany  
Main research focus: Structural proteomics/Systems biology
- 2006 – 2010      Postgraduate research assistant, Prof. D.G. Fernig lab  
University of Liverpool, UK
- 2005      Research placement (six months), Université Paris 7-D.Diderot, France  
Main research focus: Molecular biology/Cancer biology

### FELLOWSHIPS

- 2012 – 2014      Marie Curie Intra European postdoctoral fellowship (NPCquant), EMBL  
Heidelberg
- 2011 – 2012      Alexander von Humboldt foundation postdoctoral fellowship, EMBL Heidelberg
- 2006 – 2010      Marie Curie Early Stage Training fellowship

### AWARDS

- 2019      Beutenberg Campus Award - Life Science and Physics
- 2017      Poster prize, Modulating Ageing Antiageing Meeting, Halle, Germany
- 2009      Poster prize, 9th International Symposium on Mass Spectrometry, UCSF, San  
Francisco, USA

## **SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS**

- 2015 – Supervision of four Postdocs, five PhD students, one Master student and one Technician in my group at the Leibniz Institute on Aging – Fritz Lipmann Institute (FLI)
- 2015 – Supervision of one Facility Manager, one Staff Scientist, one Postdoc, one Technician in the Proteomics Core Facility at the Leibniz Institute on Aging – Fritz Lipmann Institute (FLI)
- 2015 – Member of eight thesis advisory committees of PhD students at the Leibniz Institute on Aging – Fritz Lipmann Institute (FLI)
- 2013-2017 Co-supervision of three PhD students at the EMBL Heidelberg
- 2011-2013 Supervision of three undergraduate students at the EMBL Heidelberg
- 2009-2012 Co-supervision of one PhD student at the University of Liverpool

## **INSTITUTIONAL RESPONSIBILITIES**

- 2015 – Scientific Supervisor of the Proteomics Core Facility, Leibniz Institute on Aging – Fritz Lipmann Institute (FLI)
- 2015 – 2017 Acting Head of the Subdivision on ‘Systems Biology of Aging’, Leibniz Institute on Aging – Fritz Lipmann Institute (FLI)
- 2015 – Organizer of the internal interest club on ‘Intestine and Aging’, Leibniz Institute on Aging – Fritz Lipmann Institute (FLI)
- 2016 Member of the Recruitment Committee for W3 Professorship on ‘Computational Biology of Aging’, Leibniz Institute on Aging – Fritz Lipmann Institute (FLI), Friedrich Schiller University, Jena
- 2016 Head of the Recruitment Committee for two positions for the Bioinformatics Core Facility, Leibniz Institute on Aging – Fritz Lipmann Institute (FLI), Jena,
- 2018 Organization of the annual FLI retreat (>180 scientists, 3 invited international external speakers)
- 2019 – Member of the Institute Council, Leibniz Institute on Aging – Fritz Lipmann Institute (FLI)
- 2020 Member of the Recruitment Committee for Head of Scientific Infrastructure, Leibniz Institute on Aging – Fritz Lipmann Institute (FLI)
- 2020 Co-organizer of the Jena Aging Meeting 2020 (together with H. Morrison and K.L. Rudolph, >180 registered attendees in 2018) - *postponed to 2021*

## **IMPORTANT FUNCTIONS OUTSIDE OF THE INSTITUTION**

- 2011 – Served as a reviewer for Aging Cell, Aging Research Reviews, Bioinformatics, BMC Genomics, Cell Systems, eLife, Journal of Proteome Research (ACS), Mechanisms of Ageing and Development, Molecular and Cellular Proteomics, Molecular Systems Biology, Nature Communications, PNAS, PLOS Computational Biology, PLOS One and Nucleic Acid Research
- 2016 – Served as a grant reviewer for the Deutsche Forschungsgemeinschaft (German Research Foundation), AFM-Telethon (France) and W.M. Keck Foundation (USA)

## LIST OF TEN SELECTED PEER REVIEWED PUBLICATIONS

1. E. Kelmer Sacramento\*, J.M. Kirkpatrick\*, M. Mazzetto\*, M. Baumgart, A. Bartolome, S. Di Sanzo, C. Caterino, M. Sanguanini, N. Papaevgeniou, M. Lefaki, D. Childs, S. Bagnoli, E. Terzibasi Tozzini, N. Romanov, P.H. Sudmant, W. Huber, N. Chondrogianni, M. Vendruscolo, A. Cellerino<sup>#</sup>, **A. Ori<sup>#</sup>**, Reduced proteasome activity in the aging brain results in ribosome stoichiometry loss and aggregation, **Mol. Syst. Biol.** 16 (2020). [doi:10.15252/msb.20209596](https://doi.org/10.15252/msb.20209596). [Cover](#).
2. N. Gebert, C.W. Cheng, J.M. Kirkpatrick, D. Di Fraia, J. Yun, P. Schädel, S. Pace, G.B. Garside, O. Werz, K.L. Rudolph, H. Jasper, Ö.H. Yilmaz, **A. Ori**, Region-Specific Proteome Changes of the Intestinal Epithelium during Aging and Dietary Restriction, **Cell Rep.** 31 (2020). [doi:10.1016/j.celrep.2020.107565](https://doi.org/10.1016/j.celrep.2020.107565).
3. N. Romanov, M. Kuhn, R. Aebersold, **A. Ori**, M. Beck<sup>#</sup>, P. Bork<sup>#</sup>, Disentangling Genetic and Environmental Effects on the Proteotypes of Individuals, **Cell.** 177 (2019) 1308–1318.e10. [doi:10.1016/j.cell.2019.03.015](https://doi.org/10.1016/j.cell.2019.03.015).
4. J. Muntel\*, J. Kirkpatrick\*, R. Bruderer, T. Huang, O. Vitek, **A. Ori<sup>#</sup>**, L. Reiter<sup>#</sup>, Comparison of Protein Quantification in a Complex Background by DIA and TMT Workflows with Fixed Instrument Time, **J. Proteome Res.** 18 (2019) 1340–1351. [doi:10.1021/acs.jproteome.8b00898](https://doi.org/10.1021/acs.jproteome.8b00898).
5. G.A. Wyant\*, M. Abu-Remaileh\*, E.M. Frenkel, N.N. Laqtom, V. Dharamdasani, C.A. Lewis, S.H. Chan, I. Heinze, **A. Ori<sup>#</sup>**, D.M. Sabatini<sup>#</sup>, NUFIP1 is a ribosome receptor for starvation-induced ribophagy., **Science.** 360 (2018) 751–758. [doi:10.1126/science.aar2663](https://doi.org/10.1126/science.aar2663).
6. I. Heinze\*, M. Bens\*, E. Calzia, S. Holtze, O. Dakhovnik, A. Sahm, J.M. Kirkpatrick, K. Szafranski, N. Romanov, S.N. Sama, K. Holzer, S. Singer, M. Ermolaeva, M. Platzer<sup>#</sup>, T. Hildebrandt<sup>#</sup>, **A. Ori<sup>#</sup>**, Species comparison of liver proteomes reveals links to naked mole-rat longevity and human aging, **BMC Biol.** 16 (2018) 1–18. [doi:10.1186/s12915-018-0547-y](https://doi.org/10.1186/s12915-018-0547-y).
7. L. Parca, M. Beck, P. Bork, **A. Ori**, Quantifying compartment-associated variations of protein abundance in proteomics data, **Mol. Syst. Biol.** 14 (2018) e8131. [doi:10.15252/msb.20178131](https://doi.org/10.15252/msb.20178131).
8. M. Ermolaeva<sup>#</sup>, F. Neri<sup>#</sup>, A. Ori<sup>#</sup>, K.L. Rudolph<sup>#</sup>, Cellular and epigenetic drivers of stem cell ageing, **Nat. Rev. Mol. Cell Biol.** 19 (2018) 1–17. [doi:10.1038/s41580-018-0020-3](https://doi.org/10.1038/s41580-018-0020-3).
9. M.-T. Mackmull, B. Klaus, I. Heinze, M. Chokkalingam, A. Beyer, R.B. Russell, **A. Ori<sup>#</sup>**, M. Beck<sup>#</sup>, Landscape of nuclear transport receptor cargo specificity., **Mol. Syst. Biol.** 13 (2017) 962. [doi:10.15252/msb.20177608](https://doi.org/10.15252/msb.20177608).
10. **A. Ori\***, B.H. Toyama\*, M.S. Harris, T. Bock, M. Iskar, P. Bork, N.T. Ingolia<sup>#</sup>, M.W. Hetzer<sup>#</sup>, M. Beck<sup>#</sup>, Integrated Transcriptome and Proteome Analyses Reveal Organ-Specific Proteome Deterioration in Old Rats, **Cell Syst.** 1 (2015) 224–237. [doi:10.1016/j.cels.2015.08.012](https://doi.org/10.1016/j.cels.2015.08.012).

\* co-first authors

<sup>#</sup> co-corresponding authors

## CITATION METRICS (source [publons](#))

Total articles in peer-reviewed journals (of which first or corresponding author): **56 (22)**

Sum of the times cited: **2226**

Average citations per article: **39.8**

h-index: **23**

Last Updated: 13/09/2020

## THIRD PARTY FUNDING

Project Title	Funding Source	Amount*	Role of PI	Status
<a href="#">Identification and functional validation of the proteome changes influencing the decline of the intestinal epithelium in aging</a>	Else Kröner-Fresenius-Stiftung	345.5k€	Main applicant	Awarded (started on 01.03.2020)
Functional characterization of AGE modifications in aging	DFG - RTG ProMoAge	183k€	Main applicant	Awarded (started on 01.01.2020)
Spatial and temporal proteomic mapping of translational regulation during ischemia/reperfusion injury	DZHK - Deutsches Zentrum für Herz-Kreislauf-Forschung	33.8k€	Co-main applicant with Mirko Völkers & Christoph Hofmann, (University Hospital Heidelberg, Germany)	Awarded (started on 01.01.2020)
Ex vivo expansion of functional human HSCs to improve therapies of age-associated diseases.	Leibniz Association –SAW2020	72k€	Co-applicant (main applicant C. Waskow, FLI)	Awarded (started on 01.05.2020)
<a href="#">Molecular convergence between mutations and aging in neurodegeneration</a>	Chan Zuckerberg Initiative - Neurodegeneration Collaborative Pairs Pilot Projects	75kUSD	Co-main applicant together with M. Ward (NIH, USA)	Awarded (starting from 01.12.2020)
Molecular characterization of the communication between lysosomes and subcellular organelles and its deregulation in Batten disease	Fritz Thyssen foundation	120k€	Co-main applicant together with M. Abu-Remaileh (Stanford University, USA)	Awarded (starting from 01.01.2021)
RESEArch for healThy AGEING RESETageing	EU-H2020-TWINN-2019	83.7k€	Coordinator for FLI/FSU (main applicant L. Ferreira, University of Coimbra, Portugal)	Awarded (starting from 01.01.2021)
	<b>TOTAL AWARDED</b>	<b>~910k€</b>		

\* for collaborative grants, only the share of funding awarded to the Ori lab is indicated

## LIST OF LECTURES

### Invited talks at national/international conferences

- 2021: Gordon Research Conference on Biology of Aging, Barcelona, Spain. Talk title: *tbd*
- 2020: Fusion Conference - Intestinal stem cell-niche interactions in Health and Disease, Lisbon, Portugal. Talk title: *tbd – Postponed to 2021 –*
- 2020: Graduate School Symposium of the Max Planck Institute for Biology of Ageing, Cologne, Germany. Talk title: *tbd – Postponed to 2021 –*
- 2019: 4th Symposium of Trans-Omics Medicine at Tokushima University, Japan. Talk title: *The Aging Brain Proteome*
- 2019: 48th American Aging Association Meeting, San Francisco, USA. Talk title: *Region-specific effects of aging on the intestinal epithelium and their reversal by dietary restriction*
- 2018: Fall meeting 2018, International Graduate School in Molecular Medicine, Ulm, Germany. Talk title: *Proteomic strategies to study stem cell aging*
- 2018: 10<sup>th</sup> Protein Rainbow Workshop, Dusseldorf, Germany. Talk title: *Proteomic strategies to study stem cell aging*
- 2018: Discovery Proteomics Seminar Event, Zürich, Switzerland. Talk title: *From Fixed Tissues to Rare Cell Populations: A Proteomic Journey*
- 2018: Workshop. Ageing: models and therapies, Coimbra, Portugal. Talk title: *Proteomic analysis identifies novel intrinsic and extrinsic factors influencing muscle stem cell aging*
- 2017: 2<sup>nd</sup> International Symposium on Healthy Aging, Magdeburg, Germany. Talk title: *Naked mole rats exhibit unique proteome features linked to longevity*

### Invited talks at research institutions

- 2020: School of Biological Sciences, University of Manchester, UK – *Postponed –*
- 2019: Genetech Inc., South San Francisco, USA
- 2019: Institute of Biochemistry, Charité University Medicine, Berlin, Germany
- 2017: The Crick Institute, London, UK
- 2017: Institute of Pharmacology, University Hospital Jena, Germany
- 2017: Scuola Normale Superiore, Pisa, Italy
- 2017: Alternative models for aging research meeting, IZW, Berlin, Germany
- 2016: Research Training Group 2155 ProMoAge kick-off meeting, Wittenberg, Germany
- 2014: Institute of Pathology, University Hospital Heidelberg, Germany

### Oral presentations of own accepted abstracts

- 2020: Keystone meeting: Intra- and Intercellular Mechanisms of Aging, Vancouver, Canada. Talk title: *Reduced proteasome activity in the aging brain results in ribosome stoichiometry loss and aggregation*
- 2019: Keystone meeting: Proteomics and its Application to Translational and Precision Medicine, Stockholm, Sweden. Talk title: *Comprehensive characterization of protein abundance, stability and aggregation during vertebrate brain aging*
- 2018: Annual Meeting of the German Society for Aging Research (DGfA), Jena, Germany. Talk title: *Age and diet affect the intestinal crypt proteome*

- 2018: EMBL Conference: From functional genomics to systems biology, Heidelberg, Germany. Talk title: *Comprehensive characterization of protein abundance, stability and aggregation during vertebrate brain aging*
- 2017: EMBO | EMBL Symposium: From Single- to Multiomics, Heidelberg, Germany. Talk title: *Comprehensive characterization of protein abundance, stability and aggregation during vertebrate brain aging*
- 2017: 2nd Molecular Biology of Ageing Meeting, Groningen, Netherlands. Talk title: *Aging and diet affect the intestinal crypt proteome*
- 2017: HUman Proteome Organization (HUPO) 2017 meeting, Dublin, Ireland. Talk title: *Spatial tissue proteomics of liver cancer*
- 2016: VIB Conference Series, Applied Bioinformatics in Life Sciences, Leuven, Belgium. Talk title: *Spatiotemporal variation of mammalian protein complex stoichiometries*
- 2015: Annual Meeting of the German Society for Aging Research (DGfA), Jena, Germany. Talk title: *Integrated genomic and proteomic analyses of aging organs in rat*
- 2014: EMBO Symposium, Molecular Machines: Lessons from Integrating Structure, Biophysics and Chemistry, EMBL Heidelberg, Germany. Talk title: *Proteome survey reveals the dynamic nature of protein complexes*
- 2009: 67th Harden Conference on Decoding the Biology of Heparan Sulphate Proteoglycans, Cambridge, UK. Talk title: *Analysing the heparin interactome: a new method for the localisation of heparin-binding sites*
- 2008: Proteoglycans NorthWest Meeting, Lancaster, UK. Talk title: *Development of a new method for the localisation of heparin-binding sites on proteins*

## COMPLETE LIST OF PUBLICATIONS

Numbers in **bold** indicate first or corresponding author publications

### Original research articles

50. Pitrez, P.R., Estronca, L., Monteiro, L.M., Colell, G., Vazão, H., Santinha, D., Harhour, K., Thornton, D., Navarro, C., Egesipe, A.-L., Carvalho, T., Dos Santos, R.L., Lévy, N., Smith, J.C., de Magalhães, J.P., **Ori, A.**, Bernardo, A., De Sandre-Giovannoli, A., Nissan, X., Rosell, A., and Ferreira, L. (2020). Vulnerability of progeroid smooth muscle cells to biomechanical forces is mediated by MMP13. *Nat. Commun.* 11, 4110.
49. Liu, H., Ding, J., Köhnlein, K., Urban, N., **Ori, A.**, Villavicencio-Lorini, P., Walentek, P., Klotz, L.-O., Hollemann, T., and Pfirrmann, T. (2020). The GID ubiquitin ligase complex is a regulator of AMPK activity and organismal lifespan. *Autophagy* 16, 1618–1634.
- 48.** Kelmer Sacramento, E., Kirkpatrick, J.M., Mazzetto, M., Baumgart, M., Bartolome, A., Di Sanzo, S., Caterino, C., Sanguanini, M., Papaevgeniou, N., Lefaki, M., Childs, D., Bagnoli, S., Terzibasi Tozzini, E., Di Fraia, D., Romanov, N., Sudmant, P.H., Huber, W., Chondrogianni, N., Vendruscolo, M., Cellerino, A.<sup>#</sup>, and **Ori, A.**<sup>#</sup> (2020). Reduced proteasome activity in the aging brain results in ribosome stoichiometry loss and aggregation. *Mol. Syst. Biol.* 16, 1–22.
- 47.** Gebert, N., Cheng, C.W., Kirkpatrick, J.M., Di Fraia, D., Yun, J., Schädel, P., Pace, S., Garside, G.B., Werz, O., Rudolph, K.L., Jasper, H., Yilmaz, Ö.H., and **Ori, A.** (2020). Region-Specific Proteome Changes of the Intestinal Epithelium during Aging and Dietary Restriction. *Cell Rep.* 31.
- 46.** Buczak, K., Kirkpatrick, J.M., Truckenmueller, F., Santinha, D., Ferreira, L., Roessler, S., Singer, S., Beck, M.<sup>#</sup>, and **Ori, A.**<sup>#</sup> (2020). Spatially resolved analysis of FFPE tissue proteomes by quantitative mass spectrometry. *Nat. Protoc.* 15, 2956–2979.
45. Simon, F., Bork, K., Gnanapragassam, V.S., Baldensperger, T., Glomb, M.A., Di Sanzo, S., **Ori, A.**, and Horstkorte, R. (2019). Increased Expression of Immature Mannose-Containing Glycoproteins and Sialic Acid in Aged Mouse Brains. *Int. J. Mol. Sci.* 20, 6118.
44. Romanov, N., Kuhn, M., Aebersold, R., **Ori, A.**, Beck, M., and Bork, P. (2019). Disentangling Genetic and Environmental Effects on the Proteotypes of Individuals. *Cell* 177, 1308-1318.e10.
43. Ombrato, L., Nolan, E., Kurelac, I., Mavousian, A., Bridgeman, V.L., Heinze, I., Chakravarty, P., Horswell, S., Gonzalez-Gualda, E., Maticchione, G., Weston, A., Kirkpatrick, J., Husain, E., Speirs, V., Collinson, L., **Ori, A.**, Lee, J.-H., and Malanchi, I. (2019). Metastatic-niche labelling reveals parenchymal cells with stem features. *Nature* 572, 603–608.
- 42.** Muntel, J., Kirkpatrick, J., Bruderer, R., Huang, T., Vitek, O., **Ori, A.**<sup>#</sup>, and Reiter, L.<sup>#</sup> (2019). Comparison of Protein Quantification in a Complex Background by DIA and TMT Workflows with Fixed Instrument Time. *J. Proteome Res.* 18, 1340–1351.
41. Holzer, K., **Ori, A.**, Cooke, A., Dauch, D., Drucker, E., Riemenschneider, P., Andres-Pons, A., DiGuilio, A.L., Mackmull, M.-T., Baßler, J., Roessler, S., Breuhahn, K., Zender, L., Glavy, J.S., Dombrowski, F., Hurt, E., Schirmacher, P., Beck, M., and Singer, S. (2019). Nucleoporin Nup155 is part of the p53 network in liver cancer. *Nat. Commun.* 10, 2147.
40. Guo, T., Luna, A., Rajapakse, V.N., Koh, C.C., Wu, Z., Liu, W., Sun, Y., Gao, H., Menden, M.P., Xu, C., Calzone, L., Martignetti, L., Auwerx, C., Buljan, M., Banaei-Esfahani, A., **Ori, A.**, Iskar, M., Gillet, L., Bi, R., Zhang, J., Zhang, H., Yu, C., Zhong, Q., Varma, S., Schmitt, U., Qiu, P., Zhang, Q., Zhu, Y., Wild, P.J., Garnett, M.J., Bork, P., Beck, M., Liu, K., Saez-Rodriguez, J., Elloumi, F., Reinhold, W.C., Sander, C., Pommier, Y., and Aebersold, R. (2019). Quantitative Proteome Landscape of the NCI-60 Cancer Cell Lines. *iScience* 21, 664–680.
39. Goepfert, B., Truckenmueller, F., **Ori, A.**, Fritz, V., Albrecht, T., Fraas, A., Scherer, D., Silos, R.G., Sticht, C., Gretz, N., Mehrabi, A., Bewerunge-Hudler, M., Pusch, S., Bermejo, J.L., Dietrich, P., Schirmacher, P., Renner, M., and Roessler, S. (2019). Profiling of gallbladder carcinoma reveals distinct miRNA profiles and activation of STAT1 by the tumor suppressive miRNA-145-5p. *Sci. Rep.* 9, 4796.
38. Drucker, E., Holzer, K., Pusch, S., Winkler, J., Calvisi, D.F., Eiteneuer, E., Herpel, E., Goepfert, B., Roessler, S., **Ori, A.**, Schirmacher, P., Breuhahn, K., and Singer, S. (2019). Karyopherin  $\alpha$ 2-

- dependent import of E2F1 and TFDP1 maintains protumorigenic stathmin expression in liver cancer. *Cell Commun. Signal.* 17, 159.
37. Chen, Z., Amro, E.M., Becker, F., Hölzer, M., Rasa, S.M.M., Njeru, S.N., Han, B., Di Sanzo, S., Chen, Y., Tang, D., Tao, S., Haenold, R., Groth, M., Romanov, V.S., Kirkpatrick, J.M., Kraus, J.M., Kestler, H.A., Marz, M., **Ori, A.**, Neri, F., Morita, Y., and Rudolph, K.L. (2019). Cohesin-mediated NF- $\kappa$ B signaling limits hematopoietic stem cell self-renewal in aging and inflammation. *J. Exp. Med.* 216, 152–175.
  36. Baldensperger, T., Sanzo, S. Di, **Ori, A.**, and Glomb, M.A. (2019). Quantitation of Reactive Acyl-CoA Species Mediated Protein Acylation by HPLC–MS/MS. *Anal. Chem.* 91, 12336–12343.
  35. Wyant, G.A., Abu-Remaileh, M., Frenkel, E.M., Laqtom, N.N., Dharamdasani, V., Lewis, C.A., Chan, S.H., Heinze, I., **Ori, A.**<sup>#</sup>, and Sabatini, D.M.<sup>#</sup> (2018). NUFIP1 is a ribosome receptor for starvation-induced ribophagy. *Science* 360, 751–758.
  34. Parca, L., Beck, M., Bork, P., and **Ori, A.** (2018). Quantifying compartment-associated variations of protein abundance in proteomics data. *Mol. Syst. Biol.* 14, e8131.
  33. Heinze, I., Bens, M., Calzia, E., Holtze, S., Dakhovnik, O., Sahm, A., Kirkpatrick, J.M., Szafranski, K., Romanov, N., Sama, S.N., Holzer, K., Singer, S., Ermolaeva, M., Platzer, M.<sup>#</sup>, Hildebrandt, T.<sup>#</sup>, and **Ori, A.**<sup>#</sup> (2018). Species comparison of liver proteomes reveals links to naked mole-rat longevity and human aging. *BMC Biol.* 16, 1–18.
  32. Elster, D., Tollot, M., Schlegelmilch, K., **Ori, A.**, Rosenwald, A., Sahai, E., and von Eyss, B. (2018). TRPS1 shapes YAP/TEAD-dependent transcription in breast cancer cells. *Nat. Commun.* 9, 3115.
  31. Buczak, K.\*<sup>\*</sup>, **Ori, A.**<sup>\*</sup>, Kirkpatrick, J.M., Holzer, K., Dauch, D., Roessler, S., Endris, V., Lasitschka, F., Parca, L., Schmidt, A., Zender, L., Schirmacher, P., Krijgsveld, J., Singer, S., and Beck, M. (2018). Spatial Tissue Proteomics Quantifies Inter- and Intratumor Heterogeneity in Hepatocellular Carcinoma (HCC). *Mol. Cell. Proteomics* 17, 810–825.
  30. Mackmull, M.-T., Klaus, B., Heinze, I., Chokkalingam, M., Beyer, A., Russell, R.B., **Ori, A.**<sup>#</sup>, and Beck, M.<sup>#</sup> (2017). Landscape of nuclear transport receptor cargo specificity. *Mol. Syst. Biol.* 13, 962.
  29. Holzer, K., Drucker, E., Roessler, S., Dauch, D., Heinzmann, F., Waldburger, N., Eiteneuer, E.-M., Herpel, E., Breuhahn, K., Zender, L., Schirmacher, P., **Ori, A.**, and Singer, S. (2017). Proteomic Analysis Reveals GMP Synthetase as p53 Repression Target in Liver Cancer. *Am. J. Pathol.* 187, 228–235.
  28. Dauden, M.I., Kosinski, J., Kolaj-Robin, O., Desfosses, A., **Ori, A.**, Faux, C., Hoffmann, N.A., Onuma, O.F., Breunig, K.D., Beck, M., Sachse, C., Séraphin, B., Glatt, S., and Müller, C.W. (2017). Architecture of the yeast Elongator complex. *EMBO Rep.* 18, 264–279.
  27. Winkler, J., Roessler, S., Sticht, C., DiGuilio, A.L., Drucker, E., Holzer, K., Eiteneuer, E., Herpel, E., Breuhahn, K., Gretz, N., Schirmacher, P., **Ori, A.**, and Singer, S. (2016). Cellular apoptosis susceptibility (CAS) is linked to integrin  $\beta$ 1 and required for tumor cell migration and invasion in hepatocellular carcinoma (HCC). *Oncotarget* 7, 22883–22892.
  26. Scharaw, S., Iskar, M., **Ori, A.**, Boncompain, G., Laketa, V., Poser, I., Lundberg, E., Perez, F., Beck, M., Bork, P., and Pepperkok, R. (2016). The endosomal transcriptional regulator RNF11 integrates degradation and transport of EGFR. *J. Cell Biol.* 215, 543–558.
  25. **Ori, A.**<sup>\*</sup>, Iskar, M.\*<sup>\*</sup>, Buczak, K., Kastritis, P., Parca, L., Andrés-Pons, A., Singer, S., Bork, P., and Beck, M. (2016). Spatiotemporal variation of mammalian protein complex stoichiometries. *Genome Biol.* 17, 47.
  24. Kiosze-Becker, K., **Ori, A.**, Gerovac, M., Heuer, A., Nürenberg-Goloub, E., Rashid, U.J., Becker, T., Beckmann, R., Beck, M., and Tampé, R. (2016). Structure of the ribosome post-recycling complex probed by chemical cross-linking and mass spectrometry. *Nat. Commun.* 7, 13248.
  23. Ferber, M., Kosinski, J., **Ori, A.**, Rashid, U.J., Moreno-Morcillo, M., Simon, B., Bouvier, G., Batista, P.R., Müller, C.W., Beck, M., and Nilges, M. (2016). Automated structure modeling of large protein assemblies using crosslinks as distance restraints. *Nat. Methods* 13, 515–520.
  22. Poli, M.\*<sup>\*</sup>, **Ori, A.**<sup>\*</sup>, Child, T., Jaroudi, S., Spath, K., Beck, M., and Wells, D. (2015). Characterization and quantification of proteins secreted by single human embryos prior to implantation. *EMBO Mol. Med.* 7, 1465–1479.
  21. **Ori, A.**<sup>\*</sup>, Toyama, B.H.\*<sup>\*</sup>, Harris, M.S., Bock, T., Iskar, M., Bork, P., Ingolia, N.T., Hetzer, M.W., and Beck, M. (2015). Integrated Transcriptome and Proteome Analyses Reveal Organ-Specific Proteome Deterioration in Old Rats. *Cell Syst.* 1, 224–237.



20. Mackmull, M.-T., Iskar, M., Parca, L., Singer, S., Bork, P., **Ori, A.** #, and Beck, M. # (2015). Histone Deacetylase Inhibitors (HDACi) Cause the Selective Depletion of Bromodomain Containing Proteins (BCPs). *Mol. Cell. Proteomics* 14, 1350–1360.
19. Kosinski, J., von Appen, A., **Ori, A.**, Karius, K., Müller, C.W., and Beck, M. (2015). Xlink Analyzer: Software for analysis and visualization of cross-linking data in the context of three-dimensional structures. *J. Struct. Biol.* 189, 177–183.
18. Gaik, M., Flemming, D., von Appen, A., Kastritis, P., Mücke, N., Fischer, J., Stelter, P., **Ori, A.**, Bui, K.H., Baßler, J., Barbar, E., Beck, M., and Hurt, E. (2015). Structural basis for assembly and function of the Nup82 complex in the nuclear pore scaffold. *J. Cell Biol.* 208, 283–297.
17. Calviño, F.R., Kharde, S., **Ori, A.**, Hendricks, A., Wild, K., Kressler, D., Bange, G., Hurt, E., Beck, M., and Sinning, I. (2015). Symportin 1 chaperones 5S RNP assembly during ribosome biogenesis by occupying an essential rRNA-binding site. *Nat. Commun.* 6, 6510.
16. von Appen, A., Kosinski, J., Sparks, L., **Ori, A.**, DiGuilio, A.L., Vollmer, B., Mackmull, M.-T., Banterle, N., Parca, L., Kastritis, P., Buczak, K., Mosalaganti, S., Hagen, W., Andres-Pons, A., Lemke, E.A., Bork, P., Antonin, W., Glavy, J.S., Bui, K.H., and Beck, M. (2015). In situ structural analysis of the human nuclear pore complex. *Nature* 526, 140–143.
15. Winkler, J., **Ori, A.**, Holzer, K., Sticht, C., Dauch, D., Eiteneuer, E.M., Pinna, F., Geffers, R., Ehemann, V., Andres-Pons, A., Breuhahn, K., Longerich, T., Bermejo, J.L., Gretz, N., Zender, L., Schirmacher, P., Beck, M., and Singer, S. (2014). Prosurvival function of the cellular apoptosis susceptibility/importin- $\alpha$ 1 transport cycle is repressed by p53 in liver cancer. *Hepatology* 60, 884–895.
14. Uniewicz, K.A., **Ori, A.**, Ahmed, Y.A., Yates, E.A., and Fernig, D.G. (2014). Characterisation of the interaction of neuropilin-1 with heparin and a heparan sulfate mimetic library of heparin-derived sugars. *PeerJ* 2, e461.
13. Dos Santos, C., Blanc, C., Elahouel, R., Prescott, M., Carpentier, G., **Ori, A.**, Courty, J., Hamma-Kourbali, Y., Fernig, D.G., and Delbé, J. (2014). Proliferation and migration activities of fibroblast growth factor-2 in endothelial cells are modulated by its direct interaction with heparin affinity regulatory peptide. *Biochimie* 107, 350–357.
12. Piazza, I., Rutkowska, A., **Ori, A.**, Walczak, M., Metz, J., Pelechano, V., Beck, M., and Haering, C.H. (2014). Association of condensin with chromosomes depends on DNA binding by its HEAT-repeat subunits. *Nat. Struct. Mol. Biol.* 21, 560–568.
11. Bock, T., Chen, W.-H., **Ori, A.**, Malik, N., Silva-Martin, N., Huerta-Cepas, J., Powell, S.T., Kastritis, P.L., Smyshlyayev, G., Vonkova, I., Kirkpatrick, J., Doerks, T., Nesme, L., Baßler, J., Kos, M., Hurt, E., Carlomagno, T., Gavin, A.-C., Barabas, O., Müller, C.W., van Noort, V., Beck, M., and Bork, P. (2014). An integrated approach for genome annotation of the eukaryotic thermophile *Chaetomium thermophilum*. *Nucleic Acids Res.* 42, 13525–13533.
10. **Ori, A.**, Banterle, N., Iskar, M., Andrés-Pons, A., Escher, C., Khanh Bui, H., Sparks, L., Solis-Mezarino, V., Rinner, O., Bork, P., Lemke, E.A., and Beck, M. (2013). Cell type-specific nuclear pores: a case in point for context-dependent stoichiometry of molecular machines. *Mol. Syst. Biol.* 9, 648.
9. Bui, K.H., von Appen, A., DiGuilio, A.L., **Ori, A.**, Sparks, L., Mackmull, M.-T., Bock, T., Hagen, W., Andrés-Pons, A., Glavy, J.S., and Beck, M. (2013). Integrated structural analysis of the human nuclear pore complex scaffold. *Cell* 155, 1233–1243.
8. Xu, R., **Ori, A.**, Rudd, T.R., Uniewicz, K.A., Ahmed, Y.A., Guimond, S.E., Skidmore, M.A., Siligardi, G., Yates, E.A., and Fernig, D.G. (2012). Diversification of the Structural Determinants of Fibroblast Growth Factor-Heparin Interactions. *J. Biol. Chem.* 287, 40061–40073.
7. **Ori, A.**, Wilkinson, M.C., and Fernig, D.G. (2011). A Systems Biology Approach for the Investigation of the Heparin/Heparan Sulfate Interactome. *J. Biol. Chem.* 286, 19892–19904.
6. Beck, M., Schmidt, A., Malmstroem, J., Claassen, M., **Ori, A.**, Szymborska, A., Herzog, F., Rinner, O., Ellenberg, J., and Aebersold, R. (2011). The quantitative proteome of a human cell line. *Mol. Syst. Biol.* 7, 549.
5. Uniewicz, K.A., **Ori, A.**, Xu, R., Ahmed, Y., Wilkinson, M.C., Fernig, D.G., and Yates, E.A. (2010). Differential Scanning Fluorimetry Measurement of Protein Stability Changes upon Binding to Glycosaminoglycans: A Screening Test for Binding Specificity. *Anal. Chem.* 82, 3796–3802.
4. Rudd, T.R.\* , Uniewicz, K.A.\* , **Ori, A.\***, Guimond, S.E.\* , Skidmore, M.A., Gaudesi, D., Xu, R., Turnbull, J.E., Guerrini, M., Torri, G., Siligardi, G., Wilkinson, M.C., Fernig, D.G., and Yates, E.A. (2010). Comparable stabilisation, structural changes and activities can be induced in FGF by a

- variety of HS and non-GAG analogues: implications for sequence-activity relationships. *Org. Biomol. Chem.* 8, 5390.
3. **Ori, A.**, Free, P., Courty, J., Wilkinson, M.C., and Fernig, D.G. (2009). Identification of Heparin-binding Sites in Proteins by Selective Labeling. *Mol. Cell. Proteomics* 8, 2256–2265.
  2. Guimond, S.E., Rudd, T.R., Skidmore, M.A., **Ori, A.**, Gaudesi, D., Cosentino, C., Guerrini, M., Edge, R., Collison, D., McInnes, E., Torri, G., Turnbull, J.E., Fernig, D.G., and Yates, E.A. (2009). Cations modulate polysaccharide structure to determine FGF-FGFR signaling: a comparison of signaling and inhibitory polysaccharide interactions with FGF-1 in solution. *Biochemistry* 48, 4772–4779.
  1. Bleau, A.M., Planque, N., Lazar, N., Zambelli, D., **Ori, A.**, Quan, T., Fisher, G., Scotlandi, K., and Perbal, B. (2007). Antiproliferative activity of CCN3: Involvement of the C-terminal module and post-translational regulation. *J. Cell. Biochem.* 101, 1475–1491.

#### Reviews / book chapters

6. Schüler, S.C.\*, Gebert, N.\*, and **Ori, A.** (2020). Stem cell aging: The upcoming era of proteins and metabolites. *Mech. Ageing Dev.* 190, 111288.
5. Ermolaeva, M.#, Neri, F.#, **Ori, A.**#, and Rudolph, K.L.# (2018). Cellular and epigenetic drivers of stem cell ageing. *Nat. Rev. Mol. Cell Biol.* 19, 594–610.
4. Cellerino, A.#, and **Ori, A.**# (2017). What have we learned on aging from omics studies? *Semin. Cell Dev. Biol.* 70, 177–189.
3. **Ori, A.**\*, Andrés-Pons, A.\*, and Beck, M. (2014). The Use of Targeted Proteomics to Determine the Stoichiometry of Large Macromolecular Assemblies. In *Methods in Cell Biology*, pp. 117–146.
2. Uniewicz, K.A., **Ori, A.**, Rudd, T.R., Guerrini, M., Wilkinson, M.C., Fernig, D.G., and Yates, E.A. (2012). Following Protein–Glycosaminoglycan Polysaccharide Interactions with Differential Scanning Fluorimetry. In *Methods in Molecular Biology* (Clifton, N.J.), pp. 171–182.
1. **Ori, A.**, Wilkinson, M.C.#, and Fernig, D.G.# (2008). The heparanome and regulation of cell function: structures, functions and challenges. *Front. Biosci.* 13, 4309–4338.

\* co-first authors

# co-corresponding authors