

Prof. Dr. Paola Picotti

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Biography

Paola Picotti is Full Professor at the Institute of Molecular Systems Biology at ETH Zurich. Born in 1977, she was trained as a medicinal chemist at the University of Padua where she also earned her PhD in Biotechnology in 2006. After a postdoc with of Ruedi Aebersold at ETH Zurich, she was appointed Assistant Professor at ETH Zurich In 2011, and subsequently Associate Professor in 2017. Since 2022 she is Full Professor at ETH Zurich.

Paola Picotti's research group develops mass spectrometry-based proteomics technologies and applies these tools to the study of neurodegenerative diseases. A major contribution of the Picotti group is the development of an approach to probe the structural changes of thousands of proteins simultaneously within complex biological and biomedical samples (LiP-MS). Using LiP-MS, Picotti's team identified candidate structural biomarkers for Parkinson's disease, mapped protein-small molecule interactions, characterized the determinants of protein thermostability, and demonstrated that global structural analyses provide a new type of molecular readout for pathophysiological changes.

Prof. Picotti was awarded the EMBO Gold Medal, the Cotter Award of the US-HUPO, the HUPO Discovery in proteomics sciences award, the SGMS award, the EMBO Young Investigator Award, the Friedrich Miescher Award, the Juan-Pablo Albar award of the European Proteome Association, two ERC Grants (Starting and Consolidator), the Rössler and Latsis prizes of ETH Zurich. Paola Picotti is member of the German Academy of Sciences (Leopoldina) and of EMBO.

Honours and Awards

2023	Molecular and Cellular Proteomics - Lectureship Award
2022	EMBO Member
2021	HUPO Discovery in Proteomics Award
2021	Falling Walls competition, Winner, Life Sciences Category
2021	Guest professorship at the University of Cologne
2020	Rössler Prize, ETH Zurich
2020	Member of the German National Academy of Sciences (Leopoldina)
2019	EMBO Gold Medal (*, co-corresponding)
2019 - 2024	ERC Consolidator Grant
2018	Juan Pablo Albar Protein Pioneer Award, European Proteome Organization
2018	Friedrich-Miescher Award
2016	Robert J. Cotter Award, American Human Proteome Organization
2016	SGMS Award for independent research in the field of MS
2016	EMBO Young Investigator Award
2014 - 2019	ERC Starting Grant
2014	"Top 40 under 40", The Analytical Scientist magazine
2012	ETH Latsis Prize
2011 - 2016	Swiss National Science Foundation Professorship

Key publications (* corresponding author)

1. **Picotti P**, Bodenmiller B, Mueller LN, Domon B, Aebersold R. Full dynamic range proteome analysis of *S. cerevisiae* by targeted proteomics. *Cell*. 2009 Aug 21;138(4):795-806.
2. Feng Y, De Franceschi G, Kahraman A, Soste M, Melnik A, Boersema PJ, de Laureto PP, Nikolaev Y, Oliveira AP, **Picotti P**. Global analysis of protein structural changes in complex proteomes. *Nat Biotechnol*. 2014 Oct;32(10):1036-44.
3. Leuenberger P, Gansch S, Kahraman A, Cappelletti V, Boersema PJ, von Mering C, Claassen M, **Picotti P**. Cell-wide analysis of protein thermal unfolding reveals determinants of thermostability. *Science*. 2017 Feb 24;355(6327).
4. Piazza I, Kochanowski K, Cappelletti V, Fuhrer T, Noor E, Sauer U, **Picotti P**. A Map of Protein-Metabolite Interactions Reveals Principles of Chemical Communication. *Cell*. 2018 Jan 11;172(1-2):358-372.e23.
5. Soste M, Champi K, Lampert F, van Oostrum M, Gerez J, Malinowska L, Boersema P, Peter M, Lindquist S, Vanni S, Beyer A, **Picotti P**. Proteomics-based monitoring of pathway activity reveals that blocking DAG biosynthesis rescues from alpha-synuclein toxicity. *Cell Systems*, 2019 Sep 25;9(3):309-320.
6. Gerez J, Adame A, Enchev R, Courtheoux T, Boersema P, Peter M, Masliah E, **Picotti P**. The SKP1-Cul1-FBXL5 ubiquitin ligase targets extracellular α -synuclein and inhibits Lewy Body pathology. *Science Translat. Medicine*, 2019 Jun 5;11(495).
7. Piazza I, Beaton N, Bruderer R, Knobloch T, Barbisan C, Chandat L, Sudau A, Siepe I, Rinner O, de Souza N, **Picotti P***, **Reiter L***. A machine learning-based chemoproteomic approach to identify drug targets and binding sites in complex proteomes. *Nat Commun*. 2020 Aug 21;11(1):4200.
8. Cappelletti V, Hauser T, Piazza I, Pepelnjak M, Malinowska L, Fuhrer T, Li Y, Dörig C, Boersema P, Gillet L, Grossbach J, Dugourd A, Saez-Rodriguez J, Beyer A, Zamboni N, Caflisch A, de Souza N, **Picotti P**. Dynamic 3D proteomes reveal protein functional alterations at high resolution in situ. *Cell*. 2021 Jan 21;184(2):545-559.e22.
9. Mackmull MT, Nagel L, Sesterhenn F, Muntel J, Grossbach J, Stalder P, Bruderer R, Reiter L, van de Berg WDJ, de Souza N, Beyer A, **Picotti P**. Global, in situ analysis of the structural proteome in individuals with Parkinson's disease to identify a new class of biomarker. *Nat Struct Mol Biol*. 2022 Oct;29(10):978-989.
10. Holfeld A, Schuster D, Sesterhenn F, Gillingham AK, Stalder P, Haenseler W, Barrio-Hernandez I, Ghosh D, Vowles J, Cowley SA, Nagel L, Khanppanavar B, Serdiuk T, Beltrao P, Korkhov VM, Munro S, Riek R, de Souza N, **Picotti P**. Systematic identification of structure-specific protein-protein interactions. *Mol Syst Biol*. 2024 Jun;20(6):651-675.
11. Stalder P, Serdiuk T, Ghosh D, Fleischmann Y, Malinowska L, Davranche A, Haenseler W, Boudou C, Tsika E, Quared A, Stöhr J, Melki R, Riek R, de Souza N, **Picotti P**. An approach to characterize mechanisms of action of anti-amyloidogenic compounds in vitro and in situ. *bioRxiv*.<https://doi.org/10.1101/2023.12.18.572111>.