

## (Asst. Prof.Dr.) ERINC HALLACLI, PhD

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### CURRENT ACADEMIC AFFILIATIONS

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2024 APR - FORWARD Group Leader at the Max Perutz Labs, Vienna BioCenter (Vienna, Austria)  
2024 APR - FORWARD Assistant Professor at Medical University of Vienna (Vienna, Austria),  
Department of Biochemical Medicine

### PREVIOUS ACADEMIC AFFILIATIONS

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2023 MAY - 2024 APR Assistant Professor in Neurology at Harvard Medical School & Brigham and Women's Hospital, Department of Neurology (Boston, MA, USA)  
2023 JAN- 2024 APR Northeastern University (Boston, MA, USA); Adjunct Lecturer of Biotechnology  
2020 AUG - 2023 MAY Instructor in Neurology at Harvard Medical School  
Research Fellow at Brigham and Women's Hospital (Boston, MA, USA)  
Advisor: Vikram Khurana, MD, PhD  
*Processing Bodies as alpha-Synuclein modulators in Parkinson's Disease*  
2017 SEP – 2020 AUG Postdoctoral Research Fellow at Brigham and Women's Hospital  
Advisor: Vikram Khurana, MD, PhD  
*RNA homeostasis in Parkinson's Disease using patient derived iPSC neuronal models*  
2014 APR – 2017 SEP Human Frontier (HFSP) Postdoctoral Fellow  
EMBO Long Term Fellow  
Whitehead Institute for Biomedical Research, MIT (Cambridge, MA, USA)  
Advisor: Prof. Dr. Susan Lindquist  
*Design and utilization of synthetic protein aggregation sensors for in vivo tracking of prions*  
Postdoc ended due to advisor's passing  
2012 AUG – 2014 JAN Postdoctoral Fellow  
Max Plank Institute of Immunobiology and Epigenetics (Freiburg, Germany)  
Advisor: Dr. Asifa Akhtar  
*Structural elucidation of Drosophila Dosage compensation complex*

### EDUCATION AND MAJOR TRAINING

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2008 AUG – 2012 AUG Ph.D. in Molecular Biology and Epigenetics  
Darwin Trust Fellow  
European Molecular Biology Labs (EMBL) (Heidelberg, Germany)  
Advisor: Dr. Asifa Akhtar  
*Epigenetics of Drosophila Dosage compensation complex*

- 2006 AUG – 2008 AUG PhD jointly awarded by Ruprecht-Karls-Universität Heidelberg (Combined Faculties for the Natural Sciences and for Mathematics) and EMBL  
 Master of Science (M.Sc.) in Molecular and Cellular Biology  
 DAAD scholar  
 Ruprecht-Karls-Universität Heidelberg, Germany  
 Advisor: Prof. Dr. Ed Hurt and Dr. Alwin Koehler  
*Coupling of mRNA nuclear export and transcription by TREX2 complex*
- 2001 SEP – 2006 AUG Bachelor of Science (B.Sc.) in Molecular Biology and Genetics  
 Middle East Technical University (METU) (Ankara, Turkey)  
 CPGA: 3.95/4.00

## OTHER PROFESSIONAL ACTIVITIES

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- 2022 - CURRENT Consultant at Dacapo Brainscience (Cambridge, MA)

## HONORS AND AWARDS

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- 2024 Max Perutz Labs, Startup Grant
- 2023 NIH Grant, R01  
 ‘Investigating physiologic and pathophysiologic connections between the Parkinson's disease protein alpha-synuclein and RNA binding proteins’  
 Co-Investigator with Dr. Vikram Khurana (2% Rating, start in September, 2023)
- 2023 Principal Investigator for Sponsored Research Agreement with Dacapo Brainscience  
 “Patient stratification in synucleinopathies”
- 2022 PD Innovation Award at Brigham and Women’s Hospital  
 “Generalizable synthetic tools to investigate alpha-synuclein biology”
- 2022 Sudarsky Scholarship at Brigham and Women’s Hospital  
 “Investigating the role of Processing-body condensates in alpha-synuclein pathology”
- 2019 - 2021 NIH Grant, R21 NS112858  
 “Mechanistic dissection of P-body formation and abnormal mRNA degradation in alpha-synucleinopathy”  
 Co-author of grant with Dr. Vikram Khurana
- 2015-2018 Human Frontier Science Program. (HSFP; LT000717/2015-L)  
 3 years Postdoctoral Fellowship for “Investigation of RNA binding prion proteins in *S.cerevisiae*”
- 2018 Whitehead Postdoctoral Appreciation Award
- 2014-2015 EMBO Long Term Fellowship (ALTF 283-2014)  
 2 years of stipend for “Investigation of eIF4G protein as an PD risk factor”
- 2008 -2012 Darwin Trust Fellowship during Doctoral (PhD) studies at EMBL (awarded to a single person each year)  
 4 years of stipend for “Structural and Functional Investigation of Drosophila Dosage Compensation Complex”
- 2006-2008 Deutscher Akademischer Austauschdienst (DAAD) scholarship during Master (M.Sc.) studies
- 2004-2006 University Undergraduate Scholarship of TUBITAK\* (one of the six undergraduate winners in biology nationwide) during undergraduate studies  
 \*The Scientific and Technological Research Council of Turkey.
- 2003-2006 Scholarship of General Directorate of Higher Education Credit and Hostels Institution
- 2003-2006 Scholarship of Cyprus Turkey Cultural Association
- 2000 VIII. National Biology Olympiads 2000, conducted by TUBITAK
- 2000 Selected for Summer Camp for Biology Olympiads
- 1999 VII. National Biology Olympiads 1999, conducted by TUBITAK

## MENTORSHIP

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- 2024 - PRESENT Thesis Advisory Committee Member of Suleiman Shamsudeen, Paracelsus Medical University, Univ.-Prof. Dr. med. Jan Pruszek Lab
- 2024 - PRESENT PhD Supervisor of Elizabeth Ethier and Kathleen Berkun at Max Perutz Labs
- 2023 - PRESENT Co-Mentoring research assistant Maitreya Rose, Khurana Lab
- 2022 - 2024 Mentored research assistant Elizabeth Ethier, Khurana Lab full time
- 2022 - 2024 Mentored research assistant Ronya Strom, Khurana Lab full time
- 2022 - 2022 Mentored Harvard graduate school rotation student Dan Hathaway, Khurana Lab for 2 months
- 2021- 2023 Mentored David Guarin, a PinBAC Scholar (Program in Neuroscience for underrepresented minorities at Harvard Medical School), Khurana Lab full time
- 2021 - 2021 Mentored summer intern Zijian Li, Khurana Lab full time for 3 months
- 2019 - 2021 Mentored research assistant Xiou H. Wang\*, Khurana Lab full time for 2 years  
\*Co-author on Hallacli et.al.,2022 Cell
- 2019 - 2021 Mentored research assistant Zoe Sheinkopf\*, Khurana Lab  
\*Co-author on Hallacli et.al.,2022 Cell
- 2018 Mentored summer intern Shubhangi Sathyakumar\*, Khurana Lab full time for 6 months  
\*Co-author on Hallacli et.al.,2022 Cell
- 2018 Mentored summer intern Jin Kyung Ahn, Khurana Lab full time, for 2 months
- 2017 Mentored research assistant Merylene Mesidor, Khurana Lab full time for 3 months
- 2017 Mentored summer intern Stephanie Chan, Khurana Lab full time for 2 months
- 2016 Mentored research assistant Zarina Brune\*, Lindquist Lab half time for 6 months  
\* Co-author on Tsvetkov et.al.,2020 Cell Reports
- 2012 Mentored summer intern Claire Spielman\*, Akhtar Lab full time for 3 months  
\* Co-author on Hallacli et.al., 2012, Molecular Cell

## OTHER RESEARCH EXPERIENCE

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- 2007 Two months rotation in MCB program, Ruprecht-Karls-Universität Heidelberg  
Supervisor: Prof. Dr. Bernd Bukau Lab, ZMBH (Zentrum für Molekulare Biologie)  
*In vitro biochemical analysis of interactions between E.coli Peptide deformylase, Methionine aminopeptidase and Trigger factor*
- 2007 Three weeks practical course in MCB program, Ruprecht-Karls-Universität Heidelberg  
Supervisors: Prof. Dr. Bukau, Dr. Matthias Mayer and Dr. Elke Deuerling Labs in ZMBH (Zentrum für Molekulare Biologie)  
*Hsp70 activity measurements in vitro*
- 2006 Two months rotation in MCB program, Ruprecht-Karls-Universität Heidelberg  
Supervisor: Prof. Dr. Ed Hurt  
*A functional study on Eat1/Swt1 protein in budding yeast.*
- 2005 Summer internship at Brandeis University (Waltham, USA)  
Supervisor: Prof. Dr. Melissa Moore  
*Studies on MLN51, a core component of Exon Junction Complex*
- 2004 Summer internship at Charité, Department of Experimental Neurology, Berlin, Germany  
Supervisors: Prof. Dr. Matthias Endres and Dr. J. Boesel

## OUTREACH and COMMUNITY ACTIVITIES

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- 2022 Interviews, presentations to media about Parkinson's Disease
- 2021- PRESENT Design and execution of Journal Clubs for two labs at Brigham and Women's Hospital

- 2021- PRESENT Co-execution of Journal Clubs for Khurana Lab research assistants and rotation students
- 2022 Voluntary work for TEV (Turkish Education Foundation) for mentoring and guidance of Turkish women from low socio-economic background
- 2021- PRESENT Design and execution of technical lab meetings in Khurana Lab
- 2005 - 2006 Teaching junior college students (scientific paper reading classes)
- 2001 Tutoring biology and molecular biology to high school students

### **INVITED TALKS, ORAL PRESENTATIONS**

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- 2023 Invited Speaker, EMBO Fellows Meeting, "A tale of two Bodies"
- 2022 Invited Speaker, "Prions, RNA binding proteins and Parkinson's Disease"  
Susan Lindquist Symposium, Cambridge, MA
- 2022 Invited Speaker. "Alpha-Synuclein as a modulator of Processing Bodies"  
Protein Homeostasis in Health and Disease Meeting at Cold Spring Harbor Labs
- 2018 Invited Speaker "alpha-Synuclein and RNA metabolism connection"  
Center for Cancer Systems Biology/ Program in Systems Biology Retreat, Gloucester, MA
- 2017 Invited Speaker. "yTRAP: a versatile in vivo tool to measure protein aggregation and more"  
Center for Cancer Systems Biology/ Program in Systems Biology Retreat, Gloucester, MA
- 2016 Invited Speaker at EMBL Symposia Complex Life of mRNA (Germany)  
"A versatile high-throughput sensor library for probing RNA binding protein prions in yeast"
- 2010 Invited Speaker. FASEB Summer Research Conference for Transcriptional Regulation  
During Cell Growth and Differentiation and Development (USA)  
"NSL and MSL complexes for genome-wide chromatin regulation"

### **POSTER PRESENTATIONS**

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- 2019 Poster Presentation. "RNA homeostasis deregulation in Parkinson's Disease"  
84th Symposium: RNA Control & Regulation at Cold Spring Harbor
- 2018 Poster Presentation. "yTRAP: a genetic tool to measure protein solubility in vivo"  
Protein Homeostasis in Health and Disease Meeting at Cold Spring Harbor Labs
- 2016 Poster Presentation. "Toxicity of PolyQ-expanded huntingtin is altered by co-aggregation with other Q-rich proteins"  
Protein Homeostasis in Health and Disease Meeting at Cold Spring Harbor Labs
- 2012 Poster Presentation. 10th EMBL Conference of Transcription and Chromatin (Germany)  
"MSL1 mediated dimerization of the dosage compensation complex is essential for male X-chromosome regulation in Drosophila"
- 2011 Poster Presentation. EMBO Conference Series Chromatin and Epigenetics (Germany)  
"Investigation of Partial MSL complexes in Drosophila melanogaster"
- 2010 Poster presentation. 9th EMBL Conference of Transcription and Chromatin (Germany)  
"Drosophila Dosage Compensation: structural insights"

## PUBLICATIONS

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1. Nazeen S, Wang X, Zielinski D, Lam I, **Hallacli E**, Xu P, Ethier E, Strom R, Zanella CA, Nithianandam V, Ritter D, Henderson A, Saurat N, Afroz J, Nutter-Upham A, Benyamini H, Coptly J, Ravishankar S, Morrow A, Mitchel J, Neavin D, Gupta R, Farbehi N, Grundman J, Myers RH, Scherzer CR, Trojanowski JQ, Van Deerlin VM, Cooper AA, Lee EB, Erlich Y, Lindquist S, Peng J, Geschwind DH, Powell J, Studer L, Feany MB, Sunyaev SR, Khurana V.  
Deep sequencing of proteotoxicity modifier genes uncovers a Presenilin-2/beta-amyloid-actin genetic risk module shared among alpha-synucleinopathies.  
bioRxiv [Preprint]. 2024 Mar 7:2024.03.03.583145. doi: 10.1101/2024.03.03.583145. PMID: 38496508; PMCID: PMC10942362.

2. Santhosh Kumar S, Naseri NN, Pather SR, **Hallacli E**, Ndayisaba A, Buenaventura C, Acosta K, Roof J, Fazelinia H, Spruce LA, Luk K, Khurana V, Rhoades E, Shalem O.  
Sequential CRISPR screening reveals partial NatB inhibition as a strategy to mitigate alpha-synuclein levels in human neurons.  
Sci Adv. 2024 Feb 9;10(6):eadj4767. doi: 10.1126/sciadv.adj4767. Epub 2024 Feb 9. PMID: 38335281; PMCID: PMC10857481.

3. Lam, I., Ndayisaba, A., Lewis, A.J., Fu, Y., Sagredo, G.T., Zaccagnini, L., Sandoe, J., Sanz, R.L., Vahdatshoar, A., Martin, T.D., et al. (2022). Rapid iPSC inclusionopathy models shed light on formation, consequence and molecular subtype of  $\alpha$ -synuclein inclusions.  
10.1101/2022.11.08.515615. bioRxiv

4- **Hallacli E**, Kayatekin C, Nazeen S, Wang XH, Sheinkopf Z, Sathyakumar S, Sarkar S, Jiang X, Dong X, Di Maio R, Wang W, Keeney MT, Felsky D, Sandoe J, Vahdatshoar A, Udeshi ND, Mani DR, Carr SA, Lindquist S, De Jager PL, Bartel DP, Myers CL, Greenamyre JT, Feany MB, Sunyaev SR, Chung CY, Khurana V.  
The Parkinson's disease protein alpha-synuclein is a modulator of processing bodies and mRNA stability.  
Cell. 2022 Jun 9;185(12):2035-2056.e33.  
Featured article, Highlighted in Alzforum, Nature Chemical Biology, Nature Reviews Neuroscience, ParkinsonsNewsToday, Neuroscience News.

5- Tsvetkov P, Eisen TJ, Heinrich SU, Brune Z, **Hallacli E**, Newby GA, Kayatekin C, Pincus D, Lindquist S. Persistent Activation of mRNA Translation by Transient Hsp90 Inhibition.  
Cell Rep. 2020 Aug 11;32(6):108001.

6- Lam I\*, **Hallacli E\***, Khurana V.  
Proteome-Scale Mapping of Perturbed Proteostasis in Living Cells.  
Cold Spring Harb Perspect Biol. 2019 Mar 25.  
\* Co-first author

7- Gregory A. Newby\*, Szilvia Kiriakov\*, **Erinc Hallacli\***, Can Kayatekin, Peter Tsvetkov, Christopher P. Mancuso, J. Maeve Bonner, William R. Hesse, Sohini Chakrabortee, Anita L. Manogaran, Susan W. Liebman, Susan Lindquist, Ahmad S. Khalil  
A genetic tool to track protein aggregates and control prion inheritance.  
Cell, 2017 Nov 2;171(4):966-979  
\*First co-author, F1000 article, Journal cover  
Media Highlights: Drug Target Review, Parkinsonsnews, Nature Methods, Huntingtonsdisenews, Human Frontier Foundation, Science Daily, Genetic Society of America, The Scientist Magazine,

**8-** Landgraf D, Huh D, **Hallacli E**, Lindquist S. Scarless Gene Tagging with One-Step Transformation and Two-Step Selection in *Saccharomyces cerevisiae* and *Schizosaccharomyces pombe*. PLoS One. 2016 Oct 13;11(10)

**9- Hallacli E**, Lipp M, Georgiev P, Spielman C, Cusack S, Akhtar A, Kadlec J. Msl1-Mediated Dimerization of the Dosage Compensation Complex Is Essential for Male X-Chromosome Regulation in *Drosophila*. Molecular Cell. 2012 Nov 30;48(4):587-600

**10-** Conrad T, Cavalli FM, Holz H, **Hallacli E**, Kind J, Ilik I, Vaquerizas JM, Luscombe NM, Akhtar A. The MOF chromobarrel domain controls genome-wide H4K16 acetylation and spreading of the MSL complex. Developmental Cell. 2012 Mar 13;22(3):610-24.

**11-** Kadlec J\*, **Hallacli E\***, Lipp M, Holz H, Sanchez-Weatherby J, Cusack S, Akhtar A. Structural basis for MOF and MSL3 recruitment into the dosage compensation complex by MSL1. Nature Structural & Molecular Biology. 2011 Feb;18(2):142-9.  
\*First co-author

**12- Hallacli E**, Akhtar A. X chromosomal regulation in flies: when less is more. Chromosome Res. 2009;17(5):603-19.