Hunkar Gizem Yesilyurt, Ph.D.
Assistant Professor TAMU-C
Department of Biological and
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A. Education

Ph. D. in Neuroscience, 2018

University of Texas Southwestern Medical Center
Dissertation: *Regulation of Mical Redox Post-translationally-driven F-actin Cytoskeletal Dynamics*
Advisor: Jonathan R. Terman; Committee Members: Michael Rosen, Ege T. Kavalali, Ryan Hibbs
Field(s) of study: Neurobiology, Cell Biology, Genetics, Biochemistry

Double Major
B.S. in 'Chemistry' and 'Molecular Biology and Genetics', 2011
Bogazici University, Istanbul

B. Positions and Honors

Professional Appointments:

2021-Present-Assistant Professor-Texas A&M University-Commerce-Biological and Environmental Sciences Department

2020-2021 **Assistant Professor (tenure track)**, *Nicholls State University, Department of Biological Sciences.* Research on understanding how cytoskeletal dynamics affect neural development and function, while taking clues from the perspective of neurological disorders and pathologies, with a multidisciplinary approach involving genetics, biochemistry, neural cell biology and more. Teaching introductory biology and upper-level biology courses related to molecular cell biology and neuroscience. Advising Pre-Medicine, Pre-Dentistry, Pre-Pharmacy and Pre-Veterinary Medicine students in all academic standings.

2018-2020 **Postdoctoral Research Fellow**, *Harvard Medical School, Department of Cell Biology, David Van Vactor (PI).* Studying synapse formation and maintenance with a focus on microtubule dynamics. Developed live-imaging techniques on dendrites and neuromuscular junctions with the goal to understand how microtubules work with interacting pathways to result in successful synapse formation.

2011-2018 **Graduate Research Fellow**, *Neuroscience Graduate Program, The University of Texas Southwestern Medical Center, Jonathan R. Terman (Advisor).* Studied regulation of Mical/SelR-mediated F-actin cytoskeletal dynamics. Characterized the interaction between Mical and other actin regulatory proteins and molecules *in vitro* and *in vivo*, with the goal to reach a better understanding on how they work with the Mical/SelR system to regulate the actin cytoskeleton.

2010-2011 **Undergraduate Research Assistant**, *Laboratory of Sensory Neuroscience, Department of Molecular Biology and Genetics, Bogazici University, Istanbul, Turkey, Stefan Fuss (PI).* Studied the analysis of promoter activity of 5'-upstream regions of zebrafish olfactory receptor genes to identify the promoter elements of these olfactory receptor genes *in vivo*. In another line of research, aimed to characterize the expression of multiple genes in zebrafish including characterizing the expression pattern of a liver cancer- associated gene.

2010 **Amgen Scholar**, *Department of Molecular Neurobiology, Max Planck Institute of Neurobiology, Martinsried, Germany, Rüdiger Klein (PI).* Studied kinase activity of EphA4 receptor by specifically analyzing the requirement of selected amino acids.

2009 **Summer Student**, *Laboratory of Molecular Neurobiology, Department of Genetics and Bioengineering, Yeditepe University, Istanbul, Turkey, Işıl Aksan Kurnaz (PI).* Worked on cloning of Survivin promoter gene. Investigated ETS domain transcription factors and analysis of their effects on proliferation of neuroblastoma cells.

2008 **Summer Student**, *Laboratory of Polymer and Medicinal Chemistry, Department of Chemistry, Bogazici University, Istanbul, Turkey, Rana Sanyal (PI).* Learned and performed dendrimer synthesis in a double- stage convergent approach with the goal to use them as therapeutic agents by tailoring their biochemical properties as targeting groups in drug delivery.

Teaching Experience & Interests:

2020F-present **Assistant Professor,** *Department of Biological Sciences, Nicholls State University.*

BIOL 473: Neuroscience: Proposed, created and designed the course, newly added to the curriculum, on the fundamental principles and concepts of neuroscience including neurobiology of behavior, cellular and molecular biology of the neuron, synaptic transmission, neural basis of cognition, perception and movement, development of the nervous system, as well as memory, learning and synaptic plasticity.

BIOL 441: Molecular Biology of the Cell Laboratory: Trained students on experimental design and analytical skills for laboratory methods to investigate cell structure, chemistry, molecular biology, physiology, microbiology and animal model genetics.

BIOL 105: Basic Biology 1: Principles of Biology: Designed and taught lectures to nonmajors with an integrated approach on the fundamental principles and concepts of biology including biochemistry, cell biology, metabolism (photosynthesis and respiration), cell reproduction, genetics, plant and animal reproduction and development, and evolution across species including our own. Lead General Education Curriculum Assessments to increase skills of critical thinking and information & technology literacy in student group.

Note: Trained in and practiced *Moodle LMS* and *Hybrid-Flexible* education for COVID-19 era.

2020-Spring **Teaching Assistant,** *LIFESCI 1B: An Integrated Introduction to the Life Sciences: Genetics, Genomics and Evolution, Graduate School of Arts and Sciences, Harvard College, (main Instructors: Andrew Berry, Hopi Hoekstra, Pardis Sabeti).* Designed and taught lectures with an integrated approach on Mendelian, quantitative and population genetics across species including our own. Lead sections employing active-learning techniques to increase problem-solving and discussion skills in student group. Guided students on practical and analytical skills for molecular biology, microbiology and animal model genetics. Trained and received feedback by specialists from the Derek Bok Center for Teaching & Learning at Harvard University on teaching skills. Trained in and practiced *Canvas LMS* and online education for COVID-19 era.

2020-Spring **Guest Lecturer,** *BIOL 3101: Analysis of Development, Department of Biology, Emmanuel College, (Instructor: Janel Cabrera).* Designed and taught lectures on nervous system development. Talked about own research design and methods focusing on axonal guidance and growth during development. Guided students on practical and analytical skills for developmental studies using animal models, fruit flies and sea urchins.

2020-Spring **Trainee at Teaching 101: Bringing Effective Teaching Practices to your Classroom,** *special quarter course on practical and transferable skills on teaching, Curriculum Fellows Program, Harvard Medical School, (Instructors: Gavin Porter, Deepali Ravel).* Learned about evidence-based teaching practices and their applications. Trained on developing and organizing class content into engaging, effective lessons. Demonstrated small- and large-group teaching practices.

2014-Sep/Oct **Mentor and Supervisor** *to PeiYi Lin, Graduate Rotation Student in UTSW Neuroscience Graduate Program.* Supervised the student on experimental design. Trained her on protein purification techniques as well as fly genetics. Mentored her on choosing a graduate lab.

2013-Nov/Dec **Mentor and Supervisor** *to Alex Partin, Graduate Rotation Student in UTSW Molecular Biophysics Graduate Program.* Supervised the student on experimental design on biochemistry of Mical enzyme. Trained him on protein purification techniques as well as actin biochemical assays. Mentored him on choosing a graduate lab and department.

2008-2010 **Advisor and Private Tutor** to undergraduate and high school students of various backgrounds in Istanbul, Turkey. Taught special tutoring sessions in Chemistry and Biology (language of teaching: English), as well as in English and German language courses.

Selected Honors & Awards:

2011 Honor from Faculty of Arts and Sciences for outstanding success in undergraduate programs, Bogazici University, Istanbul, Turkey

2015 Travel Award, Graduate Student Organization, UT Southwestern

2016 Honorable Mention, Graduate Student Organization Poster Session, UT Southwestern

2016 Selected for Talk, Neuroscience Graduate Program Annual Retreat, UT Southwestern

2016 Selected for Talk, Cold Spring Harbor Laboratory, Axon Guidance, Synapse Formation and Regeneration Meeting, Cold Spring Harbor, NY, USA

C. Publications

V.T. Chou*, **H.G. Yesilyurt***, H. Lai* et al. (2020), A new 3D particle tracking tool for noninvasive *in vivo* analysis of synaptic microtubule dynamics in dendrites and at the neuromuscular junctions of *Drosophila*, ***J Vis Exp.*** (159), e61159. (*****equal contribution)

H.G. Yesilyurt and J.R. Terman, Spatiotemporal targeting of tropomyosin protects new actin-rich cellular protrusions from disassembly (*in preparation*)

H. Wu, **H.G. Yesilyurt**, J. Yoon and J.R. Terman (2018), The MICALs are a family of F-actin dismantling oxidoreductases conserved from Drosophila to humans, ***Scientific Reports***, *8*: 937.

E.E. Grintsevich, P. Ge, M.R. Sawaya, **H.G. Yesilyurt**, J.R. Terman*, Z.H, Zhou*, Emil Reisler* (2017), Catastrophic depolymerization of actin filaments via oxidation by Mical, ***Nature Communications***, *8*: 2183. (*co-corresponding)

E.E. Grintsevich*, **H.G. Yesilyurt***, S.K. Rich, R.-J. Hung, J.R. Terman**, E. Reisler** (2016), F-actin dismantling through a Redox-driven synergy between Mical and cofilin, ***Nature Cell Biology***, Aug;18(8):876-85. (*****equal contribution, **co-corresponding/joint communication from two labs)

***Highlighted in**: 1) **Faculty of 1000**, 16 Nov 2016, https://f1000.com/prime/726579171*

R.J. Hung, C.S. Spaeth, **H.G. Yesilyurt**, and J.R. Terman (2013), SelR reverses Mical-mediated oxidation of actin to regulate F-actin dynamics, ***Nature Cell Biology***, 15: 1445-1454.

***Highlighted in**: 1) Redox Switch for Actin, **Nature Cell Biology**, 15: 1403-1404*
*2) **Faculty of 1000**, 6 Dec 2013, http://f1000.com/prime/14267333*

D. Abstracts and Meeting Presentations

UT Southwestern Medical Center, Department of Neuroscience, Annual Retreat 2017, Dallas, TX, USA.
Poster Presentation: **Yesilyurt H.G.**, Terman J.R., The interaction between Mical and tropomyosin regulates F-actin disassembly and cellular remodeling.

Cold Spring Harbor Laboratory, Axon Guidance, Synapse Formation and Regeneration Meeting 2016, Cold Spring Harbor, NY, USA.
Invited Talk: "A redox-driven synergy between Mical and Cofilin directs F-actin disassembly and Semaphorin/Plexin repulsion"

UT Southwestern Medical Center, Department of Neuroscience, Annual Retreat 2016, Dallas, TX, USA.
Invited Talk: "A redox-driven synergy between Mical and Cofilin directs F-actin disassembly and neural connectivity"

Biophysical Society Annual Meeting 2016, Los Angeles, CA, USA.
Abstract: Grintsevich E.E., **Yesilyurt H.G.**, Rich S.K., Hung R.-J., Terman J.R., Reisler E., Targeted Actin Disassembly by Mical and Cofilin, ***Biophysical Journal***, 110: 354a, 2016.

The American Society for Cell Biology Annual Meeting 2015, San Diego, CA, USA.
Abstract: Grintsevich E.E., **Yesilyurt H.G.**, Rich S.K., Hung R.-J., Terman J.R., Reisler E., Mical and cofilin synergize in actin disassembly, ***Molecular Biology of the Cell***, 26: 4523 (Abstract #P68), 2015.

The American Society for Cell Biology Annual Meeting 2015, San Diego, CA, USA.
Poster Presentation: **Yesilyurt H.G.**, Grintsevich E.E., Rich S.K., Hung R.-J., Reisler E., Terman J.R., Regulation of Mical Redox-driven F-actin Cytoskeletal Dynamics.

UT Southwestern Medical Center, Department of Neuroscience, Annual Retreat 2015, Dallas, TX, USA.
Poster Presentation: **Yesilyurt H.G.**, Terman J.R., Regulation of Mical/SelR-mediated F-actin Cytoskeletal Dynamics**.**

Cold Spring Harbor Laboratory, Axon Guidance, Synapse Formation and Regeneration Meeting 2014, Cold Spring Harbor, NY, USA.

Poster Presentation: Spaeth C.S.*, **Yesilyurt H.G.***, Hung R.-J., Terman J.R., SelR/MsrB reverses Mical-mediated oxidation of actin to regulate cellular behaviors. (*****equal contribution)

UT Southwestern Medical Center, Department of Neuroscience, Annual Retreat 2014, Dallas, TX, USA.

Poster Presentation: **Yesilyurt H.G.**, Terman J.R., Regulation of Mical/SelR-mediated F-actin Cytoskeletal Dynamics**.**

Amgen Scholars European Symposium 2010, University of Cambridge, Cambridge, England, UK.

Poster Presentation: **Yesilyurt H.G.**, Hassler C., and Klein R., Kinase activity of EphA4 receptor: Requirement of selected amino acids.