HOUDA KHALED

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EDUCATION

New York University, New York, NY 2019 – present
Ph.D. in Neural Science

Wellesley College, Wellesley, MA 2012 – 2016
B.A. in Biochemistry

St. Anne's College, Oxford University, Oxford, UK 2014 – 2015
Visiting Student Programme in Biochemistry

Additional Coursework:

Johns Hopkins Bloomberg School of Public Health, Department of Biostatistics
- Analysis of Biological Sequences (2017)
- Computer Science for Bioinformatics (2018)

RESEARCH EXPERIENCE

Johns Hopkins University School of Medicine, 2016 – 2019
Department of Psychiatry and Behavioral Sciences, Division of Neurobiology
Research Specialist, Advisor: Dr. Russell L. Margolis

Explored huntingtin antisense (*HTTAS*), a natural transcript antisense to huntingtin (*HTT*) as a potential *HTT*-lowering therapeutic for Huntington's disease (HD)

- Collaborated with the National Center for Advancing Translational Sciences (NCATS) to conduct high-throughput screenings (HTS) for compounds acting on *HTT* & *HTTAS* promoters
- Validated HTS hits using cell-based assays (toxicity, western blot, qPCR) in HD patient stem cell model
- Used RT-PCR and 3' RACE to identify additional *HTTAS* exons, transcripts, and promoters

Additional Project: Comparison of HD and Huntington Disease-Like 2 (HDL2) pathology via novel stem cell model: grow and differentiate cell lines. Evaluate with qPCR, WB, etc.

University of Pennsylvania, Department of Biology Summer 2016
Research Specialist A, Advisor: Dr. Ted Abel

Investigated memory enhancement associated with NR4A-activating compound treatment.

- Maintained and genotyped several transgenic mouse colonies.
- Conducted behavioral experiments; collected brain tissue for processing (RNA, protein)

Wellesley College, Department of Neuroscience 2012 – 2016
Student Researcher, Advisor: Dr. Sharon Gobes

Honors Thesis Project: Studied synaptic modifications underlying zebra finch song learning through analysis of Electron Microscopy volumes.

- Developed and optimized protocol for image analysis of large (>7 GB) datasets.
- Designed and piloted molecular biology experiments to support my EM data

ETH Zurich / University of Zurich, Institute of Neuroinformatics Summer 2015
Visiting Student Researcher, Advisor: Dr. Richard Hahnloser

Trained with experts in the field of songbird learning and advanced electron microscopy (EM)

- Worked with collaborators to generate pipeline for analysis using MATLAB

Drexel University School of Medicine, Department of Neuroscience Summer 2013
Summer Undergraduate Research Fellow, Advisor: Dr. Ramesh Raghupathi

Investigated effectiveness of combined drug therapy on pediatric traumatic brain injury in rats

- Measured spatial learning improvements associated with drug treatment (Morris Water Maze)
- Used immunohistochemistry to measure microglial activation, tissue loss, and axonal injury

JOURNAL PUBLICATIONS

1. Huang Z, **Khaled HG**, Kircschmann M, Gobes SMH, Hahnloser RHR. Excitatory and inhibitory synapse reorganization immediately after critical sensory experience in a vocal learner. *eLife.* 2018 October 25. *doi: 10.7554/eLife.37571*

ORAL PRESENTATIONS

1. **Khaled HG^{+}***, Elabbady LT^{+}*, Maeda R^{+}*, Petkova S^{+}*. *Singing in the Brain: Neural Correlates of Learning and Memory in Songbirds.* Panel Presentation, Ruhlman Conference, Wellesley, MA, 2016.

2. **Khaled HG***, Huang Z, Hahnloser RHR, Gobes SMH. *Changes in Synapse Morphology Associated with Song Learning.* Third Annual Biochemistry Retreat, Wellesley, MA 2016

3. **Khaled HG***, Huang Z, Hahnloser RHR, Gobes SMH. *Synaptic Morphology in HVC Changes with Song Learning.* Summer Research at the Institute of Neuroinformatics, Zurich, CH 2015

4. **Khaled HG***, Hanlon LA, Huh JW, Raghupathi R. *Combination Drug Therapy for Pediatric Traumatic Brain Injury*. SURF at Drexel University School of Medicine, Philadelphia, PA 2013

5. **Khaled HG^{+}***, Bae AJ^{+}*, Chirathivat N^{+}*, Lotfi S^{+}*, Ortiz AK^{+}*, Radoman M^{+}*, Raja SC^{+}*. *Re-defining the Birdbrain: Investigations of Learning and Memory in Songbirds.* Panel Presentation, Ruhlman Conference, Wellesley, MA, 2013.

POSTER PRESENTATIONS

1. **Khaled HG***, Margolis RL, Hu X, Li PP, Rudnicki DD, Sun X, Zheng W, Ye W, Patnaik S, Southall N, Marugan J, Ferrer M. *A HTS of small molecules that suppress* HTT *promoter activity or activate the* HTT-AS *promoter: An alternative approach to decreasing huntingtin expression.* Johns Hopkins University School of Medicine, Department of Psychiatry & Behavioral Sciences Annual Potpourri, Baltimore, MD 2018.

2. Li PP*, **Khaled HG**, Rudnicki DD, Margolis RL. *Bidirectional transcription at the PPP2R2B gene locus in spinocerebellar ataxia type 12.* Johns Hopkins University School of Medicine, Department of Psychiatry & Behavioral Sciences Annual Potpourri, Baltimore, MD 2017.

3. Akimov SS*, Rudnicki DD, Encarnacion M, Sun X, **Khaled HG**, Sareen D, Ross CA, Margolis RL. *Comparative study of HDL2 and HD iPSC Models*. Huntington's Disease Therapeutics Conference, CHDI Foundation, Malta, IL 2017

4. Margolis RL*, Li PP, **Khaled HG**, Rudnicki DD, Ferrer M, Sun X, Zheng W, Ye W *A small molecule approach to lowering mutant huntingtin.* Huntington's Disease Therapeutics Conference, CHDI Foundation, Malta, IL 2017

5. **Khaled HG***, Huang Z, Hahnloser RHR, Gobes SMH. *Song exposure affects HVC ultrastructure in juvenile zebra finches.* Society for Neuroscience Meeting, San Diego, CA 2016.

6. **Khaled HG[+]***, Elabbady LT[+]*, Huang Z, Ambegoda T, Hahnloser RHR, Gobes SMH. *Song exposure affects HVC ultrastructure in juvenile zebra finches.* Songbird5 Satellite Conference at the Society for Neuroscience Meeting, Chicago, IL 2015.

7. **Khaled HG***, Huang Z, Hahnloser RHR, Gobes SMH. *Song exposure affects HVC ultrastructure in juvenile zebra finches.* Wellesley College Summer Research Poster Session, Wellesley, MA 2014.

* Presenting author(s) [+] Equal authorship

SERVICE & LEADERSHIP POSITIONS

***Thread: The New Social Fabric*, "**Head of Family" 2016 – present
Head a team of volunteers to create a support network for Baltimore students from low socioeconomic backgrounds facing academic failure.

1000 Girls, 1000 Futures, Mentor March 2018 – Dec 2018
Mentored high school & early college students interested in STEM. Sustained an online community to encourage this interest and support young female scientists.

Wellesley College Al-Muslimat, President 2015-2016
Directed student organization of approximately 50 members. Coordinated with administration and College President to develop action plan in response to islamophobic events on campus.

University of Pennsylvania Innoworks, Mentor Summer 2014
Guided a team of underprivileged middle school students in a science summer camp.

Chinatown Afterschool Program, Counselor 2014
Led a classroom of elementary students from low income backgrounds in Boston Chinatown once a week. Organized engaging educational activities, such as science experiments.

HONORS & AWARDS

National Science Foundation Graduate Research Fellowship, Honorable Mention 2019
Thread "Outstanding Support" Award 2018
Departmental Honors in Biochemistry 2016
A. Arthur Gottlieb, M.D., Endowed Memorial Prize in Biochemistry 2016
Nomination to Sigma Xi, the Scientific Research Society 2016
American Society for Biochemistry & Molecular Biology Degree Certification 2016
Seven College Conference of London Research & Travel Award 2015
Neducsin Foundation "Spirit of Manayunk" Scholarship 2012

PROFESSIONAL MEMBERSHIPS

New York Academy of Sciences (NYAS) Honorary Member 2012-2016, 2018-2019
American Society for Biochemistry & Molecular Biology 2016-2017
Society for Neuroscience 2015-2017
NeXXt Scholars Program, in partnership with U.S Dept of State & NYAS 2012-2016