

# HOUDA KHALED

ORCID ID: 0000-0002-0759-0272 • hkhaled@nyu.edu

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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

**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;7:e37571. <https://doi.org/10.7554/eLife.37571>
2. **Khaled HG**, Feng H<sup>+</sup>, Hu X<sup>+</sup>, Sun X<sup>+</sup>, Zheng W, Li PP, Rudnicki DD, Ye Wenjuan, Chen YC, Southall N, Marugan J, Ross CA, Ferrer M, Henderson MJ, Margolis RL. A high-throughput screening to identify small molecules that suppress *huntingtin* promoter activity or activity *huntingtin-antisense* promoter activity. *Sci Rep* 11, 6157 (2021). <https://doi.org/10.1038/s41598-021-85279-2>

## **ORAL PRESENTATIONS**

1. **Khaled HG\***, Hu X, Li PP, Kang MJ, Rudnicki DD, Sun X, Zheng W, Ye W, Patnaik S, Southall N, Marugan J, Ferrer M, Henderson M, Margolis RL. *Endogenous Regulation of Huntingtin Expression as a Therapeutic Target for Huntington's Disease*. Division of Neurobiology Meeting. Baltimore, MD, 2019.
2. **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.
3. **Khaled HG\***, Huang Z, Hahnloser RHR, Gobes SMH. *Changes in Synapse Morphology Associated with Song Learning*. Third Annual Biochemistry Retreat, Wellesley, MA 2016
4. **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
5. **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
6. **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\***, Hu X, Li PP, Kang MJ, Rudnicki DD, Sun X, Zheng W, Ye W, Patnaik S, Southall N, Marugan J, Ferrer M, Henderson M, Margolis RL. *A small molecule approach to suppression of HTT expression*. Johns Hopkins University School of Medicine, Department of Psychiatry & Behavioral Sciences Annual Potpourri, Baltimore, MD 2019.
2. **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.
3. 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.
4. 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

5. 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
6. **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.
7. **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.
8. **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

## **TEACHING EXPERIENCE**

**New York University, Teaching Assistant** Fall 2020  
 NEURL-UA 210: Cellular & Molecular Neurobiology. Held biweekly recitations, answered student's questions, graded assignments and exams.

## **SERVICE & MENTORSHIP**

**New York Cares, College Application Mentor** 2019 – present  
 Guide low-income high school students in New York City through college application workshops hosted by The Fresh Air Fund.

**UStrive, College Application Mentor** 2019 – present  
 Meet virtually with high school students to support their college application process, including developing a college list, writing personal statements, managing financial aid, and applying for scholarships.

**1000 Girls, 1000 Futures, Mentor** 2018, 2020 – present  
 Mentor high school and college student interested in STEM. Sustain an online community to encourage this interest and support young female scientists.

**Thread: The New Social Fabric, “Head of Family”** 2016 – 2019  
 Led a team of volunteers to create a support network for Baltimore students from low socioeconomic backgrounds facing academic failure.

**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 Innworks, Mentor** Summer 2014  
 Guided a team of Philadelphia 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
New York University Dean's Fellowship Program Award	2019
New York University Opportunity Fellowship Program Summer Award	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 – present
American Society for Biochemistry & Molecular Biology	2016 – 2017
Society for Neuroscience	2015 – 2017, 2019
NeXXt Scholars Program, in partnership with U.S Dept of State & NYAS	2012 – 2016