

## BIOGRAPHICAL SKETCH

NAME: Ashery, Uri

POSITION TITLE: Professor, Neurobiology department

### EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
Hebrew University, Jerusalem	BS	1990	Biology and Chemistry
Hebrew University, Jerusalem	PHD	1996	Neurobiology
Max Planck Institute, Göttingen	Postdoctoral Fellow	2001	Neurobiology

### A. Personal Statement

I have been investigating the molecular mechanisms of synaptic transmission and plasticity over the last 20 years starting in my postdoctoral studies with Prof. Erwin Neher in Göttingen and in the last 17 years as an independent investigator at Tel Aviv University. During this time, my lab developed several approaches and opened new directions to understand the molecular mechanisms of vesicle priming and fusion. Specifically, we have characterized the roles of Munc13 in the priming process of chromaffin and the significance of Munc13 and RIM interaction in neuron. We initially defined tomosyn, DOC2B and Munc18 action in chromaffin cells using electrophysiology and TIRF measurements and developed new kinetic models that describe vesicle exocytosis. We have applied TIRF microscopy to analyze vesicle movement and used the dSTORM technique to investigate the distribution of synaptic proteins in chromaffin cells in 20 nm resolutions. Recently, we have started to investigate the roles of synaptic proteins in synaptic plasticity in the hippocampus. We have successfully developed stereotaxic microinjection of lentiviral plasmids into hippocampal domains to provide optogenetic control of excitability and to knock out specific proteins that are important in synaptic transmission, including tomosyn. Currently we are studying cAMP dependent synaptic plasticity pathways in the hippocampal mossy fiber synapses using optogenetics and pharmacogenetics. In the last years we are applying super resolution microscopy and meta-analysis to study early steps in aggregation of TDP-43 in ALS and alpha-synuclein in Parkinson's disease and we are using specific aggregate inhibitors and investigate their effects on early aggregate formation. The combination of single molecule imaging and advanced analysis is starting to reveal novel early steps in aggregate formation that can be used as new early biomarkers for ALS and PD and the method is starting to elucidate new mechanism of action of aggregate inhibitors. In a parallel study, we treated AD transgenic mouse models with hyperbaric oxygen treatment and revealed significant improvement in mice behavior and rescue of AD symptoms like reduced hypoxia, reduced amyloid plaques, increase survival of adult-newborn neurons and improvement in blood flow.

### B. Positions and Honors

#### Positions and Employment

1989 - 1990    Research Assistant in Neurobiology, Hebrew University, Jerusalem  
 1990 - 1990    Research work in Membrane Biophysics, Max Planck Institute, Göttingen  
 1990 - 1996    Instructor, Student lab head in Neurobiology, Hebrew University, Jerusalem  
 1996 - 2001    Research Associate in Membrane Biophysics, Max Planck Institute, Göttingen  
 2001 - 2005    Lecturer, Neurobiochemistry department, Tel Aviv University, Tel Aviv  
 2005 - 2009    Senior Lecturer, Neurobiology department, Tel Aviv University, Tel Aviv  
 2008 - 2009    Sabbatical Leave, Research associate, NIA, NIH, Baltimore, MD  
 2009 - 2012    Associate Professor, Neurobiology department, Tel Aviv University, Tel Aviv  
 2017 - 2018    Sabbatical Leave, Research associate, NINDS, NIH, Bethesda, MD  
 2013 -         Professor, Neurobiology department, Tel Aviv University, Tel Aviv

## **Other Experience and Professional Memberships**

2004 - 2007 Head of a B.Sc. program for brain studies, Tel Aviv University  
2006 - 2006 Initiator of a new Ph.D. program in Neurosciences, Tel Aviv University  
2007 - 2011 Head of the new Ph.D. program in Neurosciences, Tel Aviv University  
2010 - 2012 Chair, Department of Neurobiology, Tel Aviv University  
2011 – 2017 Head, Sagol School of Neuroscience, Tel Aviv University  
2018 - Head, Sagol School of Neuroscience, Tel Aviv University

## **Honors**

1988 Deans prize of Excellency for undergraduate students, Hebrew University  
1992 Wolf prize for Ph.D. students, Wolf Foundation  
1993 "Leon David Asseo" Scholar for Excellency for Ph.D. students, Hebrew University  
1995 "Intel-Deans" Prize for Excellency for Ph.D. students, Hebrew university  
1999 "Landau" prize for biology, Hebrew University  
2002 Dan David Prize, Tel Aviv University  
2005 List of 10 best lecturers in the Life Sciences Faculty, Tel Aviv University  
2006 List of 10 best lecturers in the Life Sciences Faculty, Tel Aviv University  
2006 The Bernard Katz Prize for Neurosciences, Israel Society for Neuroscience