

To: The Dean of Graduate Studies

From: PhD student

Name: \_\_\_\_\_ Adi Kfir

I.D. \_\_\_\_\_ 039512124 \_\_\_\_\_

Department \_\_\_\_\_ Neurobiology \_\_\_\_\_

Stage: (please circle) 1st Stage / **2nd Stage**

## Annual Progress Report

**Submission to the Graduate studies Authority by the departmental secretary only**

### Part A – designated for PhD Student

Describe the goals as presented on your letter of intentions/ research proposal, and your current research achievements.

**My research focuses on the electrophysiological modifications that appear following learning and memory, especially the intrinsic properties of cells in the piriform cortex of rats. The subject of my PhD project is the role of GluR6, a kainate-sensitive subtype of glutamate receptors, which has been suggested to have a specific central role in higher-order learning. This research is planned with the ultimate goal of developing a novel cognitive enhancer. By combining behavioral studies, single cell recordings, pharmacological tools, and genetically modified animals, our research is investigating the relation between kainate receptor activation and learning in the mammalian brain. Furthermore, we aim to point towards possibilities of enhancing learning skills in young and aging brains.**

**This year we found that GluR6 - virus injected rats showed higher learning capabilities, manifested as an improved learning of the behavioral discrimination task. These rats learnt the "rule learning" of the maze much faster than control rats. Our next step is to further explore these virus- injected rats and to investigate their electrophysiological features. Additionally we are continuing experiment with knockout mice lacking the Kainate receptor subunit Glur6.**

**This year I have also started a new project investigating the inhibition-excitation activity and balance in the piriform cortex. This research has an outstanding importance in the study of the basis of many brain disorders.**

Estimated date for submitting PhD research proposal/ dissertation to the PhD departmental committee

\_\_\_\_\_2016\_\_\_\_\_

Ph.D. student Name: \_\_\_\_\_Adi Kfir\_\_\_\_\_ Signature: \_\_\_\_\_ Date: 31.3.15\_\_\_\_\_

**Part B - designated to the research the Chairperson of PhD Committee)**

Please refer to the student progress and to the estimated date for submission of research proposal / dissertation

Adi made excellent progress this year. She has been advancing nicely in exploring the effect of kainite on cortical synaptic plasticity, to determine whether its effect is indeed restricted to modulation of intrinsic properties as we hypothesize.

In addition she has been studying the molecular basis of learning induced shift of the chloride current – an important factor in maintaining network stability in face of learning-induced changes.

I have no doubt that she graduate on time, with data that would result in two new papers, at least.

**PhD research evaluation**

(The evaluations relate to all researches previously supervised by you)

Evaluation	Poor	Average	Good	Very good	Ranked in the top 5%
Novelty				x	
Clarity of research and hypothesis				x	
Criticism				x	
Knowledge of Background material				x	
Knowledge of research methods				x	
Comments					

Supervisors Name: Edi Barkai Signature: Edi Barkai Date: 01.04.2015

Chairperson of PhD Committee Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_