



Center for Molecular and Behavioral Neuroscience
György Buzsáki, MD, PhD, Board of Governors Professor

April 5, 2012

Dear Committee Members:

I am writing this letter to support Dr. George Dragoi's application for a tenure track position at your Institution.

George Dragoi was an international student from Romania in our Behavioral and Neural Sciences Ph. D. program. After his first rotation in Dr. Tepper's patch clamp laboratory he did two consecutive rotations in my laboratory. He collaborated with a senior graduate student to examine the subcortical effects of hippocampal activity in the freely behaving animals. George has quickly learned all the surgical techniques and procedures and began to function independently after the first 3 months or so. He has performed several successful experiments, including simultaneous recording of unit activity from the medial septum, lateral septum and hippocampus, using independently movable microelectrode arrays. The amount of data he collected formed the basis of his Comprehensive Examination and formed the basis of a significant paper that he published as a first author in **Journal of Neuroscience**. In our program, students take this difficult examination at the end of the second year. George did it after only one year in the program and passed it with distinction. In addition to his excellent progress in the laboratory,

George Dragoi did very well on all his examinations and held the highest GPA in his class.

After his rotations, George requested to do his dissertation work in my laboratory. For 3 years that followed he was involved in a complex project, which required simultaneous recording of several dozens of CA3 and CA1 pyramidal cells simultaneously. The goal of his project was to examine how perturbation of synaptic weights within the hippocampus impacts single neuron representation of the environment. In these experiments, George was able to generate new place cells and make existing place cells disappear, giving support for the importance of synaptic plasticity for the emergence and maintenance of place representation in hippocampal networks. His results were published in **Neuron**. The final and most complex set of experiments of his dissertation involved the question of how assemblies of place cells relate to each other. According to most prominent models available at the start of his project, hippocampal place cells were assumed 'represent' landmarks in the environment and these landmarks determine how neurons relate to each other in time during the theta cycle. In contrast to this assumption, George provided compelling evidence that assembly interactions were largely due to intrahippocampal (or at least theta oscillation-related) mechanisms. These results were also published in **Neuron**, and this latter work became George's most cited paper. His second Neuron paper was highlighted by an accompanying News and Views article. George is a very careful writer. He has read all - I mean all- the relevant papers in the literature and pointed out the often not so obvious reasons for the controversies of the different findings. Overall, these accomplishments clearly demonstrate that George Dragoi is a strongly motivated scientist, asking important questions and finding the effective means to tackle

them. Although his background education is medicine, during his graduate years, George has learned a great deal of data analysis methods, needed to stay competitive in system neuroscience. After he moved on to continue his studies as a postdoctoral fellow, we have often consulted about his ongoing experiments and progress. Even in his new environment, he continued to be the designer and the performer of all his experiments, as clearly illustrated by his recent celebrated paper in **Science**.

In summary, Dr. George Dragoi is a mature thinker and careful experimenter, who has a solid grasp of contemporary neuroscience with an excellent background training. He has all the necessary ingredients, including the critical personal drive, needed to become a successful scientist.

Sincerely,



György Buzsáki