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Dear Members of the Search Committee:

I am writing to enthusiastically support Dr. Martin Muschol's application for the open faculty position in your Department. Martin is truly exceptional. He is as creative, intelligent, competent, and independent as any young scientist I have known.

I personally know Martin since he joined Brian Salzberg's laboratory at the Department of Neuroscience at the University of Pennsylvania early in 1996. At that time, my laboratory was directly adjacent to Brian's laboratory before I moved on to ARLDN at the University of Arizona in June 2002. Since Brian's and my laboratory shared mutual interests, we set up a common "synapse journal club", and members of our laboratories immediately started heavily to interact. Thus, I am very familiar with Martin's scientific work and I fondly recall many interactions and lively discussions with Martin while we were colleagues.

Martin had no training in Neurobiology prior to his arrival at the University of Pennsylvania – his Ph.D. is in Physics. However, Martin impressed me from the start with his keen interest in all aspects of synaptic physiology and the various techniques (genetic, biochemical, electrophysiological or imaging) used to study it. During his tenure at Penn, Martin has evolved from a curious outsider into an expert in state-of-the-art imaging techniques dissecting mechanisms of synaptic physiology. In 1999, he successfully applied for an NIH Research Training Award and was promoted to the position of Research Assistant Professor in the Department of Neuroscience.

In the past years, Martin made several highly significant contributions. While studying dynamics of calcium release in secretory terminals, Martin revealed that caffeine directly affected the fluorescence of calcium indicator dyes (*Biophysical Journal*, 1999). Since caffeine is widely used to deplete intra-cellular calcium stores, this observation had significant implications for many other cell-physiological studies of intracellular calcium dynamics, in particular those, which relied on measurements using calcium indicator fluorescence.

Martin's next study revealed that stimulation-evoked calcium transients from a large population of terminals display either strong facilitation or depression, pending on the pattern of stimulation (*J. Neurosci.*, 2000). While facilitation of release is a common feature of short-term plasticity, facilitation of calcium influx is not. An apparent mechanism of this facilitation could be a broadening of the action potentials invading the terminals. However, using optical recordings of transmembrane voltage, Martin showed that action potential broadening is very weak in this system and fails to correlate with conditions required for the facilitation calcium fluxes (*J. Neurosci.*, in press). More significantly, his optical data suggest that the excitability of nerve terminals themselves is suppressed by calcium build-up, while axons continue to transmit action potentials faithfully. Hence, his studies revealed an intriguing new model for generating presynaptic depression.

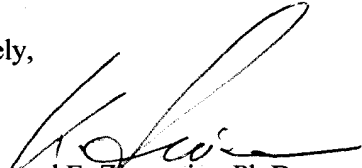
In summary, Martin is a very successful, well focused, well disciplined, highly talented, and thus, outstanding scientist, who shows great promise for a successful research career. I very much valued our regular

discussions, and I found him to be a very helpful sounding board for my ideas. Indeed, on several occasions I asked Martin for feedback on article and grant application drafts, and always valued his input. Needless to say, I could always count on him to raise critical issues. Personally, Martin is a caring person and an excellent “citizen” who extends himself to colleagues and students alike.

In conclusion, I have described that Dr. Martin Muschol has the unique expertise of several key areas that are essential to successfully compete at the forefront of this highly competitive area in Neuroscience. I can assure you that Martin is an excellent scientist and a caring teacher. I enthusiastically support Martin’s application on the basis of our personal interactions and his scientific work. I have no doubt that he will be an asset to any department that hires him.

Should you have any additional questions, please do not hesitate to contact me.

Sincerely,



Konrad E. Zinsmaier, Ph.D.

Associate Professor of Neurobiology

Associate Professor of Molecular & Cellular Biology