



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service  
National Institutes of Health

National Institute on Deafness  
and Other Communication Disorders  
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DATE: January 20, 2016

TO: Shirlene Smith, NIH/OD/OLAO

FROM: Catherine Weisz, Investigator and Acting Chief, Section on Neuronal Circuitry (SNC), NIDCD, NIH

SUBJECT: Brand Name Justification for purchase of Nikon A1R Resonant Galvo Confocal

The purchase of a Nikon A1R resonant galvo / galvo confocal microscope system is requested. The custom A1R system combines hardware and optics for single-cell electrical recordings, confocal (laser based high resolution) imaging, and photo-stimulation via both built-in lasers as well as an added LED-based DMD system (patterned excitation through a 2-dimensional array of switch-able mirrors). This combination of equipment is necessary for the studies of activity of neurons in the auditory system that are the foundation of work in the lab. Further, two features of the Nikon system provide the optimal optics required for experiments that require excellent images, but using low laser power to limit damage to living cells. The first feature is high-speed spectral un-mixing of emission spectra, which allows detection of fluorescently labeled cells with overlapping emission spectra (closely, but different colored cells). Second, a hexagonal instead of square pinhole through which 30% more light passes compared to comparable systems allows imaging using less laser power, and therefore less damage to tissue. This is critical in experiments involving living neurons. In addition, the Nikon system has the most digital input and output channels that allow integration with other required hardware components, compared to similar microscope systems from other manufacturers.

Nikon microscopes are exclusively used by an adjacent lab within the institute with whom we have planned collaborative projects, allowing sharing of equipment, as well as data using Nikon Elements software in a collaborative project. For efficiency of operation, continuing with the same Nikon platform is expected to reduce labor costs in the maintenance, data analyses, training, and operations of this instrument.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Catherine J.C. Weisz", is written below the "Sincerely yours," text.

Catherine J.C. Weisz, Ph.D.

Acting Chief, Section on Neuronal Circuitry

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