

## **Research Development Fund – FY17 Request for Applications**

### **Proposal Title: Enhancing Microscopy for Life Sciences at TAMU**

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Participating Units: COS, AgriLife, HSC

Total \$ amount requested: 197,600

#### Executive Summary:

This proposal is aimed at addressing core infrastructure needs for enhancing microscopy tools for Life Sciences at TAMU. Recent investments have significantly advanced our electron microscopy capabilities on campus. In addition, currently underway are upgrades to laser scanning confocal microscopy capabilities in the Microscopy and imaging Center (MIC) that will enable high resolution light microscopy and correlative imaging for biosafety level 1 (BL-1 samples). However, the key missing element in the current imaging infrastructure is the ability to do rapid low-light fluorescence microscopy screening of large tissue samples, live Biosafety Level 2 (BL-2) samples and extended time-lapse live imaging of live samples with sufficient 3D resolution. There is a growing demand for a compact, user-friendly instrument, both for routine screening in biological experiments such as drug screening, as well as for pre-selection of samples for high resolution confocal imaging.

Here, faculty from COS, AgriLife and HSC are seeking funding for a self-contained biological fluorescence microscope with sensitive detection, 3D optical sectioning, and built-in environmental control. Alongside with this instrument, funding for lab remodel, a biological safety cabinet, and a CO2 incubator is also requested. This will allow establishing a BL-2 live imaging suite and allowing researchers to maintain/condition their live samples in the imaging lab before the experiment.

The proposed instrument will be integrated into the existing Microscopy and Imaging Center core facility whereby the existing infrastructure is already in place to ensure access, training and maintenance of this tool. MIC Serves a wide audience across COS, AgriLife and the HSC and include the primary faculty on whose behalf this overall request is being submitted, and those key faculty are listed in the proposal.