Fluorescent beads & multiphoton detection systems

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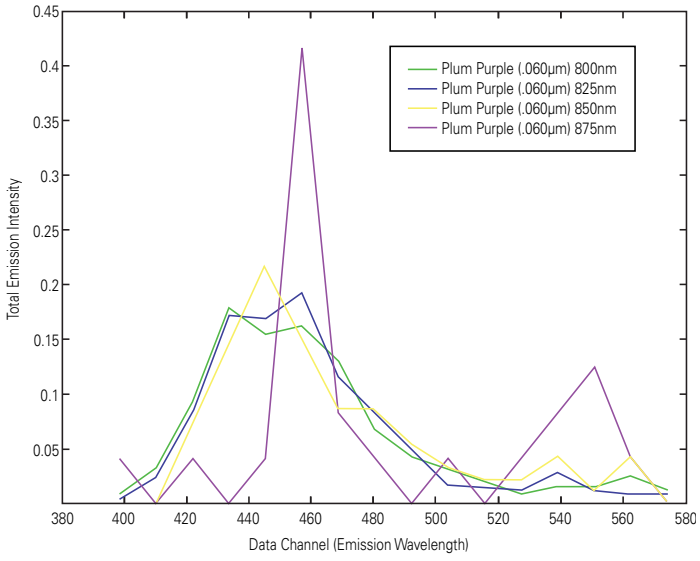
FLUORESCENT BEADS AND MULTIPHOTON DETECTION SYSTEMS:

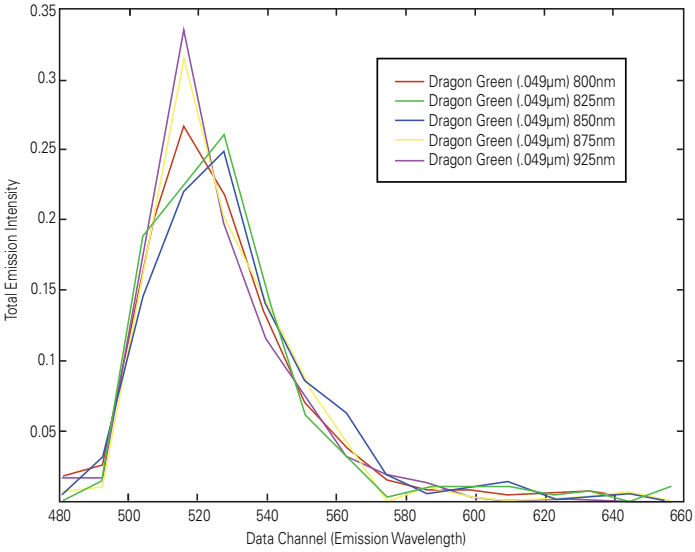
Two-photon or multiphoton microscopy detection systems are becoming increasingly popular as alternatives to traditional fluorescence or confocal microscopy for imaging tissue samples. Multiphoton excitation involves the use of low energy, long wavelength (e.g. IR) laser light to excite common fluorophores that have excitation maxima in the visible region. Excitation of the fluorophore occurs when two photons of red-shifted light are simultaneously absorbed, and subsequent emission is at shorter wavelengths (typically in the visible spectrum). Compared with light from shorter wavelength lasers, IR laser light causes less damage to living tissue and minimizes background signal resulting in millimeter-scale imaging depth capabilities for multiphoton detection systems.[1,2,3]

We do not have two-photon imaging or spectrocopy systems in-house for characterizing all of our fluorophores, but two-photon absorption spectra are available for the following fluorescent dyes:

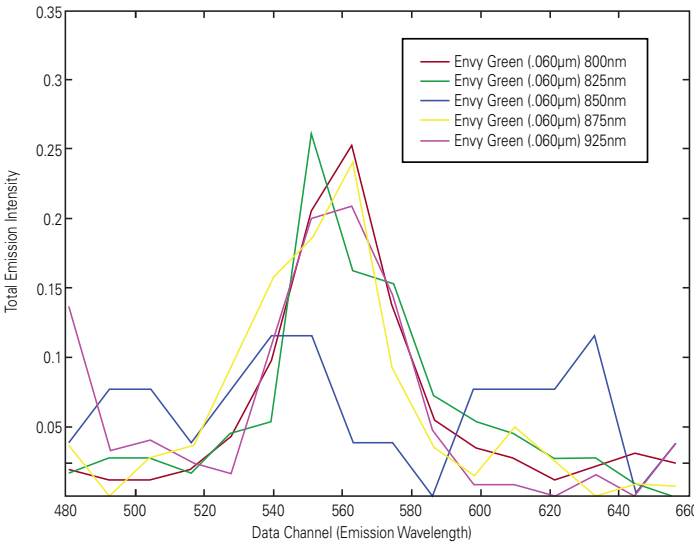
Plum Purple (360, 420)



Dragon Green (480, 520)



Envy Green (525, 565)



REFERENCES

1) **Denk W, Strickler JH, Webb WW.** (1990) Two-Photon Laser Scanning Fluorescence Microscopy. *Science*. Apr.;248(4951):73-6.

2) **Kobat D, Durst ME, Nishimura N, Wong AW, Schaffer CB, Xu C.** (2009) Deep tissue multiphoton microscopy using longer wavelength excitation. *Optics Express*.;17(16):13354-64.

3) **Young PA, Clendenon SG, Byars JM, Decca RS, Dunn KW.** (2010) The effects of spherical aberration on multi photon fluorescence excitation microscopy. *Journal of Microscopy*. May;242(2):157-65.