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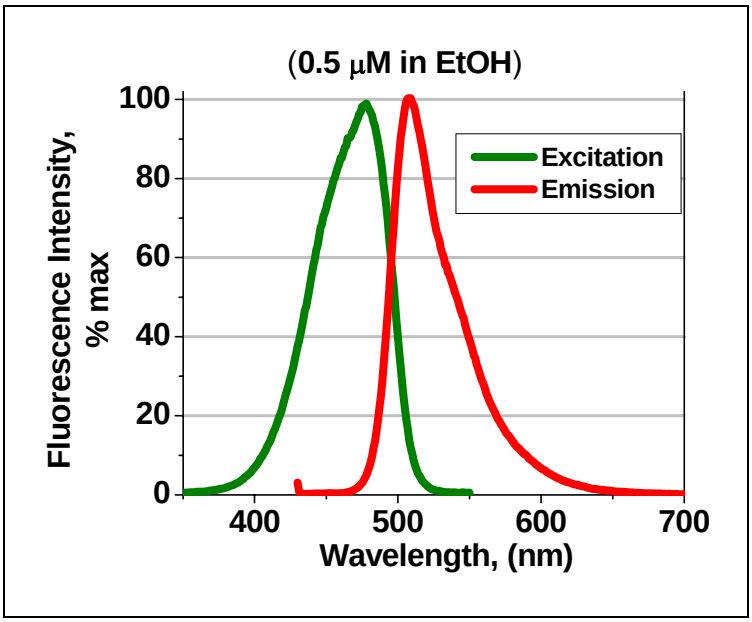
Catalog Number: **FS-1006**

Product Name: **NeuroVue® Jade Filter Square For Neuronal Tract Tracing**

Product Description: 1cm^2 nylon filter coated with the lipophilic green emitting dye, NeuroVue Jade. Typical dye loading: 11-14nmoles/mm^2

Figure 1. Spectra of NeuroVue Jade (ex max=478nm; em max =508nm)



Storage/Stability: Store in the dark at room temperature.

Applications:
NeuroVue Jade is an analog of NeuroVues Emerald and Green (1, 2, Protocol NT 001) with optimized diffusion properties for studies in formaldehyde fixed small embryos for at least 5 days (4). For these types of studies in fixed tissue, NeuroVue Jade can be applied simultaneously in combination with NeuroVue Maroon, NeuroVue Red and/or NeuroVue Orange to provide 3-4 color tracing of neuronal connections (personal communication, B. Fritzsch, Creighton University). Like other lipophilic tracers (3, 5), it readily transfers into plasma membranes in fixed tissues and diffuses laterally within the membrane, eventually labeling the entire cell body as well as the finest axonal and dendritic branches, and allowing visualization of neuronal processes up to several millimeters distant from the point of dye insertion (1, 2, 4).
NeuroVue Jade is provided in coated filter format because insertion of small dye coated filter segments has been shown to be a simple, reliable method for labeling well defined tissue regions, avoiding known artifacts associated with labeling via high pressure microinjection or insertion of dye crystals on a dissecting needle (3,

6, 7). NeuroVue Jade fluoresces in the green region of the spectrum (Figure 1) and exhibits minimal bleed through into filter windows typically used for the visible fluorescing lipophilic tracers, DiI, NeuroVue Red (Cat. #. FS1002), NeuroVue Orange (cat # FS-1003) and also the far red fluorescing NeuroVue Maroon (cat # FS-1001) and NeuroVue Burgundy (cat # FS-1005), making it an excellent choice for multicolor neurotracing studies in sections and/or whole-mount preparations (1, 2, 4) for periods of at least 5 days.

Additional Important Information

1. Filter segments of the desired size and shape can be cut using super fine Vannas scissors (one possible supplier is World Precision Instruments, Sarasota, FL, cat #500086) and inserted into the tissue at the site to be labeled. Protocol NT001 can be downloaded for further details
2. Diffusion times vary depending on the biological system under study and must be determined empirically. See cited references and protocol NT001 for potentially important variables and possible starting conditions.
3. Detection of Labeled Cells

   a) Confocal microscopy: Detection is most efficient using the 488nm laser line for excitation and emission filter set at 500-530nm.

   b) Epifluorescence microscopy:

   Standard filter sets potentially useful for NeuroVue Jade excitation and emission include:

   - Chroma #31001 (FITC/RSGFP/FLUO 3/DiO). Exciter D480/30x, Dichroic 505DCLP, Emitter D535/40m.
   - Chroma #41001 (FITC/RSGFP/BODIPY/FLUO 3/DiO). Exciter HQ480/40x, Dichroic Q505LP, Emitter HQ535/50m

References:

1. Fritzsch B, Muirhead KA , Feng F , Gray BD, Ohlsson-Wilhelm BM. 2005. Diffusion and Imaging Properties of three new lipophilic tracers, NeuroVue (TM) Maroon, NeuroVue(TM) Red and NeuroVue(TM) Green and their use for double and triple labeling of neuronal profile. **Brain Res Bull**., 66, 3, 249-258
2. Fritzsch B, Jackson Lab Presentation, 2005: http://www.biomedsci.creighton.edu/facilities/nccb/media/Jackson_lab_presentation.ppt ***NeuroVue Green*** *(previously PTIR281);****NeuroVue Red*** *(previously PTIR278);****NeuroVue Maroon*** *(previously PTIR271)*
3. Honig M. 1993 DiI Labelling. **Neuroscience Protocols** 93-050-16-01-20 .
4. Jensen-Smith H, Gray B, Muirhead K, Ohlsson-Wilhelm B, Fritzsch B. 2007. Long distance three-color neuronal tracing in fixed tissue using NeuroVue® dyes. **Immunol. Invest**., 36, No 5-6, 763.
5. Köbbert C, Apps R, Bechmann I, Lanciego JL, Mey J,Thanos S. 2000. Current concepts of neuroanatomical tracing. **Progress in Neurobiology** 62: 327-351.
6. Fritzsch, B, Nichols DH, Echelard Y, McMahon AP. 1995. Development of midbrain and anterior hindbrain ocular motoneurons in normal and Wnt-1 knockout mice, **J Neurobiol**. 27:457-469.
7. Rosa-Molinar E, Proskocil BJ, Ettel M and Fritzsch B. 1999. Whole-mount procedures for simultaneous visualization of nerves, neurons, cartilage and bone. **Brain Res. Protoc**. 4, 115-123.

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