

SRfluor[®] Dyes

What are they?

SRfluor[®] dyes belong to the family of squaraine rotaxane dyes which exhibit absorption and emission properties in the far-red region of the spectrum.

What do SRfluor[®] dyes offer?

- 5-20 brighter compared to Cy5, Alexa[®] and Atto dyes
- More photostable compared to Cy5, Alexa[®] and Atto dyes
- Sharp absorption and fluorescence emission profiles
- Available with a range of functionalities to allow conjugation with biomolecules for *in vitro* and *in vivo* imaging
- Other analogs with ability to label the intracellular lipid regions of cells or bind to metal ions also available

Selected Applications

a) SRfluor[®] 680 Phenyl: This lipophilic SRfluor[®] dye rapidly accumulates in lipid regions inside living cells. For example, probe localization with Chinese Hamster Ovarian (CHO) cells is primarily in the ER (Figure 1A) whereas in human lung carcinoma (A549) cells uptake is mainly in the lipid droplets (Figure 1B).

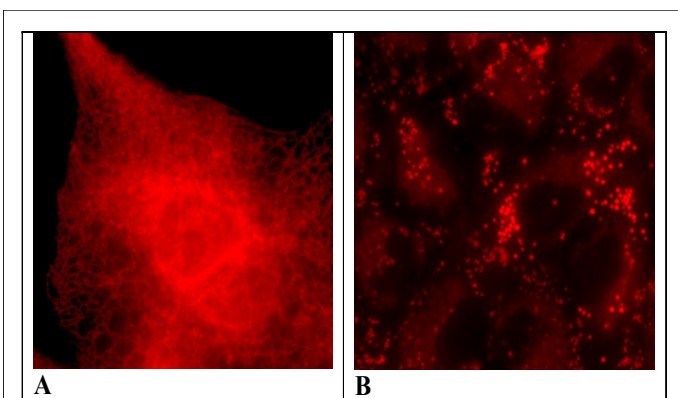


Figure 1: Fluorescence microscopy images of live mammalian cells treated with SRfluor[®] 680 Phenyl. (A) Endoplasmic-Reticulum staining of a single CHO cell. (B) Lipid droplet staining in A549 cells.

b) SRfluor[®] 680 NHS ester: This dye readily undergoes conjugation to various biomolecules via free amino groups. For example, Prof. Bradley Smith and coworkers at the University of Notre Dame have shown that by conjugating the SRfluor[®] dye with a bacteria targeting Zn-dipicolyl amine ligand, they could perform fluorescence imaging experiments that were previously impossible with the corresponding cyanine dye based probes. Figure 2 shows a montage of images at various time points from a 30 minute movie monitoring binary fission of *E. coli* cells stained with a SRfluor[®] probe.

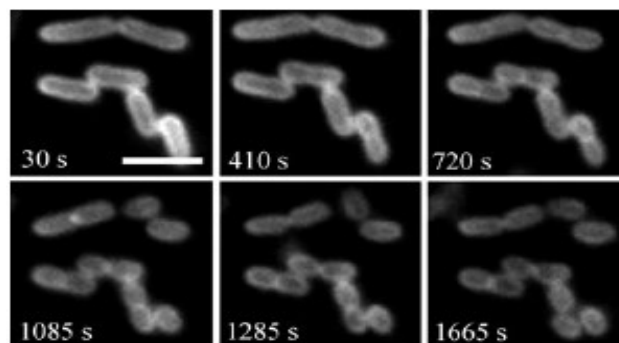


Figure 2: Binary fission of *E. coli* cells stained with SRfluor[®] probe. The cells were imaged every 5 s for 30 min by fluorescence microscopy. The times stated in each panel correspond to the movie time point and the scale bar represents 2 μ m.

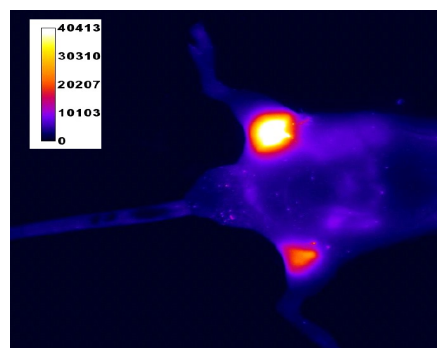


Figure 3: Optical image of a live mouse with subcutaneous injections of *S. aureus* and *E. coli* that were prelabeled with SRfluor[®] probe. The entire animal was irradiated with filtered light at $\lambda = 625 \pm 40$ nm and an image with emission intensity at $\lambda = 670 \pm 20$ nm was collected by a CCD camera during a 5 s acquisition period.

Image courtesy of Professor Bradley Smith, University of Notre Dame, Indiana, USA.

c) Researchers at the University of Notre Dame have also demonstrated the imaging properties of SRfluor[®] dyes in a live mouse. They labeled *E. coli* and *S. aureus* bacteria with SRfluor[®] dyes and injected them subcutaneously near the posterior thigh muscles of a living nude mouse. Fluorescence image of the entire animal was subsequently acquired using a Kodak 4000MM fluorescence-imaging station. As illustrated in Figure 3 both sites of bacterial inoculation were very apparent, because fluorescence emission intensities are about 100 times greater than the background signal from other anatomical parts of the mouse.

SRFLUOR® PRODUCT LIST

Catalog Number	Name	Description	Size
SR-1001	SRfluor®680 Phenyl Crystalline Powder	Lipophilic squaraine rotaxane analog that emits in the far-red region of the spectrum and is known to accumulate at lipophilic sites inside living cells. Spectral properties: abs max = 650 nm and emission max = 678 nm in DMSO.	1 mg
SR-1006	SRfluor®680 azide carboxylate Crystalline Powder	Squaraine rotaxane analog that emits in the far-red region of the spectrum and is functionalized with an azide group that can readily undergo click chemistry reactions with reagents or biomolecules with a terminal alkyne group to provide fluorescent conjugates for use in multiple applications. A free carboxyl group is also present in this molecule which can be coupled to amino groups of biomolecules. Spectral properties: abs max = 645 nm and emission max = 668 nm in DMSO.	1 mg
SR-1007	SRfluor®680 alkyne Crystalline Powder	Squaraine rotaxane analog that emits in the far-red region of the spectrum and is functionalized with a terminal alkyne group that can readily undergo click chemistry reactions with reagents or biomolecules with an azide group to provide fluorescent conjugates for use in multiple applications. Spectral properties: abs max = 649 nm and emission max = 673 nm in DMSO.	1 mg
SR-1010	Micellar SRfluor® 680 phenyl dye	Provides an aqueous formulation of the lipophilic squaraine rotaxane dye, SRfluor® 680 phenyl, in micelles composed of DPPE-PEG2000 which is known to accumulate in interscapular brown adipose tissue in mice. Spectral properties: abs max = 646 nm and emission max = 670 nm in DMSO.	100 nmoles

For further information or to place an order please contact Dr. Brian Gray by email briangray@mtarget.com or phone: 610-738-7938.

COMPANY PROFILE

Molecular Targeting Technologies, Inc. is a privately held US-based Biotechnology Company developing novel medical imaging products. MTTI has licensed fluorescence based technologies from PTI Research Inc. (PTIR), giving MTTI the worldwide rights to manufacture, sell and/or distribute PTIR's NeuroVue® and CellVue® product lines for *in vitro* and *in vivo* research applications.

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