



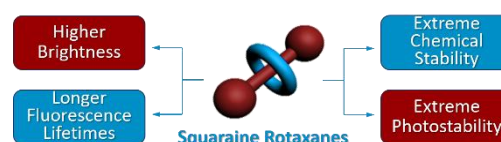
Squaraine Rotaxane Fluorophores

Highly bright and extremely stable dyes, conjugates, and tandems

Squaraine Rotaxanes — The world's **brightest**, **chemically robust**, and **most photostable** fluorophores with **long fluorescence lifetimes** (FLT) for biomedical and pharmaceutical applications. These fluorophores are the best for **Biomedical Imaging**, **Flow Cytometry**, **Microarrays**, **Fluorescence Lifetime**, and **Single-Molecule Applications**.

What are Squaraine Rotaxanes?

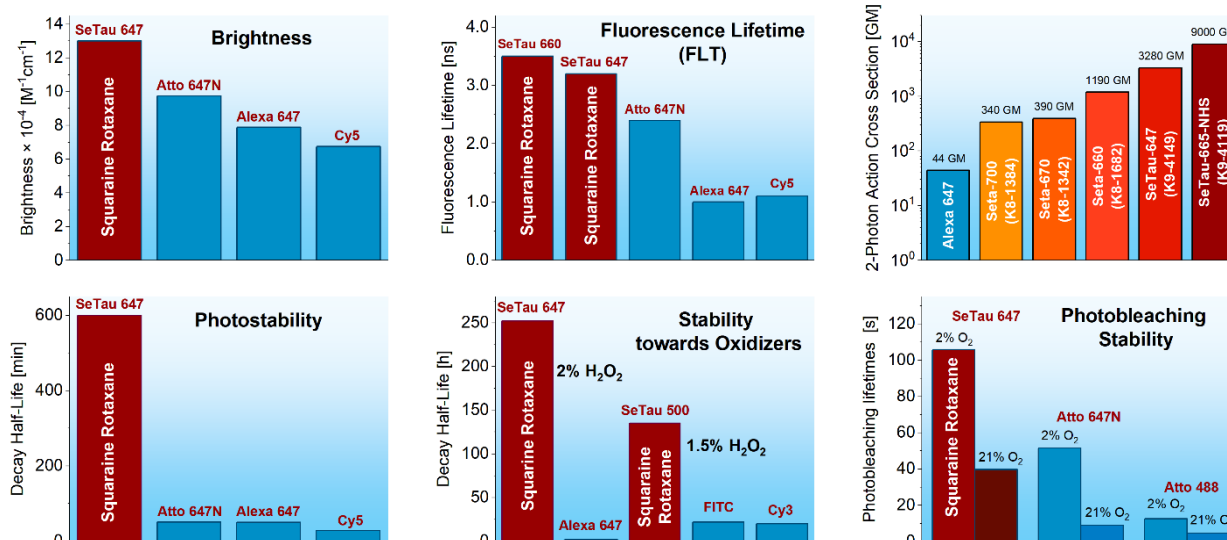
Squaraine rotaxanes are mechanically interlocked molecules in which a squaraine fluorophore is protected by a macrocyclic ring. This unique architecture dramatically improves brightness, chemical stability, and photostability compared to conventional dyes (Cy, Alexa, ATTO, IRDye, Dy, BODIPY, etc.).



Squaraine Rotaxanes are exclusively available from SETA BioMedicals.

Key Advantages

- **Spectral Coverage:** From UV/blue (SeTau-488, SeTau-500) to far-red/NIR (SeTau-647, SeTau-660, SeTau-665, SeTau-670, SeTau-680).
- **Exceptional Brightness:** Quantum yields up to 65% and extinction coefficients up to 295,000 M⁻¹cm⁻¹ (SeTau-633, SeTau-647).
- **Superior Photostability:** Up to 4× slower photobleaching than Alexa 647; best-in-class single-molecule tracking (~106 s exponential lifetime for SeTau-647).
- **High Chemical Stability:** Outstanding resistance to oxidizers (H₂O₂, ozone), ideal for microarrays and oxidative-stress assays.
- **Long Fluorescence Lifetimes:** 2–4 ns in aqueous media compared to conventional cyanine based NIR labels (τ = 0.5–1.5 ns), enabling lifetime-based assays and polarization measurements (e.g., SeTau-500, SeTau-647, SeTau-660, SeTau-680).
- **Large Stokes' Shifts:** 40–60 nm shifts reduce crosstalk and improve sensitivity (e.g., SeTau-486, SeTau-500, SeTau-633, SeTau-647, SeTau-660, SeTau-670, SeTau-680).
- **Two-Photon Excellence:** Action cross-sections up to ~10,000 GM (SeTau-665) for deep-tissue, low-background imaging.

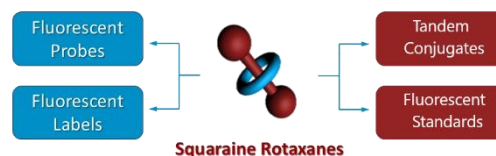


Available Formats

- **Reactive Labels:** NHS-ester (for amines), Maleimide (for thiols), DBCO (for azides), and other functional groups for covalent labeling of biomolecules.
- **Probes:** Cell-permeant (e.g., SeTau-633 ethyl ester) and non-permeant (e.g., SeTau-647) fluorescent probes for live-cell and fixed-cell imaging.
- **Conjugates:** Ready-to-use protein and antibody conjugates for immediate use in flow cytometry, microscopy, and microarrays.
- **Tandem Dyes:** Squaraine rotaxane-based FRET tandem dyes for multicolor flow cytometry and spectral imaging applications.

Applications

- **Super-resolution microscopy** (STED/STORM)
- **Single-molecule tracking** in live cells
- **Flow cytometry** and **lifetime flow cytometry**
- **DNA/protein microarrays** (ozone-resistant)
- **Two-photon in vivo imaging**
- **Oxidative stress and sonodynamic/photodynamic studies**
- **FRET assays** (with fluorescent donors and acceptors, SETA SQ dark quenchers as BHQ/QSY alternatives)
- **Standards** for fluorescence quantum yield, polarization, and fluorescence lifetime measurements and calibration.



Product Number (Specs Sheet)	Product Name (Product Info)	Target Group	488	635	650	680	Medium	λ abs [nm]	ϵ [M ⁻¹ cm ⁻¹]	λ em [nm]	QY [%]	FLT [ns]
K9-3152	SeTau-488-NHS	NH ₂	•				PBS 7.4	486	59,000	532	27	1.2
K9-3153	SeTau-488-Maleimide	SH	•				PBS 7.4	484	59,000	531	20	1.2
K9-3162	SeTau-500-NHS	NH ₂	•				PB 7.4	502	59,600	567	43	2.8
K9-4145	SeTau-633-Ethyl-Ester	—		•	•		CHCl ₃	634	105,000	683	68	n.d.
K9-4142	SeTau-647-di-NHS	NH ₂		•	•		PB 7.4	650	200,000	694	65	3.2
K9-4148	SeTau-647-Maleimide	SH		•	•		PB 7.4	648	200,000	692	45	3.2
K9-4149	SeTau-647-NHS	NH ₂		•	•		PB 7.4	649	200,000	695	61	3.2
K9-4150	SeTau-647	—		•	•		PB 7.4	647	211,000	693	59	3.1
K9-4154	SeTau-647-DBCO	N ₃		•	•		PB 7.4	649	200,000	690	60	3.2
K9-4159	SeTau-660-NHS	NH ₂		•	•		PB 7.4	663	240,000	694	50	3.4
K9-4119	SeTau-665-NHS	NH ₂			•	•	PB 7.4	664	160,000	712	53	3.1
K9-4169	SeTau-670-NHS	NH ₂		•	•	•	PB 7.4	673	275,000	694	36	1.6
K9-4179	SeTau-680-NHS	NH ₂		•	•	•	PB 7.4	683	295,000	705	58	2.9
Other Squaraine Rotaxanes can be developed on your request												

Contact us about these and other products or if you are interested in obtaining a **sample for testing**