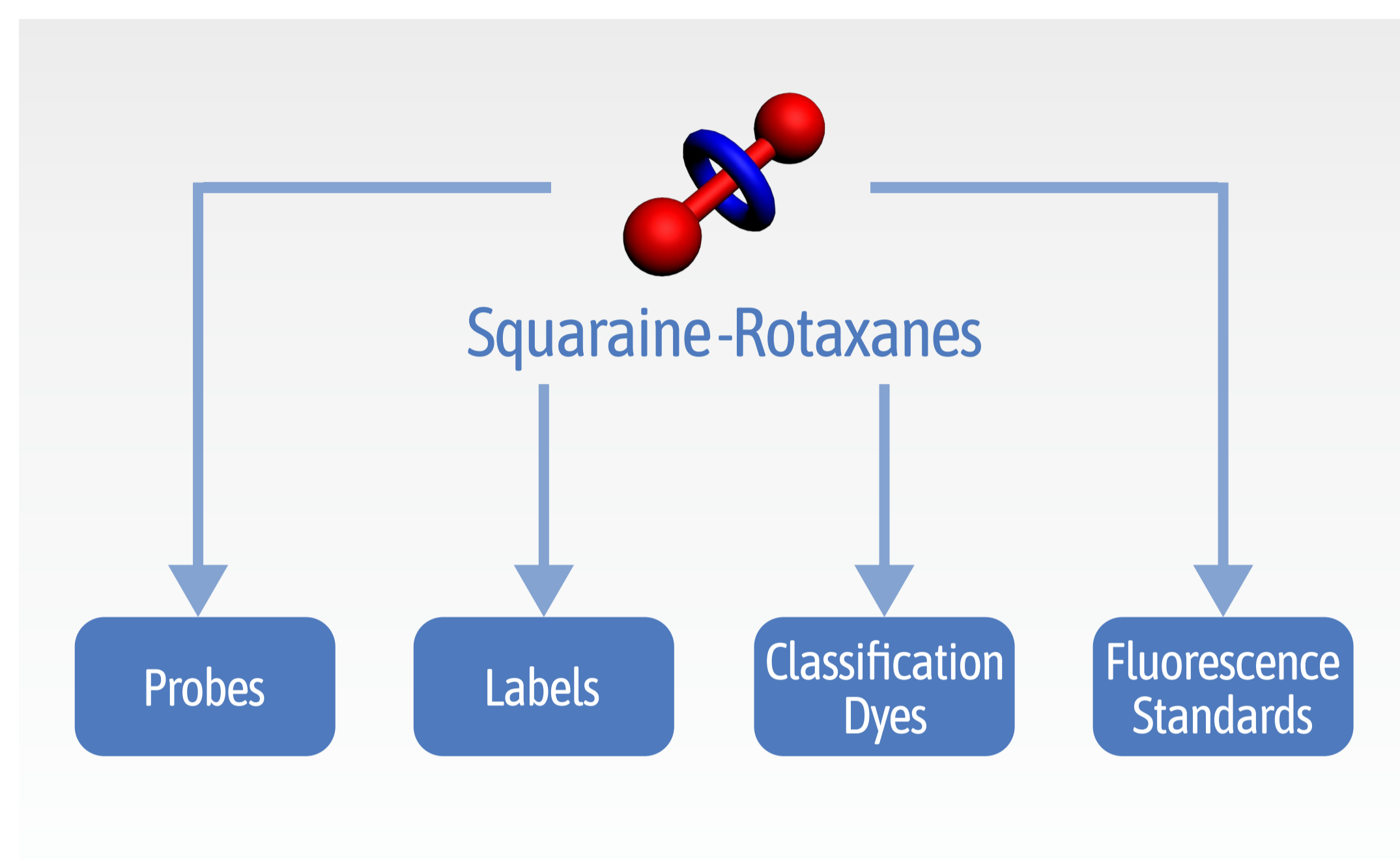


SETA

Squaraine Rotaxane Dyes

This new class of proprietary dyes was developed by SETA BioMedicals to overcome some of the shortcomings of conventional dyes. SeTau squaraine rotaxane dyes combine many desirable properties of fluorescent reporters.



- High quantum yields (up to 65%) in water
- High extinction coefficients up to 250,000 M⁻¹·cm⁻¹
- Fluorescence lifetimes of several ns
- High chemical and photostability
- Images stained with SeTau dyes are stable for hundreds of hours

SeTau dyes are available in reactive form with carboxy, NHS ester and maleimide functionalities for covalent attachment to biomolecules to target specific cellular locations for *in vitro* and *in vivo* optical imaging but also as probes for imaging and super-resolution microscopy. The squaraine rotaxane dye SeTau-647 is currently the brightest and most photostable label on the market for the Kr-ion (647 nm) laser line.

Product Number	Product Name	Target Group	Medium	λ abs [nm]	ε [M ⁻¹ ·cm ⁻¹]	λ em [nm]	QY [%]	FLT [ns]
K9-3152	SeTau-488-NHS	NH ₂	PB 7.4	486	59,000	532	27	
K9-4119	SeTau-665-NHS	NH ₂	PB 7.4	664	160,000	712	53	3.1
K9-4142	SeTau-647-di-NHS	NH ₂	PB 7.4	650	200,000	694	65	3.2
K9-4145	SeTau-633-Ethyl-Ester		CHCl ₃	634	105,000	683	68	
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	640	60	3.2
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

SeTau Dyes for Fluorescence Lifetime and Polarization Applications

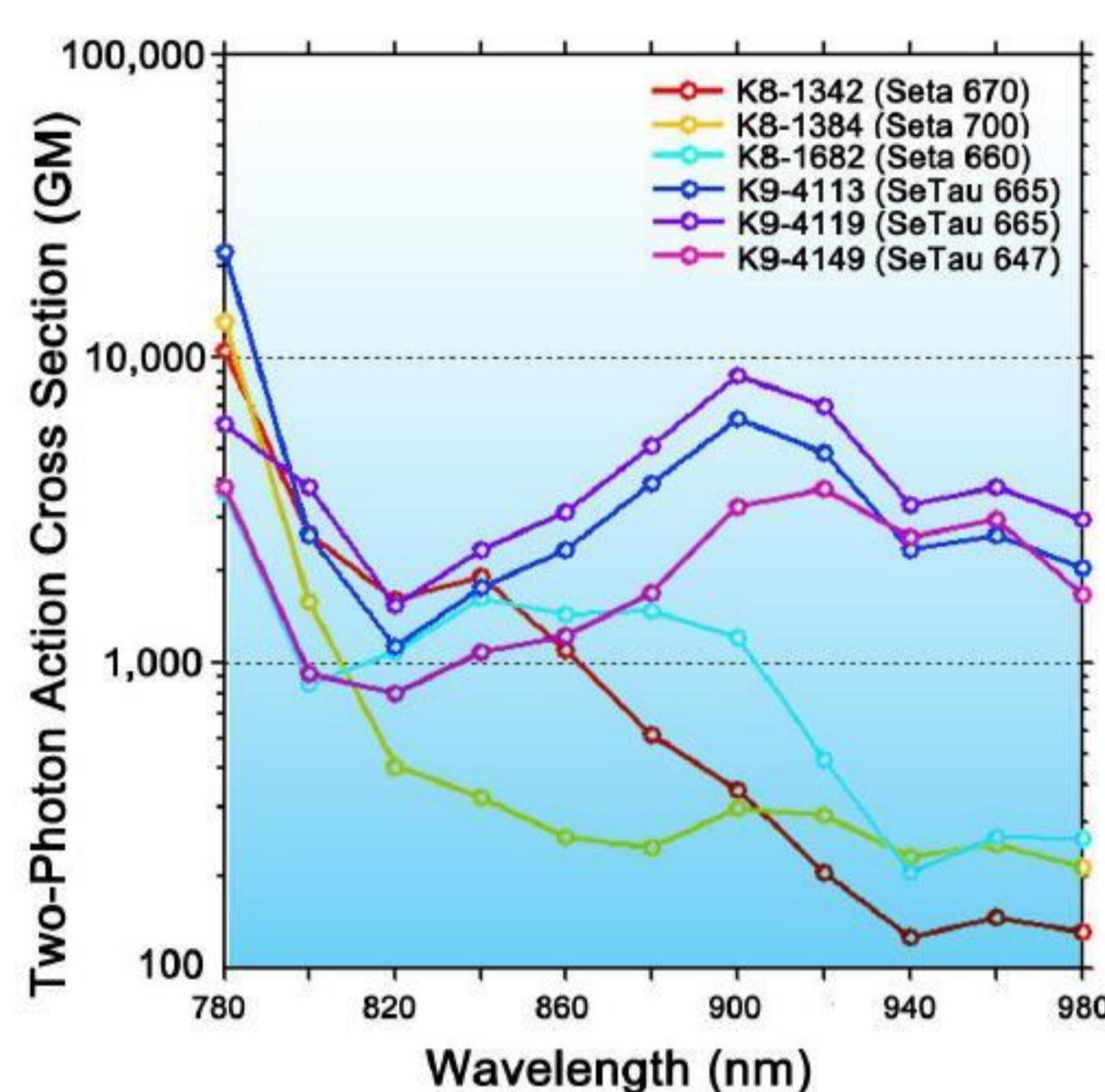
The longer lifetimes ($\tau = 2 - 3$ ns) and larger Stokes' shifts (40 - 50 nm) of squaraine rotaxanes compared to conventional cyanine based NIR labels ($\tau = 0.5 - 1.5$ ns) make them in particular suitable as labels for use in fluorescence polarization immunoassays.

SETA

Squaraine Rotaxane Dyes

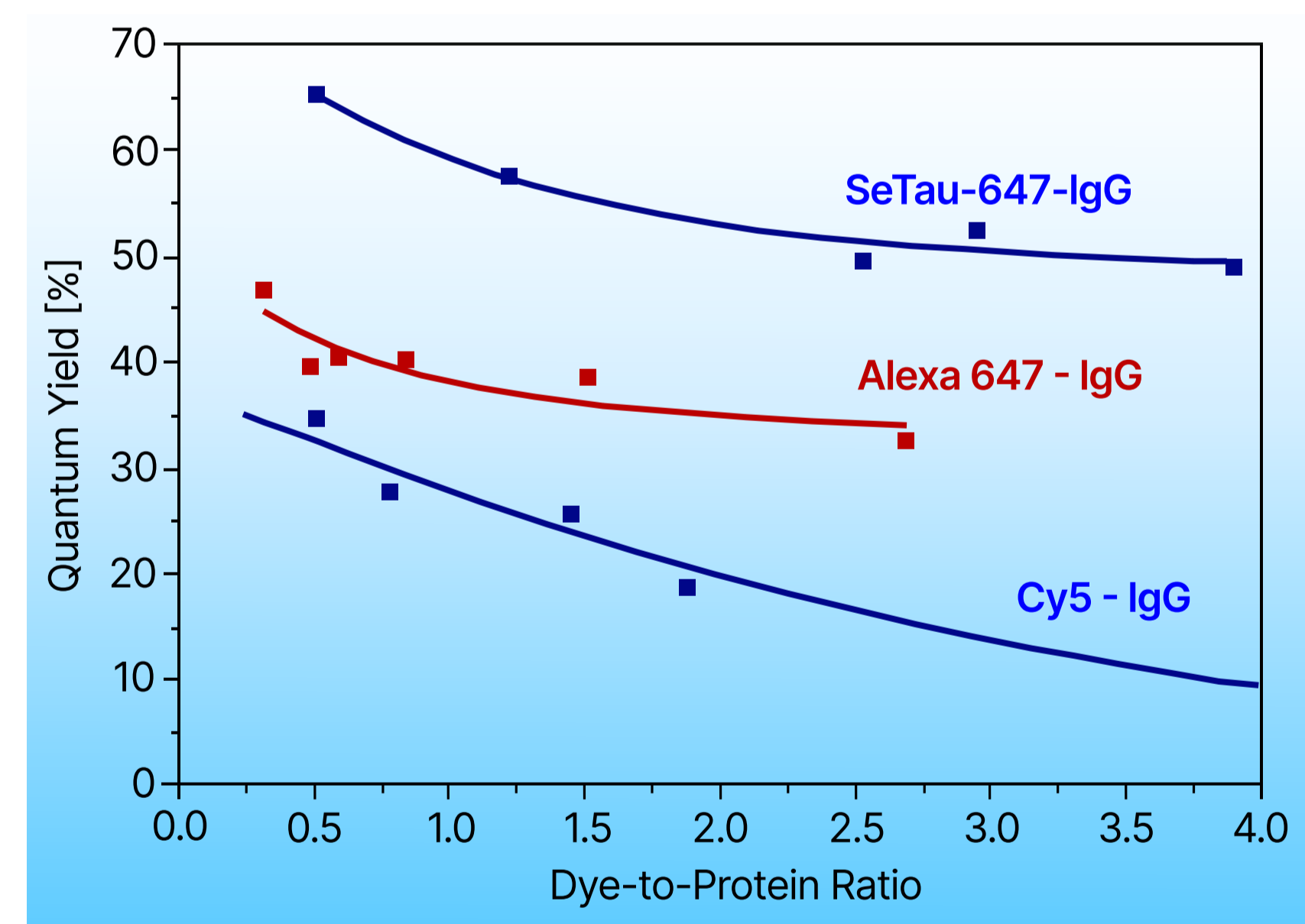
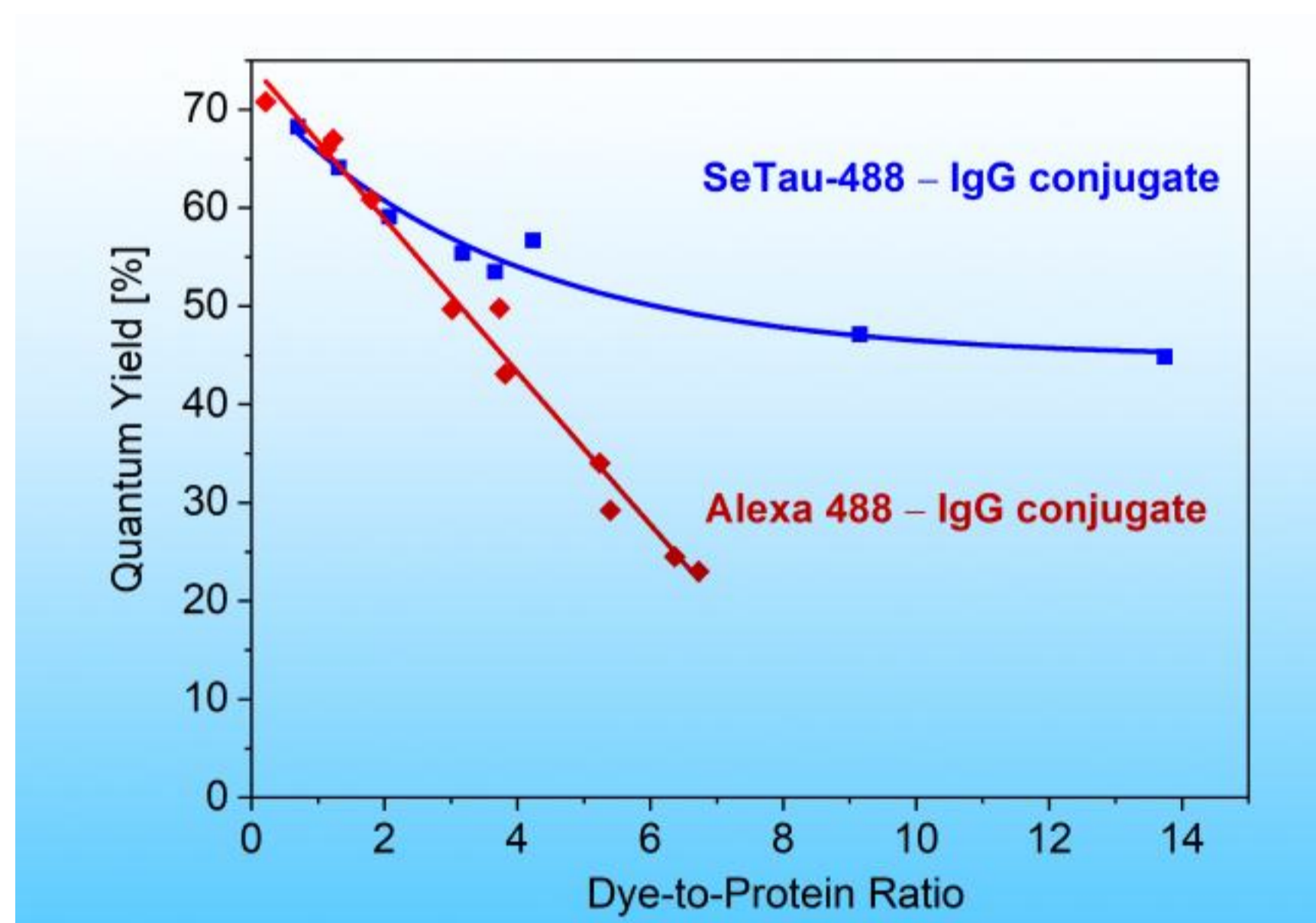
SeTau Imaging Probes and Labels

SeTau rotaxane dyes exhibit extremely high chemical and photostability and are therefore well suited for imaging applications. They also have very high 2-photon action cross sections in the order of several thousand GM.



2-photon action cross sections for several squaraines and squaraine rotaxanes

SeTau Reactive Dyes (see Product Table)



Comparison of quantum yields of Alexa and representative SeTau (rotaxane) dyes.

SeTau-488-NHS (K9-3152) with a similar absorption and emission as **Alexa 488** exhibits a lower brightness as a free dye but its brightness gets increased when it is attached to a biomolecule and it becomes an almost unquenchable fluorophore when labeled to an antibody.

SeTau-647-NHS (K9-4149) is a hydrophilic, mono-reactive squaraine rotaxane label for biomolecules. Compared to **Cy5** or **Alexa 647** it is an extremely bright label with a large Stokes' shift of 46 nm. It is a highly ozone- and photostable dye that is optimally excited with the 647 nm spectral line of the Krypton-Argon laser. Exc./Em. max for conjugates: 649/695 nm.