



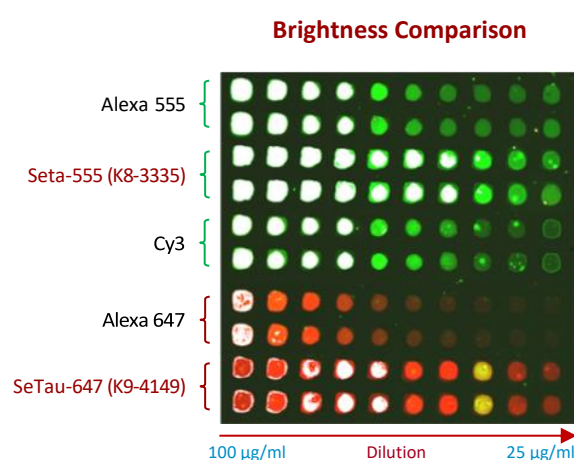
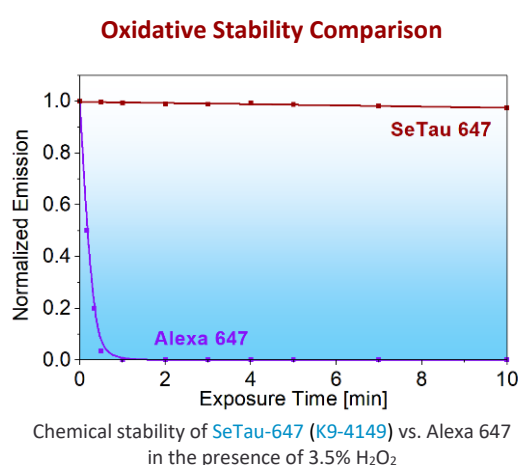
Seta and SeTau Dyes for Microarrays

Highly bright, photo- and chemically stable dyes for DNA and protein microarrays

Highly bright and photostable **SeTau dyes** (squaraine rotaxanes) developed by **SETA BioMedicals** exhibit exceptional chemical stability particularly against oxidizing agents such as **peroxides** and **ozone** and therefore are excellent detection reagents for use in **DNA and protein microarrays** where the fluorescence signals of cyanine dyes such as Cy5 and Alexa 647 can be strongly affected by ozone concentrations during post-hybridization array washing.

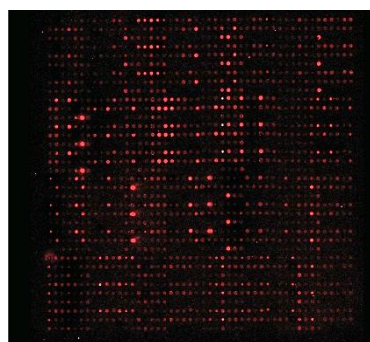
Controlled ozone exposures of microarrays to ozone confirmed the susceptibility of cyanine dyes (Cy5 or Alexa 647) to ozone levels as low as 5–10 ppb for periods as short as 10–30 s.

Seta-555-NHS (K8-3335) and **SeTau-647-NHS** (K9-4149) are amine-reactive dyes specifically developed for a wide range of DNA and protein microarray applications. They are designed for the **green** (Cy3/Alexa 555) and **red** (Cy5/Alexa 647) channels, respectively. These reactive dyes are ideal for labeling oligonucleotides, amino-modified cDNA, antibodies, peptides, and other biomolecules for microarray imaging.

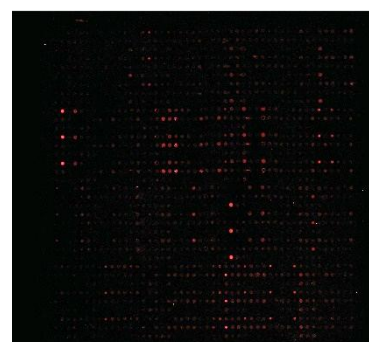


The microarray image above on the right represents a comparison of our **Seta-555** and **SeTau-647** dyes with other dyes commonly used in these microarrays. The dyes were serially diluted fourfold from a starting concentration of 100 µg/mL, with 10 spots per dye. Data from our Cancer Center customers show that the **Seta-555** and **SeTau-647** dyes produce much stronger fluorescence signals, with no detectable channel-to-channel crosstalk.

SeTau-647-IgG antibody (left) has up to 35% brighter signal than Alexa-647-IgG antibody (right)



SeTau-647-Ab



Alexa-647-Ab

Comparison of **SeTau-647-Ab** with a commercially available Alexa-647-Ab conjugate in microarray imaging under similar conditions. The same antibody and plasma sample but a higher PMT voltage (958 V) was used for measurement of the **Alexa-647-Ab** than for the **SeTau-647-Ab** (875 V).

Selected dyes (reactive labels) for **DNA and protein microarrays** are listed below.

Product Number (Click for Specs Sheet)	Product Name (Click for Product Info)	Target Group	Excitation Light Sources				Medium	λ abs [nm]	ϵ [M ⁻¹ cm ⁻¹]	λ em [nm]	QY [%]	FLT [ns]
			532	635	650	680						
K8-3335	Seta-555-NHS	NH ₂	•				PB 7.4	555	155,000	570	7	0.3
K8-3402	Zy3-NHS	NH ₂	•				PB 7.4	549	150,000	564	4	0.3
K9-4119	SeTau-665-NHS	NH ₂			•	•	PB 7.4	664	160,000	712	53	3.1
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
K9-4169	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

* Activation, e.g., with EDC/NHS, is required for coupling.

Upon request, these dyes can be synthesized with NHS ester, maleimide, azide (–N₃), alkyne (–C≡C–), DBCO/DIBAC, hydrazide (–NH–NH₂), aminooxy (–O–NH₂), isothiocyanate (–N=C=S), or carboxyl (–COOH; activated with EDC/NHS for coupling) groups. They can be designed to target primary amines (–NH₂; e.g., lysine side chains, protein N-termini, and amino-modified DNA/RNA), thiols (–SH; e.g., cysteine side chains in proteins and peptides, and thiol-modified DNA/RNA), azides (–N₃; azide-modified biomolecules for click chemistry), alkynes (–C≡C–; alkyne-modified biomolecules for click chemistry), strained alkynes/cyclooctynes (e.g., DBCO/DIBAC, which react with azides in copper-free click chemistry), aldehydes/ketones (–CHO/C=O; e.g., on oxidized glycans in glycoproteins, for hydrazide or aminooxy dyes), and carboxyl groups (–COOH; activated, for example, via EDC/NHS, to couple to amines).

Contact us about these or other products.