

LONG-LIFETIME Fluorescence Polarization Labels

PRODUCTS

SeTau Fluorescence Polarization (FP) Labels exhibit lifetimes from 9 to 32 ns and are suitable for measurement of antigens with molecular weights between 10 and 80 kDa. This molecular weight range has not been addressed with common polarization labels or metal-ligand complexes (MLCs) based on Ru, Os or Re.

For more specific data, we refer you to the specs sheets on our website and the table below.

Product Number	Product Name	Target Group	Medium	λ abs [nm]	ϵ [$M^{-1} \cdot cm^{-1}$]	λ em [nm]	QY [%]	FLT [ns]
K7-204	SeTau-380-NHS	NH ₂	Water	270	23800	480	56	32.5
K7-544	SeTau-425-Maleimide	SH	PB 7.4	425	4200	545	39	26.2
K7-545	SeTau-425-NHS	NH ₂	PB 7.4	425	4200	545	39	26.2
K7-547	SeTau-405-NHS	NH ₂	PB 7.4	405	13800	518	80	9.3
K7-548	SeTau-405-Maleimide	SH	PB 7.4	405	13800	518	51	9.1
K7-567	SeTau-405-Azide	triple-CC	PB 7.4	405	13800	518	80	9.3

APPLICATION

Measurement of high molecular-weight analytes (10 - 80 kDa) in a fluorescence polarizations immunoassay (FPIA).

For a comparison of the behavior of a longer lifetime probe vs. a short lifetime probe we show as an example the FPIA of HSA (MW ~ 66.5 kDa): on the left HSA (antigen) is labeled with SeTau-425, a long-lifetime label with a lifetime of 26 ns, and on the right with Fluorescein, a commonly used 4 ns FP-label. With SeTau-425 the labeled HSA has still a relatively low initial polarization of 165 mP and only upon addition of the specific antibody the rotational mobility changes and as a result the polarization increases. A different behavior is seen with the Fluorescein-labeled antigen (right): the labeled antigen has a polarization of 130 mP, which does not change with addition of the antibody. Typically one would expect a much higher value, but the Fluorescein molecules labeled on one HSA undergo homo-FRET, which decreases the polarization. Importantly, no polarization increase is observed upon titration with specific (brown) or nonspecific (blue) antibody as the lifetime ($\tau = 4$ ns) of Fluorescein is much shorter than the rotational correlation time ($\Theta = 40$ ns) of the antigen.

