FLUORESCENT PEPTIDES BACHEM

PIONEERING PARTNER FOR PEPTIDES

Peptides and amino acids labeled with Tide Fluor™ and Tide Quencher™

We offer peptides and amino acids tagged with Tide Fluor™ fluorescent dyes. They meet highest demands in fluorescence intensity and photo-stability, and outperform most conventional and proprietary dyes for these properties. For optimum results in FRET, Tide Fluor™ dyes should be combined with Tide Quencher™ acceptors. The donor and acceptor spectra of the resulting FRET pairs overlap ideally, leading to an efficient quenching. Tide Fluor™ and Tide Quencher™ labels are available as diverse derivatives and can be used for labeling of the majority of relevant peptides and amino acids.

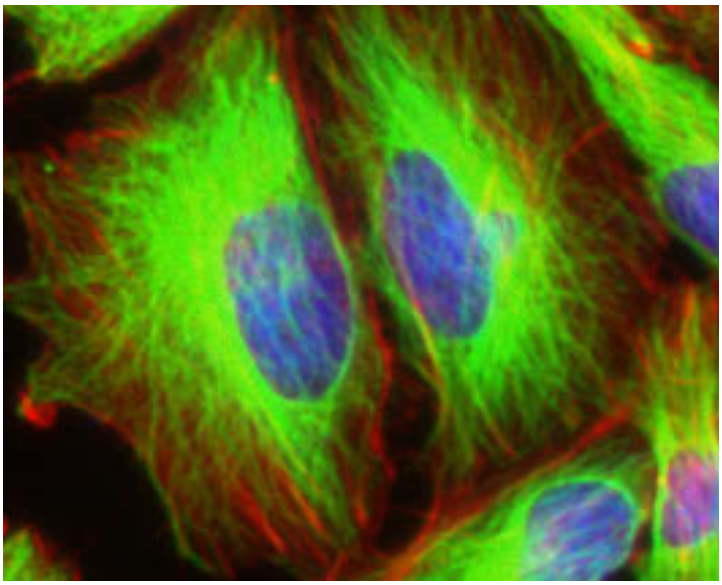

Figure 1 (right hand side). HeLa cells. Actin filaments were stained with Tide Fluor™ 3 - phalloidin conjugate (red). Tubulins were stained with mouse anti-tubulin, followed with iFluor™ 488 goat anti-mouse IgG (green). Nuclei were stained with Hoechst 33342 (blue).

Outstanding Performance and Wide Application Range

✓ **Intensive fluorescent donor emission**

- Efficient excitation with light from common sources
- Strong fluorescence
- High photo-stability
- Tolerant against pH and different buffer conditions

✓ **Excellent quenching**

- Optimum spectral overlap of Tide Fluor™ donor and Tide Quencher™ acceptor
- Efficient donor energy absorption

✓ **Broad selection of chemical derivatives**

- Active succinimidyl esters (NHS)
- Alkynes
- Amines
- Azides
- Carboxylic acids
- Maleimides

TIDE FLUOR™ DYES

WIDE APPLICATION RANGE

Tide Fluor™ fluorescent dyes are used ideally with Tide Quencher™ acceptors in FRET-experiments (Table 1), and can also be used for replacement of other common dyes (Table 2).

Table 1: Recommended Tide Fluor™ (TF) dyes and Tide Quencher™ (TQ)

Tide Fluor™ Dye	Absorption (TF)	Emission	ε ($M^{-1}cm^{-1}$) *	QY**	Optimum Tide Quencher™	Absorption (TQ)
Tide Fluor™ 1	345 nm	442 nm	20,000	0.95	Tide Quencher™ 1	~490 nm
Tide Fluor™ 2	500 nm	527 nm	75,000	0.90	Tide Quencher™ 2	~520 nm
Tide Fluor™ 2 WS	495 nm	518 nm	75,000	0.90	Tide Quencher™ 2 WS	
Tide Fluor™ 3	555 nm	584 nm	78,000	0.85	Tide Quencher™ 3	~570 nm
Tide Fluor™ 3 WS	555 nm	565 nm	150,000	0.10***	Tide Quencher™ 3 WS	
Tide Fluor™ 4	590 nm	618 nm	90,000	0.91	Tide Quencher™ 4 WS	~610 nm
Tide Fluor™ 5 WS	649 nm	664 nm	250,000	0.25	Tide Quencher™ 5 WS	~670 nm
Tide Fluor™ 6 WS	676 nm	695 nm	220,000	0.18	Tide Quencher™ 6 WS	~704 nm
Tide Fluor™ 7 WS	749 nm	775 nm	275,000	0.12	Tide Quencher™ 7 WS	~763 nm
Tide Fluor™ 8 WS	775 nm	807 nm	250,000	0.08		

* Extinction coefficient, determined at λ_{max} (absorption maximum). ** Quantum yield in aqueous buffer (pH 7.2).
*** Fluorescence intensity is significantly increased when coupled to proteins or long peptides.

Table 2: Compatibility of Tide Fluor™ versus other dyes

Tide Fluor™	Spectral range compatible to
Tide Fluor™ 1	EDANS
Tide Fluor™ 2 Tide Fluor™ 2 WS	Alexa Fluor® 488, FAM and FITC
Tide Fluor™ 3 Tide Fluor™ 3 WS	Alexa Fluor® 555 and Cy3
Tide Fluor™ 4	Alexa Fluor® 594, ROX and Texas Red®
Tide Fluor™ 5 WS	Alexa Fluor® 647 and Cy5
Tide Fluor™ 6 WS	Alexa Fluor® 680, Cy5.5 and IRDye® 700
Tide Fluor™ 7 WS	Alexa Fluor® 750, Cy7 and IRDye® 800
Tide Fluor™ 8 WS	IRDye® 800

One-stop shop for labeling of peptides and amino acids

As leading manufacturer for peptides we provide ready-labeled research products from one source with short delivery time. This helps you to achieve optimum results and safes time during the experiments. Our Custom Synthesis team will be happy to receive your quote request.

References

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DEMONSTRATED EXCELLENCE

Peptides labeled with Tide Fluor™ fluorescent dyes have been investigated and compared to peptides labeled with other proprietary dyes (Figures 2-4). The tests and the comparison were done by an independent partner. The results demonstrate that Tide Fluor™ fluorescent dyes are the best available dyes for the labeling of peptides.

Fidelity of labeled peptide

Peptides labeled with Tide Fluor™ fluorescent dyes were very homogenous and showed that these dyes are perfectly suited for labeling of peptides as no peptide aggregates or salt crystals were found (Figure 2).

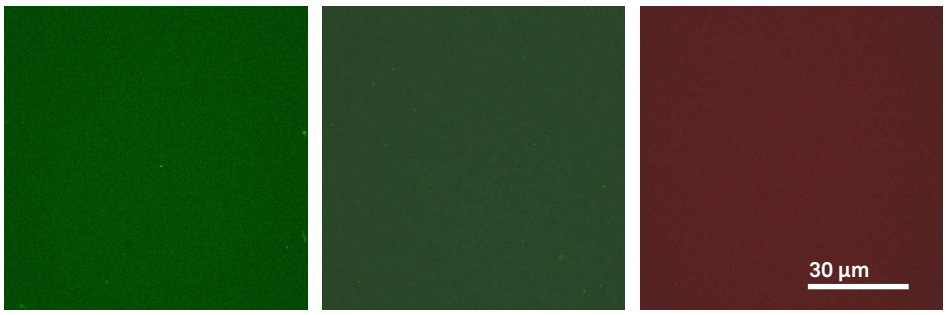

Figure 2.

Figure 2. Appearance of peptide samples labeled with Tide Fluor™ dyes. Amyloid β-Protein (1-40) labeled with **Tide Fluor™ 2 (left), Tide Fluor™ 2 WS (middle) and Tide Fluor™ 5 WS (right).** Peptides solubilized in dimethylsulfoxide (DMSO) were diluted in phosphate buffered saline (PBS) pH 7.4 to a final concentration of 2.5 µg/ml. Images were taken employing confocal laser scanning microscopy (CLSM). The dyes were excited at 488 nm (green dyes) and 633 nm (red dyes) wavelength. Fluorescence was measured at 493-530 nm (green dyes) and 638-755 nm (red dyes) wavelength.

Photo-stability

Peptides labeled with Tide Fluor™ fluorescent dyes exhibit outstanding photo-stability in general. They are at the same level of photo-stability (red dyes) or even outperforming them (green dyes) (Figure 3).

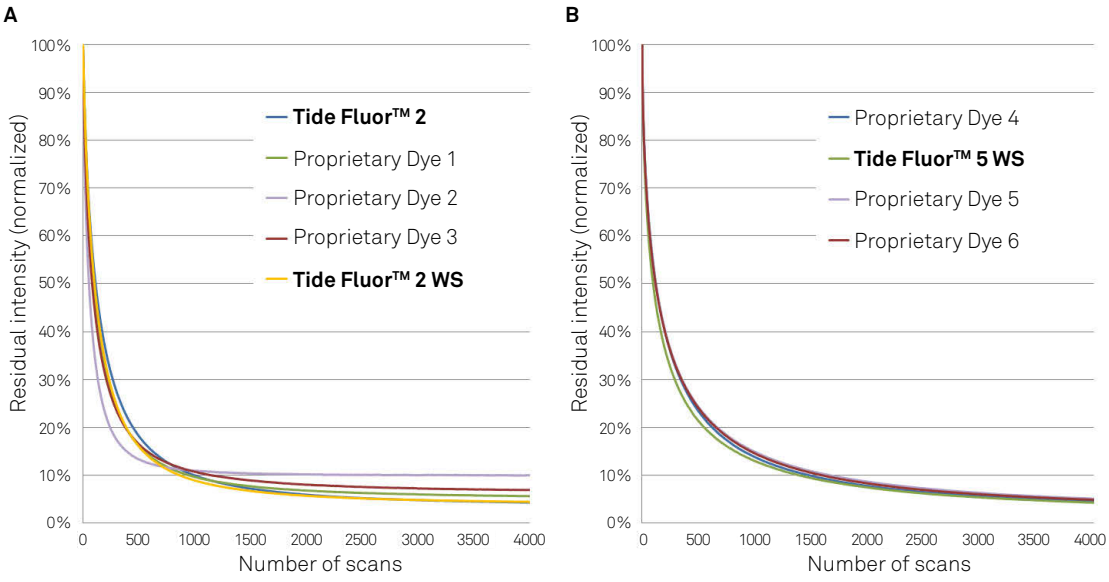

Figure 3. Normalized intensity decay. Amyloid β-Protein (1-40) labeled with green (A) and red (B) dyes. Samples were bleached using 100 % laser power for up to 8000 laser scans, using CLSM in the setup as described in Figure 2. The shown data is corrected for background intensity, normalized and averaged from each time five measured regions of 20 µm x 20 µm. The yielded curves from two or three replicate experiments were averaged to obtain the curves for each peptide. Normalized curves were fit to a two component exponential decay model.

Brightness, stability and combined metrics

Peptides labeled with Tide Fluor™ fluorescent dyes are bright emitters. In combination with their excellent photo-stability, they are the best available dyes for peptide labeling in their overall properties (Figure 4).

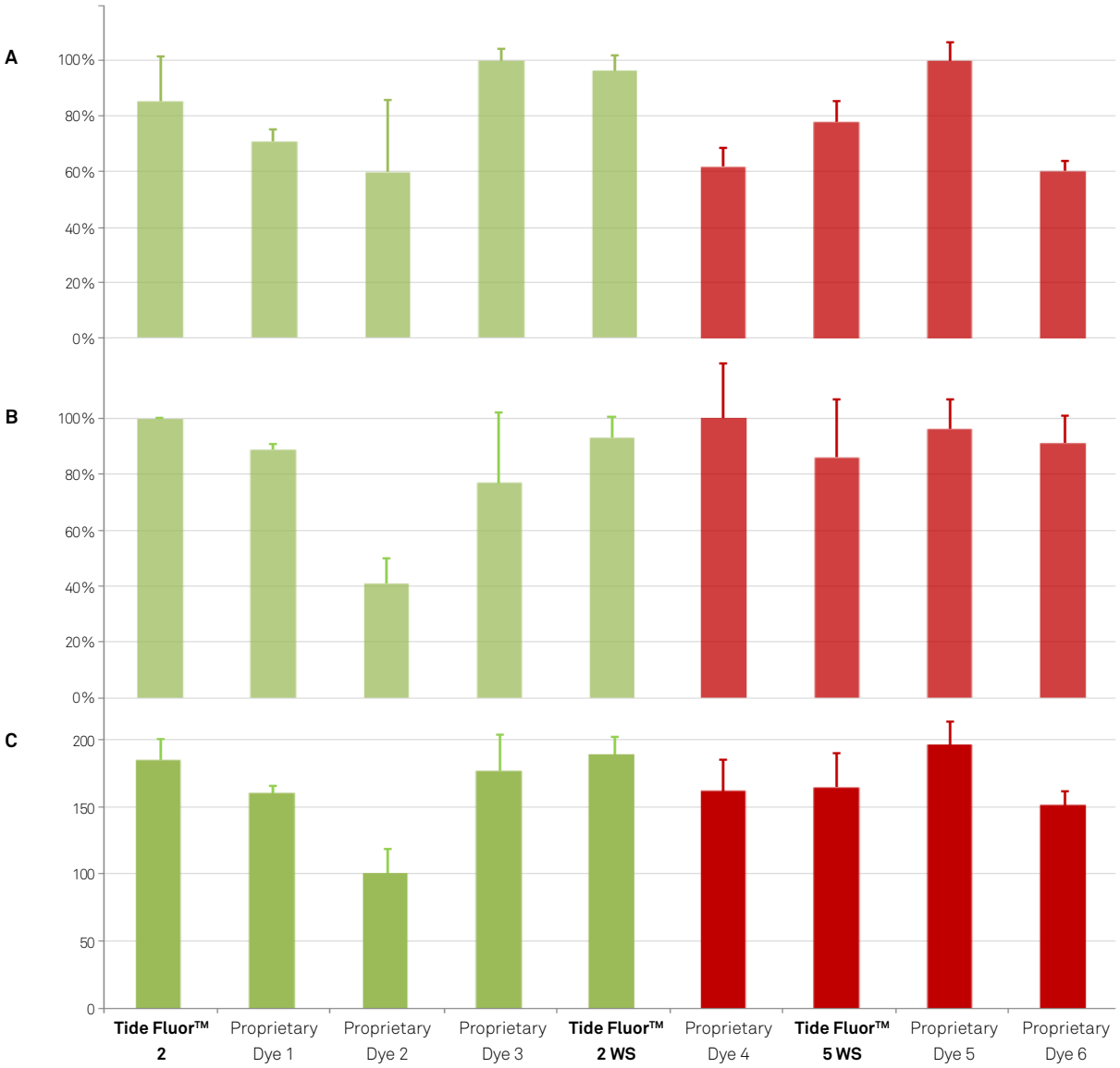

Figure 4. Brightness, overall stability and combined metrics. Amyloid β-Protein (1-40) labeled with green (green columns) and red (red columns) dyes. Data was recorded using CLSM in the setup as described in Figure 2. Standard deviations are shown as error bars. For the measuring of the brightness (A), a total of 40 regions of 105 µm x 105 µm were imaged for each peptide. The data was corrected for the background intensity, averaged and standard deviations calculated. The shown data is normalized for a facile comparison. The overall stability (B) was extracted from the graphs shown in Figure 3 and standard deviations calculated, using an appropriate software. The combined metrics (C) is an indicator of the overall performance of the labeled peptides. The values were calculated by addition of the normalized values for brightness and photo-stability and averaging of the standard deviations. **The peptides labeled with the Tide Fluor™ dyes had the best combined metrics for the green dyes and the second best for the red dyes.**

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CUSTOM PEPTIDE SYNTHESIS AT BACHEM
PEPTIDE LABELING AND CONJUGATION

- Biotinylated Peptides
- Conjugation to Imaging Agents
- Conjugation to Oligonucleotides
- Conjugation to Proteins: BSA and KLH
- FRET or TR-FRET Peptides
- Heavy Isotope Labeling
- Labeling with standard dyes and patented dyes
- Labeling with Tide Fluor™ and Tide Quencher™
- Pegylated Peptides

Our highly experienced custom synthesis teams with extensive know-how in sequence design and modifications will deliver every peptide in the quality you need.

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