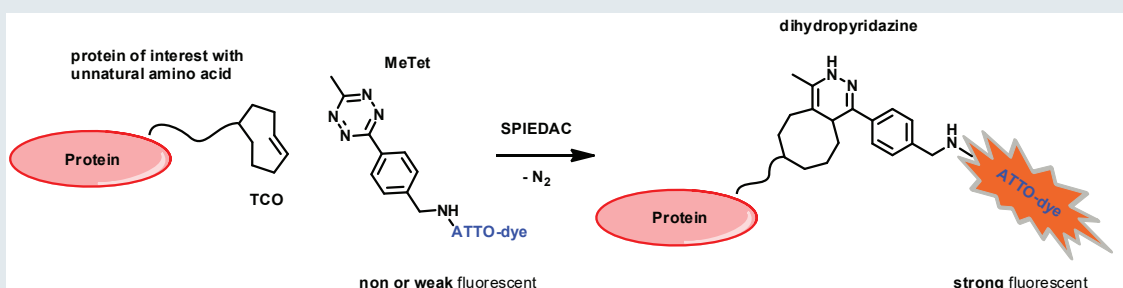


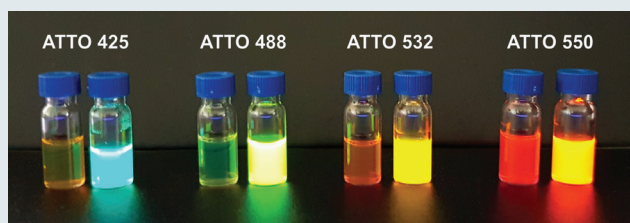
ATTO Tetrazines for Fast Bioorthogonal Labeling

ATTO-TEC has expanded its portfolio of dye labeled click-reagents, introducing **ATTO tetrazines**. Tetrazines react rapidly and selectively in a bioorthogonal way with strained alkenes or alkynes.

ATTO tetrazines are based on 6-methyl-3-aryl tetrazines (MeTet) which show high stability and still very fast reaction kinetics. With trans-cyclooctenes (TCOs) rate constants of up to $1000 \text{ M}^{-1}\text{s}^{-1}$ can be achieved. The TCO-tetrazine labeling can be considered as a strain promoted inverse electron demanding Diels-Alder cycloaddition (SPIEDAC)^[1].



Many of the **ATTO tetrazines** are fluorogenic, i.e. the fluorescence of the dye is initially strongly quenched by the tetrazine moiety, but restored after successful conjugation^[2].



Fluorescence of ATTO MeTet derivatives before (left) and after (right) tetrazine ligation.

Advantages of ATTO tetrazines:

- highly selective site specific binding
- bioorthogonal labeling
- fast reaction kinetics
- small label compared to, e.g. dye-conjugated antibodies
- fluorogenic probes

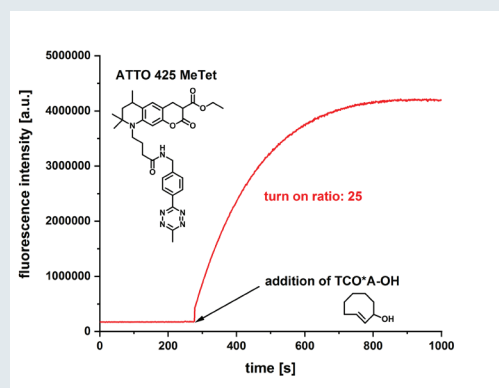
ATTO tetrazines are available for:

ATTO 425, ATTO 465, ATTO 488, ATTO 490LS, ATTO 532, ATTO 550, ATTO 565, ATTO 590, ATTO 594, ATTO 643, ATTO 647N, ATTO 655, and ATTO 680.

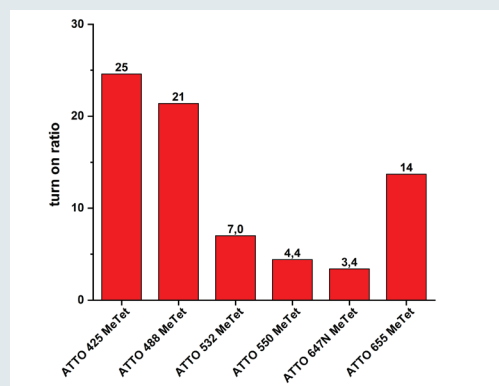
The tetrazine modifications are supplied as lyophilized solids in units of 0.2 mg and 0.5 mg.

[1] DOI: 10.1002/anie.201108231

[2] DOI: 10.1038/s42003-019-0518-z



Reaction kinetics (fluorescence intensity as function of time) for the reaction of ATTO 425 MeTet with TCO-A-OH in PBS at ambient temperature.



Fluorescence increase (turn on ratios) of various ATTO MeTet derivatives after reacting with TCO-A-OH in PBS at ambient temperature.