



# The Twinkle Factory

Stain different, tag FAST.

## FAST1

FAST1 is a small protein tag of 125 amino acids (14 kDa) engineered from the photoactive yellow protein (PYP) from *Halorhodospira halophila*. FAST1 can be fused to the N- or C-terminus of any protein of interest. FAST1 forms non-covalent and reversible fluorescent molecular assemblies with various <sup>TF</sup>Fluorogens of the Twinkle Factory, enabling to fluorescently label FAST1-tagged proteins in vitro, in live cells and in multicellular organisms. FAST1 differs from FAST2 by a single mutation in position 107. FAST1 contains a Val (V107) at this position while FAST2 contains an Ile (I107).

### FAST1 sequence

MEHVAFGSEDIENLAKMDDGQLDGLAFGAIQLDGDGNILQYNAAEGDITGRDPKQVIGKNFFKDVA  
PGTDSPEFYGKFKEGVASGNLNTMFEWMIPTSRGPTKVKVHMKKALSGDSYWWFVKRV

### DNA sequence coding for FAST1

atggagcatgttgctttggcagtgaggacatcgagaacactctggccaaaatggacgacggacaactggatgggttgctttggc  
gcaattcagctcgatggtgacgggaatatctgcagtacaatgctgctgaaggagacatcacaggcagagatcccaaacaggtgatt  
gggaagaactcttcaaggatgttgacacctggaacggattctccgagtttacggcaaattcaaggaaggcgtagcgtcagggaatc  
tgaacaccatgttcgaatggatgataccgacaagcaggggaccaaccaaggtcaaggtgcacatgaagaaagccctttccggtgaca  
gctattgggtctttgtaaacgggtg

*Note: FAST1 was originally named "YFAST" in Plamont et al. PNAS 113 (3), 497-502 (2016), and then "FAST" in Li et al. Chem. Sci. 8, 5598-5605 (2017), Li et al. Bioconjug. Chem. 29, 1823-1828 (2018), and Tebo et al. Biochemistry 57, 5648-5653 (2018).*

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EP 3 164 411; JP 2017-527,261; WO 2016/001,437 (Fluorogen activating and shifting tag (FAST))

EP17305591; PCT/EP2018/063146 (Membrane-impermeant fluorogenic chromophores)

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