

Far-red fluorescent protein TagFP635

- Bright far-red fluorescence
- Monomer with successful performance in fusions
- High photostability
- Fluorescent signal is easily distinguished from background fluorescence
- Recommended for protein labeling

TagFP635 (scientific name mKate) is a monomeric far-red fluorescent protein generated from the wild-type RFP from sea anemone *Entacmaea quadricolor* [Shcherbo et al. 2007]. It possesses bright fluorescence with excitation/emission maxima at 588 and 635 nm, respectively.

Main properties of TagFP635

Characteristic	
Molecular weight, kDa	27
Polypeptide length, aa	237
Fluorescence color	far-red
Excitation maximum, nm	588
Emission maximum, nm	635
Quantum yield	0.33 / 0.28 **
Extinction coefficient, M ⁻¹ cm ⁻¹	45 000 / 31 500 **
Brightness*	14.9 / 8.8 **
Brightness, % of EGFP	45 / 26 **
pKa	6.0
Structure	monomer
Aggregation	no
Maturation rate at 37°C	fast
Photostability	high
Cell toxicity	not observed

* Brightness is a product of extinction coefficient and quantum yield, divided by 1 000.

**First value - measured at pH=8.2 [Shcherbo et al. 2007], second value - measured at pH=7.5 [Shcherbo et al. 2009].

Performance and use

TagFP635 can be easily expressed and detected in a wide range of organisms. Mammalian cells transiently transfected with TagFP635 expression vectors produce bright fluorescence in 12-14 hrs after transfection. No cell toxic effects and visible protein aggregation are observed.

TagFP635 performance in fusions has been demonstrated in α -actinin, vinculin, zyxin, β -actin, α -tubulin, and other models.

TagFP635 can be used in multicolor labeling applications with blue, cyan, green, yellow, and red (orange) fluorescent dyes.

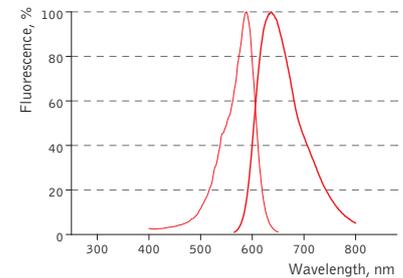
Recommended filter sets and antibodies

TagFP635 can be recognized using Anti-tRFP antibody (Cat.# AB233-AB234) available from Evrogen.

Recommended Omega Optical filter sets are QMAX-Red and XF102-2. TagFP635 can also be detected using Texas Red filter sets or similar.

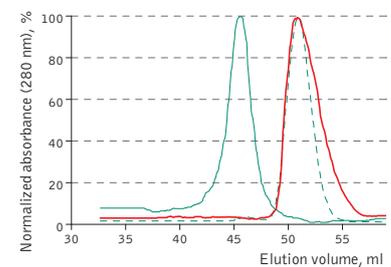
Available variants and fusions

TagFP635 mammalian expression vectors contain TagFP635 coding sequence with codon usage optimized for high expression in mammalian cells, i.e. humanized [Haas et al. 1996]. Humanized TagFP635 can also be expressed in *E. coli* and some other heterologous systems upon subcloning into appropriate vector.



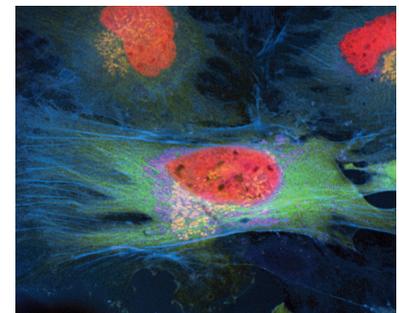
TagFP635 normalized excitation (thin line) and emission (thick line) spectra.

Complete TagFP635 spectra in Excel format can be downloaded from the Evrogen Web site at <http://www.evrogen.com>



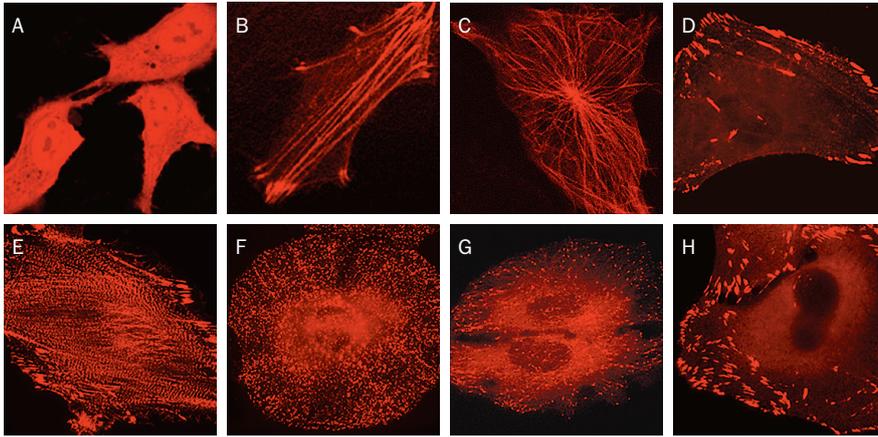
Gel-filtration of TurboGFP (dimer, solid green line), EGFP (monomer, dashed green line), and TagFP635 (monomer, solid red line).

Image from Shcherbo et al. 2007.



Multicolor labeling of mammalian cells.

TagCFP-actin fusion (blue), TagYFP-tubulin fusion (green), TagFP635-H2B fusion (red), and Golgi-targeted TagRFP (yellow). Image was kindly provided by Michael W. Davidson (Florida State University).



TagFP635 use for cell and protein labeling.

(A) Whole-cell expression in transiently transfected Phoenix Eco cells; (B) fusion with β -actin in transiently transfected HeLa cells; (C) fusion with α -tubulin in transiently transfected 3T3 cells; (D) fusion with zyxin in transiently transfected HeLa cells; (E) fusion with alpha-actinin in transiently transfected HeLa cells; (F) fusion with clathrin in transiently transfected HeLa cells; (G) fusion with end-binding protein 3 (EB3) in transiently transfected HeLa cells; (H) fusion with vinculin in transiently transfected HeLa cells. Images A-C are from ref.[Shcherbo et al. 2007]. Images D-H were kindly provided by Michael W. Davidson (Florida State University).

The available vectors encoding TagFP635 variants and fusions are listed below in the section TagFP635-related products. For most updated product information, please visit Evrogen website www.evrogen.com.

If you need TagFP635 codon variant or fusion construct that is not listed on our website, please contact us at product@evrogen.com.

Licensing opportunities

Evrogen technology embodied in TagFP635 is available for expanded and commercial use with an adaptable licensing program. Benefits from flexible and market driven license options are offered for upgrade and novel development of products and applications. For licensing information, please contact Evrogen at license@evrogen.com.

References

- Haas, J. et al. (1996). *Curr Biol*, 6 (3): 315–324 / pmid: 8805248
 Shcherbo, D et al. (2007). *Nat Methods*, 4 (9): 741–746 / pmid: 17721542
 Shcherbo, D. et al. (2009). *Biochemical Journal*, 418 (3): 567–574 / pmid: 19143658

TagFP635-related products

Product	Cat.#	Description	Size
TagFP635 expression/source vectors			
pTagFP635-Cx26	FP382	Mammalian expression vector encoding humanized TagFP635 fused with rat connexin 26	20 μ g
pTagFP635-Cx32	FP383	Mammalian expression vector encoding humanized TagFP635 fused with human connexin 32	20 μ g
pTagFP635-Cx43	FP384	Mammalian expression vector encoding humanized TagFP635 fused with rat connexin 43	20 μ g
pTagFP635-vinculin	FP388	Mammalian expression vector encoding humanized TagFP635 fused with human vinculin	20 μ g
Antibodies against TagFP635			
Anti-tRFP	AB233	Rabbit polyclonal antibody against TurboRFP, TurboFP602, TurboFP635, TurboFP650,	100 μ g
	AB234	NirFP, TagBFP, TagRFP, FusionRed, TagFP635, mKate2 and PA-TagRFP	200 μ g

Please contact your local distributor for exact prices and delivery information.

Notice to Purchaser:

TagFP635-related materials (also referred to as "Products") are intended for research use only. The Products are covered by U.S. Pat. 7,638,615; European Pat. 1994149; and other Evrogen Patents and/or Patent applications pending. By use of these Products, you accept the terms and conditions of the applicable Limited Use Label License #001: <http://www.evrogen.com/products/Evrogen-FP-license.shtml>.

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MSDS information is available at <http://www.evrogen.com/MSDS.shtml>