

True-red fluorescent protein TurboFP602

- Bright true-red fluorescence
- Fast maturation, high pH-stability
- Proven suitability to generate stably transfected cell lines
- Recommended for gene expression analysis and cell and organelle labeling in an autofluorescent environment

TurboFP602 is a red-shifted variant of the red fluorescent protein TurboRFP from sea anemone *Entacmaea quadricolor* [Merzlyak et al. 2007]. TurboFP602 possesses true-red fluorescence (with excitation/emission maxima at 574/602 nm, respectively), optimal for detection via most popular filter sets, and is easily distinguished from background signals. TurboFP602 exhibits fast maturation and high pH stability.

TurboFP602 is mainly intended for applications where fast appearance of true-red fluorescence is crucial. It is specially recommended for cell and organelle labeling and for tracking the promoter activity in autofluorescent tissues.

Main properties of TurboFP602

Characteristic	
Molecular weight, kDa	26.28
Polypeptide length, aa	231
Fluorescence color	true-red
Excitation maximum, nm	574
Emission maximum, nm	602
Quantum yield	0.35
Extinction coefficient, $M^{-1}cm^{-1}$	74 400
Brightness*	26.0
Brightness, % of EGFP	79
pKa	4.7
Structure	dimer
Aggregation	no
Maturation rate at 37°C	fast
Photostability	medium
Cell toxicity	not observed

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

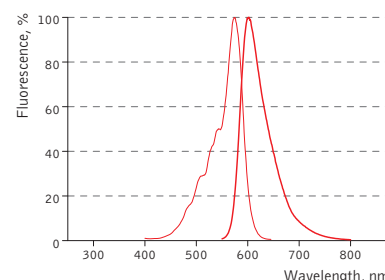
Performance and use

TurboFP602 can be expressed and detected in a wide range of organisms. Mammalian cells transiently transfected with TurboFP602 expression vectors produce bright fluorescence in 8-12 hrs after transfection. No cytotoxic effects or visible protein aggregation are observed. Despite its dimeric structure, TurboFP602 performs well in some fusions. However, for protein labeling applications we recommend using specially optimized monomeric TagFPs. TurboFP602 suitability to generate stably transfected cells has been proven by Marinpharm company. Cell lines expressing TurboFP602 are commercially available. TurboFP602 can be used in multicolor labeling applications with blue, cyan, green, and yellow fluorescent dyes.

Recommended filter sets and antibodies

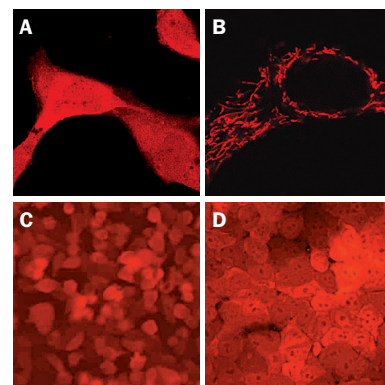
TurboFP602 can be recognized using Anti-tRFP antibody (Cat.# AB233-AB234) available from Evrogen.

TurboFP602 can be detected using TRITC filter set or similar. Recommended Omega Optical filter sets are QMAX-Red and XF102-2.



TurboFP602 normalized excitation (thin line) and emission (thick line) spectra.

Complete TurboFP602 spectra in Excel format can be downloaded from the Evrogen Web site at <http://www.evrogen.com>



TurboFP602 expression in mammalian cells.

(A) Transiently transfected HeLa cells; (B) transiently transfected HeLa cells expressing mitochondria-targeted TurboFP602; (C) stably transfected human melanoma MeJuso cell line; (D) stably transfected human osteosarcoma U-2-OS cell line.

Photographs of stably transfected cell lines were provided by Dr. Christian Petzelt (Marinpharm).

Available variants and fusions

TurboFP602 mammalian expression vectors contain TurboFP602 coding sequence with codon usage optimized for high expression in mammalian cells, i.e. humanized [Haas et al. 1996]. Humanized TurboFP602 can also be expressed in *E. coli* and some other heterologous systems upon subcloning into appropriate vector.

The available vectors encoding TurboFP602 variants and fusions are listed below in the section TurboFP602-related products. For most updated product information, please visit Evrogen website www.evrogen.com.

If you need TurboFP602 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 TurboFP602 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
- Merzlyak, EM et al. (2007). *Nat Methods*, 4 (7): 555–557 / pmid: 17572680

TurboFP602-related products

Product	Cat.#	Description	Size
TurboFP602 expression/source vectors			
pTurboFP602-C	FP711	Mammalian expression vector encoding humanized TurboFP602 and allowing its expression and generation of fusions to the TurboFP602 C-terminus	20 µg
pTurboFP602-N	FP712	Mammalian expression vector encoding humanized TurboFP602 and allowing its expression and generation of fusions to the TurboFP602 N-terminus	20 µg
pTurboFP602-B	FP713	Bacterial expression vector; source of the TurboFP602 coding sequence	20 µg
pTurboFP602-PRL	FP715	Promoterless vector encoding humanized TurboFP602 and designed for monitoring of activity of different promoters and promoter/enhancer combinations	20 µg
pTurboFP602-mito	FP717	Mammalian expression vector encoding humanized TurboFP602 targeted to mitochondria	20 µg
Antibodies against TurboFP602			
Anti-tRFP	AB233	Rabbit polyclonal antibody against TurboRFP, TurboFP602, TurboFP635, TurboFP650,	100 µg
	AB234	NirFP, TagBFP, TagRFP, FusionRed, TagFP635, mKate2 and PA-TagRFP	200 µg

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

Notice to Purchaser:

TurboFP602-related materials (also referred to as "Products") are intended for research use only. The Products are covered by U.S. Pat. 8,138,320; 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>.

The CMV promoter is covered under U.S. Patents 5,168,062 and 5,385,839, and its use is permitted for research purposes only. Any other use of the CMV promoter requires a license from the University of Iowa Research Foundation, 214 Technology Innovation Center, Iowa City, IA 52242.

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