

Red fluorescent proteins JRed

- True-red fluorescence
- Proven suitability to create stably transfected cell lines

Description

JRed is a red fluorescent protein obtained by mutagenesis of Anthomedusae jellyfish chromoprotein (Shagin *et al.*, 2002). JRed fluorescence can be detected using most popular filter sets.

Main properties of JRed

Characteristic	
Molecular weight	27 kDa
Polypeptide length	242 aa
Fluorescence color	true red
Excitation max	584 nm
Emission max	610 nm
Quantum yield	0.20
Extinction coefficient	44 000 M ⁻¹ cm ⁻¹
Brightness*	8.8
Brightness % of EGFP	26
pKa	5.0
Structure	dimer
Aggregation	no
Maturation at 37°C	slow
Photostability	medium

*Brightness is a product of extinction coefficient and quantum yield, divided by 1000.

Performance and use

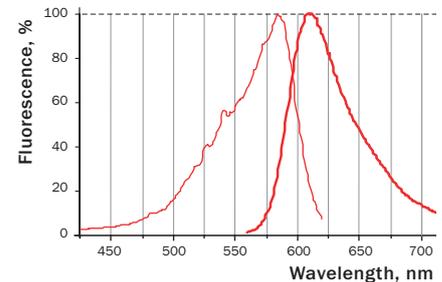
JRed can be expressed in eukaryotic cells; however, it is not appropriate for expression in prokaryotes.

Mammalian cells transiently transfected with JRed vector give red fluorescence without visible aggregation. Fluorescence is clearly detected within 24 hrs after transfection.

JRed suitability to generate stably transfected cells has been proven by Marinpharm company (www.marinpharm.com). Various cell lines are commercially available.

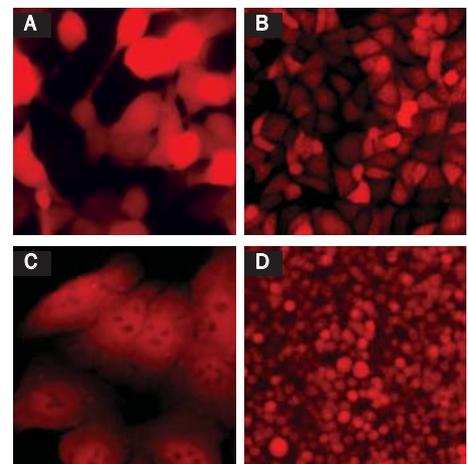
JRed possesses relatively fast photobleaching rate upon arc lamp irradiation. At the same time, it exhibits high photostability when excited by 543 nm laser line in a confocal microscope, with the photobleaching time several times longer compared with DsRed2. JRed could show phototoxicity when bleached.

Despite dimerization capacity, JRed demonstrates successful performance in fusions with subcellular localization signals and many cellular proteins including BH3 interacting domain death agonist (BID), nucleolar protein fibrillar, dopamin transporter (hDAT). However, we recommend that you use monomeric TagFPs for protein labeling applications. Please see section "Protein Localization Tags" (available at www.evrogen.com/TagFPs.shtml) to select a reporter for such purposes.



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

Complete JRed spectra in Excel format can be downloaded from the Evrogen Web site at www.evrogen.com/support/FP-tech.shtml



Fluorescent microscopy of mammalian cells expressing JRed in cytosol.

A — Transiently transfected 293T cells; B — stably transfected T24 cells; C — stably transfected HeLa cells; D — stably transfected WALKER cells.

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

Recommended filter sets and antibodies

JRed can be detected using TRITC filter set or similar. Recommended Omega filter sets are QMAX-Red and XF174.

JRed can be recognized using Anti-KillerRed antibody (Cat.# AB961) available from Evrogen.

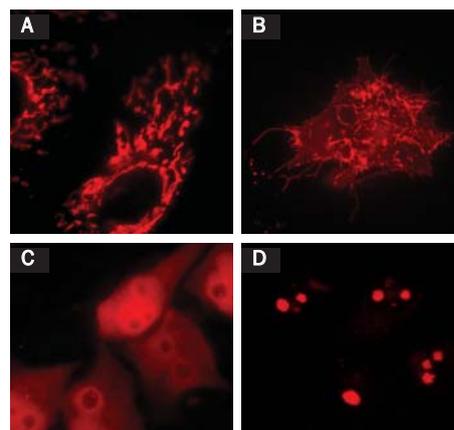
JRed licensing opportunities

Evrogen technology embodied in JRed 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

Shagin *et al.* (2004) *Mol. Biol. Evol.* 21(5): 841-850.



Fluorescent microscopy of mammalian cells expressing JRed fusions.

A — Mitochondria-targeted JRed in HeLa cells; B — JRed-hDAT fusion in PAE cells; C — JRed-BID fusion in HeLa cells; D — JRed-fibrillarin fusion in HeLa cells

JRed-related products

Product	Cat.#	Description	Size
JRed expression/source vectors			
pJRed-C	FP701	Mammalian expression vector encoding humanized JRed and allowing JRed expression and generation of fusions to the JRed C-terminus	20 µg
pJRed-N	FP702	Mammalian expression vector encoding humanized JRed and allowing JRed expression and generation of fusions to the JRed N-terminus	20 µg
pJRed-PRL	FP705	Promoterless expression vector encoding humanized JRed and designed for monitoring transcription from different promoters and promoter/enhancer combinations	20 µg
Antibodies against JRed			
Anti-KillerRed antibody	AB961	Rabbit polyclonal antibody against KillerRed and JRed	100 µg

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

Third party products: stably transfected cell lines expressing HyPer

Cell line	Source	Description
W-JR	rat	WALKER 256 rat tumor cells expressing JRed in cytosol
PC-JR	rat	PC-12 rat pheochromocytoma expressing JRed in cytosol
H-JR	human	HeLa human cervical carcinoma expressing JRed in cytosol
T24-JR	human	T24 human bladder carcinoma expressing JRed in cytosol
T406-JR	human	T406 human glioma expressing JRed in cytosol
ARPE19-JR	human	ARPE19 human retina pigment cells expressing JRed in cytosol
CHO-JR	hamster	Chinese hamster ovary cells CHO-K1 expressing JRed in cytosol
M3-JR	mouse	M3 mouse melanoma cells expressing JRed in cytosol
C2-JR	mouse	C2C12 mouse myoblast cells expressing JRed in cytosol
M3-JR-PY-Mito	mouse	Doubly transfected mouse melanoma M3 cells expressing PhiYFP in mitochondria and JRed in cytosol
P-JR-Mito	rat	Rat kangaroo kidney epithelium PtK2 expressing JRed in mitochondria
ARPE19-JR-Mito	human	ARPE19 human retina pigment cells expressing JRed in mitochondria
H-JR-Mito	human	HeLa human cervical carcinoma expressing JRed in mitochondria
T24-JR-Mito	human	T24 human bladder carcinoma expressing JRed in mitochondria
M3-JR-Mito	mouse	Mouse melanoma M3 cells expressing JRed in mitochondria
Fluorescent BID	human	T24 human carcinoma cells expressing JRed in mitochondria and apoptotic protein TurboGFP-BID fusion

Cell lines are manufactured by Marinpharm GmbH (Berlin, Germany, www.marinpharm.com) under the Evrogen license.

Notice to Purchaser:

JRed-related products: These products are intended for research use only and covered by 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 (available at www.evrogen.com/Evrogen-FP-license.shtml).

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MSDS information is available at <http://evrogen.com/support/MSDS-info.shtml>