SLIM

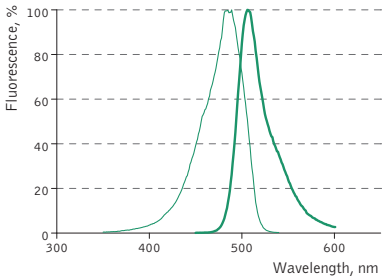
GFP with short fluorescence lifetime

- Green fluorescence
- Short fluorescence lifetime (1300 ps, in vitro)
- Recommended for fluorescence lifetime imaging microscopy (FLIM)
- Fast maturation and high photostability

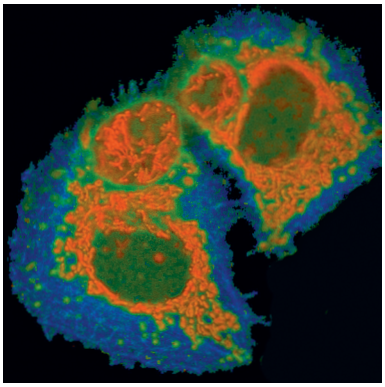
SLIM (**S**hortened **L**ifetime **I**maging **M**arker) is a highly photostable green fluorescent protein with fluorescence lifetime shortened/reduced relative to the common GFPs (1320 ps vs 2.5–3 ns) [Mamontova et al. 2018].

SLIM carries glycine-tyrosine-glycine (GYG) chromophore and demonstrates fast chromophore maturation under physiological conditions. It also shows weak reactivity in excited-state redox-chemistry and thus — low phototoxicity.

For multiparameter FLIM in green channel SLIM can be used with fluorescent proteins with similar fluorescence spectra and different fluorescence lifetimes:
BrUSLEE (800 ps),
SLIM (1.3 ns),
TagGFP2 (3.2 ns).



SLIM normalized excitation (thin line) and emission (thick line) spectra.
Complete SLIM spectra in Excel format can be downloaded from the Evrogen Web site at http://www.evrogen.com



Color-coded fluorescence lifetime imaging microscopy (FLIM) image of live HeLa cells co-expressing BrUSLEE (mitochondria), SLIM (nuclei) and TagGFP2 (cytoplasm).
Color hue indicates mean lifetime at each pixel:
red-orange — 750–900 ps,
green — 1 100–1 400 ps,
cyan-blue — 2 700–3 100 ps.
Single-photon fluorescence excitation at 488 nm was used to acquire these images.

Main properties of SLIM

Characteristic	
Molecular weight, kDa	27
Polypeptide length, aa	239
Fluorescence color	green
Excitation maximum, nm	488
Emission maximum, nm	508
Quantum yield	0.06
Extinction coefficient, $M^{-1}cm^{-1}$	70 000
Brightness*	4.2
Brightness, % of EGFP	13
Fluorescence lifetime, ps	1320
Fluorescence intensity decay	nearly single-exponential
Aggregation	no
Maturation rate at 37 °C	fast
Photostability	high
Cell toxicity	not observed
Main advantages	green fluorescent protein with shortened fluorescence lifetime

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

Performance and use

SLIM can be easily expressed and detected in a wide range of organisms. Mammalian cells transiently transfected with SLIM expression vectors produce bright fluorescence in 16–18 hrs after transfection. No cytotoxic effects or visible protein aggregation are observed.
It can be used in multiparameter FLIM in green channel.

Recommended filter sets and antibodies

The protein can be recognized using Anti-GFP antibody (Cat. # AB011) or Anti-Tag(CGY)FP antibody (Cat. # AB121) available from Evrogen.
SLIM can be detected using common fluorescence filter sets for EGFP, FITC and other green dyes. Recommended Omega Optical filter sets are QMAX-Green, XF100-2, XF100-3, XF115-2 and XF116-2.

Available variants and fusions

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

References

Mamontova, AV. et al. (2018). Sci. Rep. 8 (1): 13224 / pmid: 30185895

SLIM-related products

Product	Cat.#	Description	Size
SLIM expression vectors			
pSLIM-N	FP212	Mammalian expression vector encoding humanized SLIM and allowing its expression and generation of fusions to the SLIM N-terminus	20 μg
Antibodies against SLIM			
Anti-GFP	AB011	Rabbit polyclonal antibody against AceGFP1, TagCFP, TagGFP, TagGFP2, TagYFP, PS-CFP2, Case12, HyPer, EGFP, BrUSLEE and SLIM	100 μg
Anti-Tag(CGY)FP	AB121	Rabbit polyclonal antibody against TagCFP, TagGFP, TagGFP2, TagYFP, PS-CFP2, Case12, HyPer, EGFP, BrUSLEE and SLIM	100 μg

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