

## HaloTag® Ligands for Super Resolution Microscopy

The Janelia Fluor® HaloTag® Ligands enable characterization of HaloTag® fusions in endogenous cellular settings. These bright, fluorogenic, cell-permeable dyes cover the visible spectrum.

The JFX HaloTag® Ligands are even brighter analogs of the Janelia Fluor® dyes that incorporate deuterium into the alkylamino substituents of rhodamines. This inhibits photochemically induced spectral shifts and slows irreparable photobleaching.

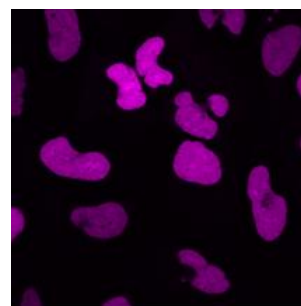
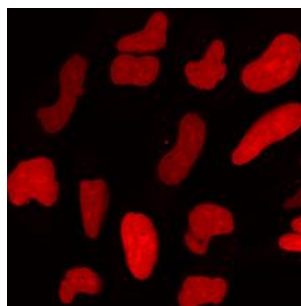
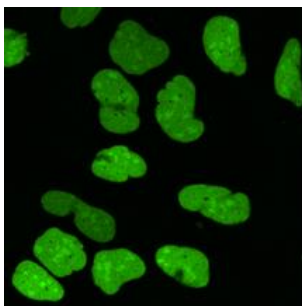
The enhanced photostability of the Janelia Fluor® dyes enables their use in detection, single-molecule imaging studies in live cells, and in vivo studies via:

- Super-resolution and high-resolution imaging. (e.g., SIM, STED, dSTORM).
- Standard confocal imaging.
- FACS.

### Janelia Fluor® HaloTag® Ligands Feature:

- Expansive color palette with fluorogenic options
- Rapid cell labeling
- High signal-to-noise ratio and specificity
- Enhanced brightness compared to fluorescent proteins
- Resistance to photobleaching

Now Available  
New DMSO-free Format  
**Janelia Fluor® HaloTag® Ligands**



**Live Cell labeling of U2OS cells expressing nuclear HaloTag® protein using DMSO-free Janelia Fluor® HaloTag® ligands.** Parental U2OS cells and U2OS cells stably expressing HaloTag® protein fused to three copies of a nuclear localization sequence were adhered to glass-bottom chamber slides and labeled with Janelia Fluor® 503, Janelia Fluor® JFX554 or Janelia Fluor® 635 HaloTag® Ligand for 30 minutes at 37°C + CO<sub>2</sub> in a cell culture incubator. Cell medium was replaced with a phenol-red-free medium. Cells were imaged with 488nm laser excitation for Janelia Fluor® 503 HaloTag® Ligand (**Panel A**), 561nm laser excitation for Janelia Fluor® JFX554 HaloTag® Ligand (**Panel B**) and 637nm laser excitation for Janelia Fluor® 635 HaloTag® Ligand (**Panel C**). In HaloTag®-expressing cells, labeling was restricted to the nucleus. Parental cells (without HaloTag®) showed no labeling. Images were collected using a Nikon AX/AXR confocal microscope with a plan fluor 40X oil objective.

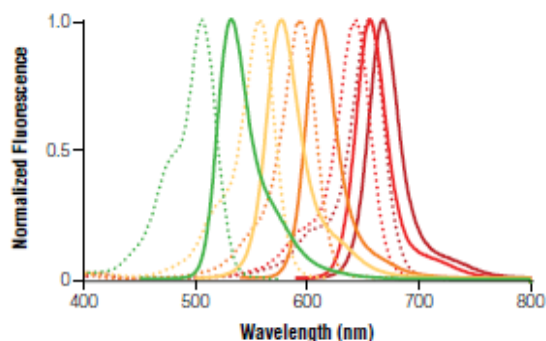
For more information about HaloTag® Ligands for Super Resolution Microscopy, visit: [www.promega.com/SuperResolution](http://www.promega.com/SuperResolution)

### References

1. Chong, S. *et al.* (2018) Imaging dynamic and selective low-complexity domain interactions that control gene transcription. *Science* **361**, eaar2555. PMID: [29930090](#)
2. Courtney, N. *et al.* (2018) Excitatory and inhibitory neurons utilize different Ca<sup>2+</sup> sensors and sources to regulate spontaneous release. *Neuron* **98**, 977–91. PMID: [29754754](#)
3. Damon, L.J. *et al.* (2022) Single molecule microscopy to profile the effect of zinc status on transcription factor dynamics. *Scientific Reports* **12**, 17789. PMID: [36273101](#)
4. Grimm, J. *et al.* (2015) A general method to improve fluorophores for live-cell and single-molecule microscopy. *Nature Methods* **12**, 244–50. PMID: [25599551](#)
5. Grimm, J. B *et al.* (2017) A general method to fine-tune fluorophores for live-cell and in vivo imaging. *Nature methods* **14**(10), 987–994. PMID: [28869757](#)
6. Guo, M. *et al.* (2018) Single-shot super-resolution total internal reflection fluorescence microscopy. *Nat. Methods* **15**, 425-8. PMID: [29735999](#)
7. Presman, D.M. *et al.* (2017) Quantifying transcription factor binding dynamics at the single-molecule level in live cells. *Methods* **123**, 76–88. PMID: [28315485](#)
8. van Leeuwen W, *et al.* (2022). Stress-induced phase separation of ERES components into Sec bodies precedes ER exit inhibition in mammalian cells. *Journal of Cell Science* 135(23) PMID: [36325988](#)

# Fluorescent HaloTag® Ligands

Excitation and emission spectra and table for the HaloTag® Ligands.



HaloTag® Ligand	Excitation maximum (dotted lines)	Emission maximum (solid lines)
Janelia Fluor® 503	503nm	529nm
Janelia Fluor® 549	549nm	571nm
Janelia Fluor® 585	585nm	609nm
Janelia Fluor® 635	635nm	652nm
Janelia Fluor® 646	646nm	664nm

## New DMSO-free formulation available in Early Access provides:

- A 5-pack of smaller aliquots so that more independent experiments can be executed with each purchase, which means less waste.
- Direct resuspension of the ligand in aqueous solutions including cell media.
- Greater accuracy of quantity of the HaloTag® Ligand being delivered to your cells.
- Clear visualization of the HaloTag® Ligand in the vial.

For more information, please contact [Proteomics@Promega.com](mailto:Proteomics@Promega.com) or your Promega representative.

## Ordering Information

Product	Size	Cat.#
Janelia Fluor® 503 HaloTag® Ligand	Lyo 5 pack; 1nmol/tube	<a href="#">HT1010</a>
Janelia Fluor® 525 HaloTag® Ligand	>2µg	<a href="#">CS315102</a>
	5µg	<a href="#">GA1110</a>
Janelia Fluor® 549 HaloTag® Ligand	3 x 5µg	<a href="#">GA1111</a>
	Lyo 5 pack; 1nmol/tube	<a href="#">HT1020</a>
Janelia Fluor® JFX554 HaloTag® Ligand	>2µg	<a href="#">CS315101</a>
	Lyo 5 pack; 1nmol/tube	<a href="#">HT1030</a>
Janelia Fluor® 585 HaloTag® Ligand	>2µg	<a href="#">CS315105</a>
	Lyo 5 pack; 1nmol/tube	<a href="#">HT1040</a>
Janelia Fluor® 635 HaloTag® Ligand	>2µg	<a href="#">CS315103</a>
	Lyo 5 pack; 1nmol/tube	<a href="#">HT1050</a>
	5µg	<a href="#">GA1120</a>
Janelia Fluor® 646 HaloTag® Ligand	3 x 5µg	<a href="#">GA1121</a>
	Lyo 5 pack; 1nmol/tube	<a href="#">HT1060</a>
Janelia Fluor® JFX650 HaloTag® Ligand	>2µg	<a href="#">CS315104</a>
	Lyo 5 pack; 1nmol/tube	<a href="#">HT1070</a>



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