

The Twinkle Factory

match₆₀₀

a.k.a. HMBR

Reference match600-50X

Quantity 74 µg

Store at 2-8 °C

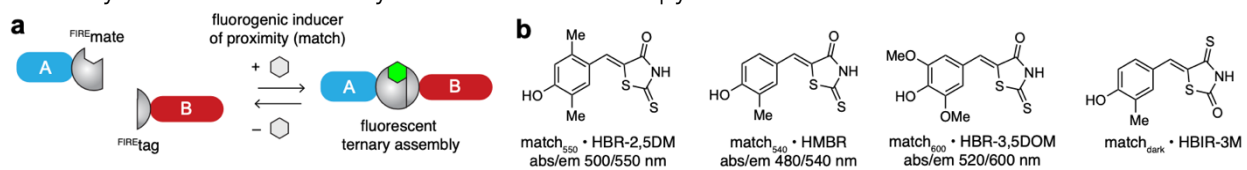
Spectral properties of match₆₀₀ when FIRE_{tag} & FIRE_{mate} interact

Excitation wavelength 520 nm

Emission wavelength 600 nm

match₆₀₀ is a fluorogenic molecular glue that can be used to selectively induce the dimerization of proteins fused to cognate FIRE_{mate} and FIRE_{tag}. One vial includes 250 nmol of **match₆₀₀**, enabling to prepare 50 mL of a 5 µM dimerizing solution.

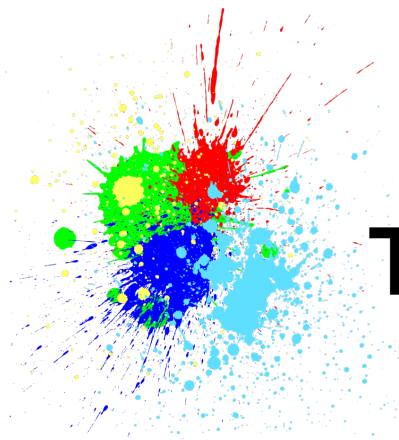
The Twinkle Factory technology CATCHFIRE (Chemically Assisted Tethering of Chimera by Fluorogenic Induced Recognition) is a fluorogenic chemically induced dimerization technology that enables one not only to artificially control the proximity of two proteins of interest in cells, but also to see their interactions. The two proteins are genetically fused to two small protein domains (FIRE_{mate} et FIRE_{tag}) which are capable of interacting together in a reversible fashion in the presence of small fluorogenic molecular glues such as **match₆₀₀**. When the two domains interact, the fluorescence of **match₆₀₀** increases 100 fold, enabling to see the newly induced interaction by fluorescence microscopy.



The use of CATCHFIRE implies cloning and expressing proteins fused to FIRE_{mate} and FIRE_{tag}, and treating cells with **match₆₀₀**. The protocol is described below. Note that proteins of interest can be expressed with FIRE_{mate} and FIRE_{tag} as either N- or C-terminal fusions.

The Twinkle Factory provides a range of fluorogenic dimerizers of various emission wavelengths, **match₅₄₀**, **match₅₅₀**, & **match₆₀₀**, and a non-fluorogenic dimerizer, **match_{dark}**. All of them are compatible with FIRE_{mate} and FIRE_{tag}.

Cells expressing proteins fused to FIRE_{mate} and FIRE_{tag} are not supplied by The Twinkle Factory. Plasmids containing FIRE_{mate} and FIRE_{tag} genes are available at Addgene www.addgene.org/Arnaud_Gautier/.



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Protocol of labeling in living cells

Dissolve one vial of **match₆₀₀** in 50 μL of DMSO to yield a 5 mM stock solution. Mix by vortexing for few seconds until all the **match₆₀₀** is dissolved. Note that different stock concentrations can be made depending on your requirements. **match₆₀₀** is soluble in DMSO up to at least 50 mM.

Dilute the stock solution 1:1000 in medium or buffer to yield a 5 μM dimerizing solution. Mix thoroughly by vortexing. For best performance, add **match₆₀₀** to serum-free medium or buffer, and do not keep/store the dimerizing solution. Note that different concentrations can be made depending on your requirements. Optimal concentrations range from 1 to 10 μM .

Remove the cell culture medium, wash with D-PBS, and replace the buffer with the dimerizing solution to induce protein dimerization. Image with appropriate settings.

To reverse the dimerization, remove the dimerizing solution, wash with D-PBS, and replace with culture medium.

Storage

Dry **match₆₀₀** should be stored at 2-8 $^{\circ}\text{C}$ in the dark. Once dissolved in DMSO, the solution should be aliquoted to avoid repeated freeze/thaw cycles and stored at -20°C in the dark. With proper storage, **match₆₀₀** should be stable at least three years dry or 6 months dissolved in DMSO.

Purity and Characterization

Purity of **match₆₀₀** was determined to be $> 99\%$ by nuclear magnetic resonance (NMR) and elementary analysis.

References

A fluorogenic chemically induced dimerization technology for controlling, imaging and sensing protein proximity. *Nature Methods* **20**, 1553–1562 (2023). doi.org/10.1038/s41592-023-01988-8

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- EP 3,164,411; JP 2017-527,261; US 10,138,278 (Fluorogen activating and shifting tag (FAST))
- EP 3,719,007; US 2022-0,169,682 (Split photoactive yellow protein complementation system and uses thereof)
- EP Appl. 22,306,308.2 (Proximity inducing system and uses thereof)

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