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Stellaris® RNA FISH Probes

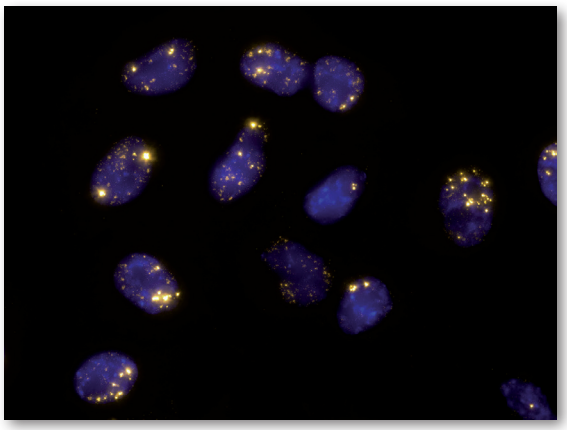
Detection, Localization & Quantification of Long Non-coding RNA

Long non-coding RNA (lncRNA) targets present unique challenges for researchers due to the lack of protein products and, typically, the existence of multiple splice variants. Biosearch Technologies offers carefully designed probe sets for the detection of select lncRNA targets, including MALAT1, the NEAT1 5′ segment, the NEAT1 Middle Segment, and XIST. Localization of lncRNA with these probe sets shows clear compartmentalization of NEAT1 to nuclear paraspeckles, and MALAT1 to nuclear speckles. All catalogued Stellaris probe sets have a final delivered amount of 1 nmol, which yields approximately 80 hybridizations under standard conditions. Target specific details and current protocols are available online at: www.biocat.com/stellarisprotocols

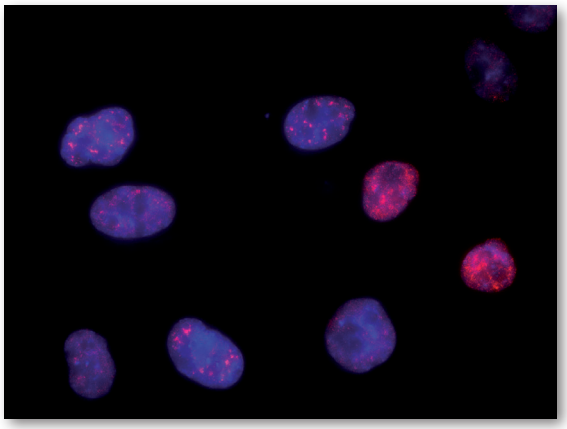
Custom Stellaris Probe Set Design

Design Stellaris FISH probes possessing optimal binding properties for your target lncRNA sequence by using Biosearch's free, web-based probe designer: www.biocat.com/stellarisdesigner. A custom Stellaris FISH probe set is a blend of up to 48 oligos each labeled with a single fluorophore. This probe stock is sufficient to provide 200 through 2000 hybridizations depending on the optimal working dilution for each target. Stellaris FISH probes arrive lyophilized and ready to use.

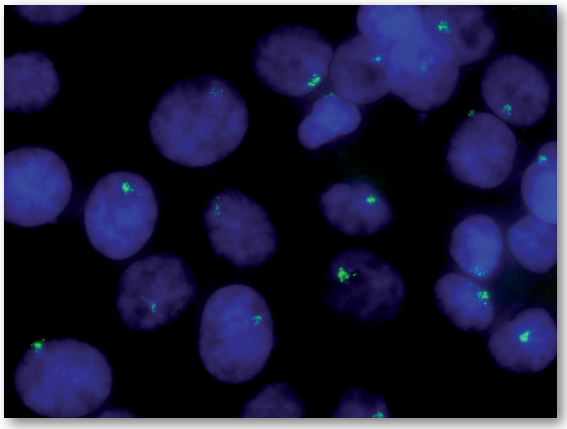
Long Non-Coding RNA Assays			
Catalog #	**Target**	**Species**	**Dye**
SMF-2035-1	MALAT1	Human	Quasar® 570
SMF-2036-1	NEAT1 5′ Segment	Human	Quasar® 570
SMF-2037-1	NEAT1 Middle Segment	Human	Quasar® 570
SMF-2038-1	XIST	Human	Quasar® 570
SMF-3008-1	MALAT1	Mouse	Quasar® 570
SMF-3009-1	NEAT1 5′ Segment	Mouse	Quasar® 570
SMF-3010-1	NEAT1 Middle Segment	Mouse	Quasar® 570
SMF-3011-1	XIST	Mouse	Quasar® 570



NEAT1 lncRNA within nuclear paraspeckles of A549 cells



MALAT1 lncRNA within nuclear speckles of A549 cells



XIST lncRNA coating the inactive X chromosome of NIH-OVCAR-3 cells

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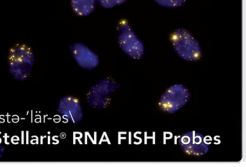


What is Stellaris RNA FISH?

Stellaris FISH (fluorescence *in situ* hybridization) is an RNA visualization method that allows simultaneous detection, localization, and quantification of individual RNA molecules, including long non-coding RNA (lncRNA), at the sub-cellular level in fixed samples using widefield fluorescence microscopy. A set of Stellaris FISH probes comprises multiple oligonucleotides with different sequences, each with a fluorescent label that collectively bind along the same target transcript to produce a punctate signal.

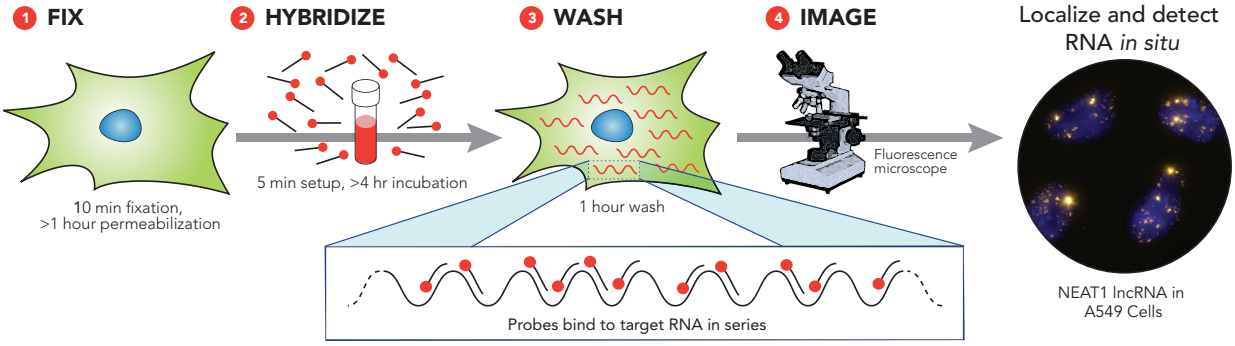
Fluorophore	EX (nm)	EM (nm)
Fluorescein	495	520
CAL Fluor® Orange 560	538	559
Quasar® 570 (Cy®3 Replacement)	548	566
TAMRA	557	583
CAL Fluor® Red 590 (TAMRA Replacement)	569	591
CAL Fluor® Red 610 (Alexa Fluor® 594 Replacement)	590	610
CAL Fluor® Red 635	618	637
Quasar® 670 (Cy®5 Replacement)	647	670

Note: All CAL Fluor® and Quasar® dyes are fluorophores proprietary to Biosearch Technologies. High background autofluorescence may obscure detection of fluorescein in some cell and tissue types.

The Stellaris FISH technology is versatile toward many sample types and applications. Scientists may even label multiple Stellaris FISH probe sets with various dyes, to allow for multiplex detection of different RNA targets simultaneously. Finally, scientists can address the stochastic nature of gene expression and visualize RNA through direct detection without isolation, purification, and amplification.

The Stellaris RNA FISH Method

The Stellaris FISH protocol is simple and inexpensive. It consists of four steps, as shown in the diagram below. No exotic reagents are required, and the entire process can be completed in less than a day.



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