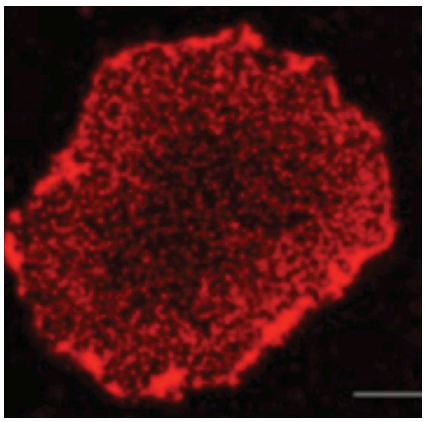
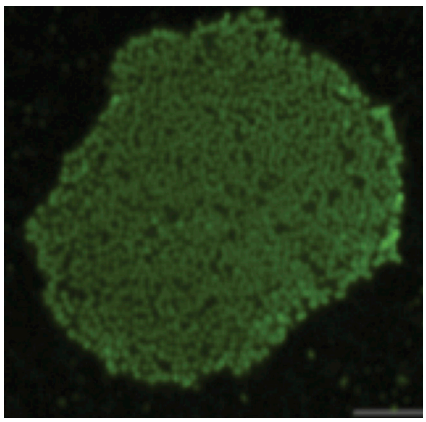
Live Cell Imaging with SmartFlare™ Probes

What's the difference between these ES Cell colonies stained for Nanog?



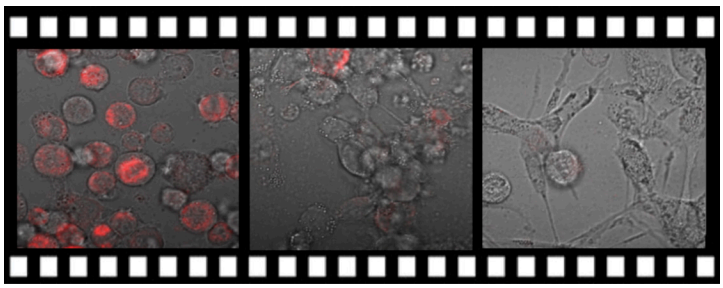


The colony on the left is still alive.
Find out how inside!

EMD Millipore Corp. is a subsidiary of Merck KGaA, Darmstadt, Germany

Take single cell analysis to the next level with live cell imaging

Imaging cells allows the visualization of cell morphology and expression levels of proteins through antibody labeling. Live cell imaging with SmartFlare™ probes allows you to more dynamically visualize changes to cells over time. Not stagnant. More dynamic.



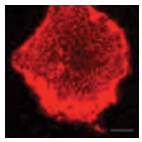
Time lapse microscopy during differentiation.

Live cell imaging is really cool. It's even better with SmartFlare™ Probes

Benefits of SmartFlare™ Probes for live cell imaging:

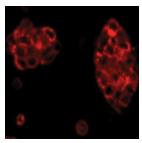
- No longer limited to surface markers or transfected fluorescent reporters.
- No toxicity or effect on gene expression.
- Continue to culture imaged cells for further downstream experiments.

Live cell imaging of biomarkers with SmartFlare™ Probes enables you to....



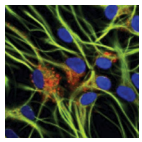
Verify stem cell pluripotency based on internal markers

Popular internal pluripotency markers such as Nanog can now be visualized in **live cells** allowing you to verify pluripotency and then continue to use the same cell for further experiments.



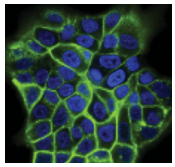
Use the same cells for multiple experiments

Imaging no longer needs to be an endpoint assay. You can now image cells based on internal markers and continue to use the same cells for further experiments.

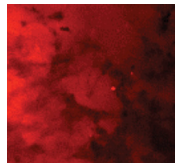


Visually identify cell subtypes by gene expression

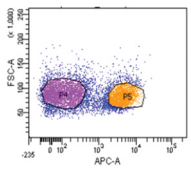
Sometimes cell subtypes have the same morphology. You can now visually identify cell subtypes based on differential expression of particular genes.



ICC



Invasion Assays

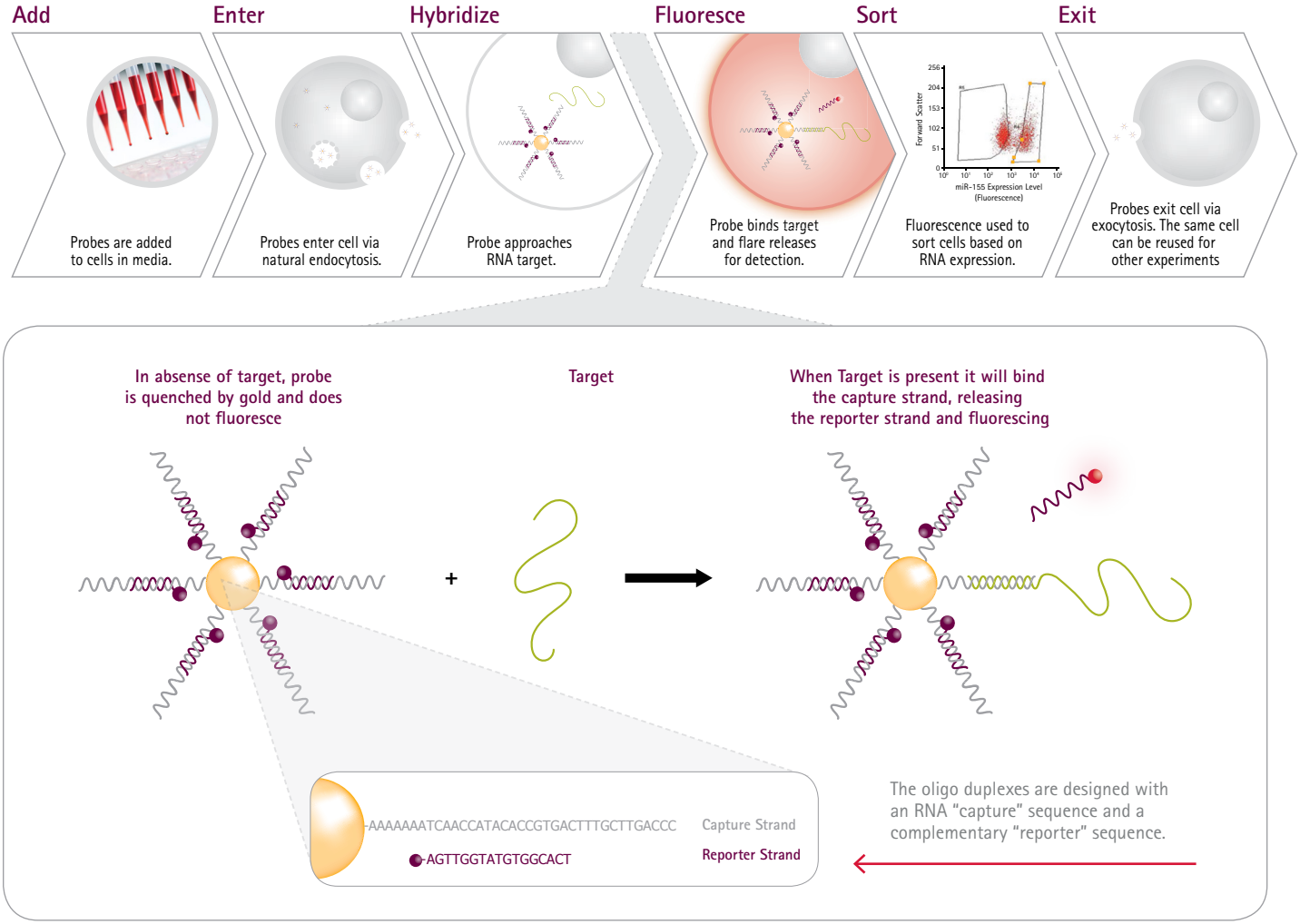


FACS Sorting

SmartFlare™ Probes work with a variety of imaging platforms...

Detection Platform	Live Cell Assas	Time Course	High Throughput Screens	Imaging Multiple Colors	Morphology in whole cells
Confocal Microscopes	✓	✓		✓	
Two-Photon Confocal Microscopes	✓	✓		✓	✓
High Content Imagers	✓	✓	✓	✓	
Wide-field/Epi-fluorescent Microscopes	✓				

All of these capabilities only require a simple addition to cell culture and a single incubation step.



Enter, bind, fluoresce, exit. SmartFlare™ probes enter the cell using the cell's own endocytosis process. The probes circulate within the cell and bind to the complementary RNA sequence. This binding event releases a fluorophore, illuminating the cells for detection. Over time, the probe exits the cell, leaving the cell unchanged and free for downstream analyses.

Cell lines with known compatibility

2102Ep	Hu MSC ES derived	SCC25	AGS	Daudi	Hu Astrocytes	MDA-MB-435	Rat Astrocytes	THP-1
A431	Hu skeletal muscle	SK-MEL-28	BT474	F9	Hu Chondrocytes	Ms Astrocytes	RAW 264.7	U373MG
ARPE-19	MC3T3-E1 Cl 4	SK-N-SH	BxPC-3	HDF	Hu Schwann	Mouse NSC	RIN-m5F	U87MG
HCC1806	MCF10-2A	U251	C33 a	Hec-1-A	HUVEC	NCI-H510A	RT4	UMR-106
HCN1A	MDA-MB-231	WEHI-3	CAKI-2	Hepa1c1c7	INS-1	NCI-H69	SK-N-AS	WI-38
Hs578t	PC-3	10T 1/2	Capan1	Hepa1-6	Jurkat	NCI-N87	SU-DHL-1	H9 Human ES
HT1080	RT4-D6P2T	A172	CCF-STTG1	HL-60	LNCaP	NIH/Ovcar3	T47D	iPS
Hu cardiac myocytes	Saos-2	A549	Daoy	HT29	MCF-7	PANC-1	T98G	

Find out what you can sort with today!

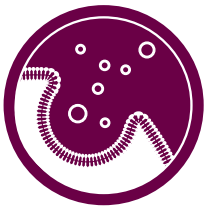
We have over 1,500 SmartFlare™ Probes in our catalog across multiple research areas, especially Cancer and Stem cells. If we do not have your target in the catalog, we can make a custom SmartFlare™ Probe for you!

See a list of available probes at: **www.emdmillipore.com/smartflare**

Don't just take our word for it....

SmartFlare™ Probes have been used for many different live cell imaging applications

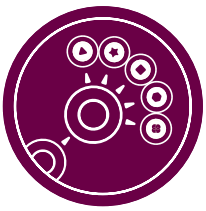
SmartFlare™ probes are versatile reagents which improve live single cell research across multiple applications. Whether identifying subpopulations secreting biomarkers, verifying pluripotency after reprogramming, or visualizing cell subtypes for patch clamping, researchers are using SmartFlare™ Probes to make novel discoveries. What will you uncover in your research?



Live Cell Imaging cells based on Secreted Markers

Seftor et al. Seminars in Oncology, Pubmed ID: 24787297

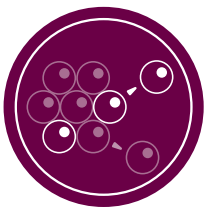
SmartFlare™ Probes used to sort live melanoma cell populations based on differential expression of Nodal, a secreted marker.



Live Cell Imaging based on Stem Cell Markers

Lahm et al. Stem Cells, Pubmed ID: 25335772

SmartFlare™ Probes used to sort live Nanog positive cells. Sorted populations with higher Nanog signal showed a greater potential for differentiation into cells of all three germ layers.

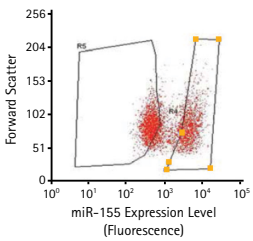


Live Cell Imaging of Cardiac Cell Subtypes

Steve McClellan, Nature Webinar, 2013

SmartFlare™ Probes used to sort live cancer stem cells from a variety of tumor types based on Nanog positive signal. The resulting sort products were characterized and shown to be tumorigenic.

Interested in live cell imaging? SmartFlare™ Probes can do that too!



Sorting based on intracellular RNA markers. Cells were sorted based on miR-155 expression. miR-155 high and miR-155 low cells were isolated and then used for downstream experiments examining protein levels in the same cells.

Ready to take the next step in live cell analysis?

Check out our guide for first time users on our website.

www.emdmillipore.com/smartflare

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