

Non-modified RNA Kit for Cellular Reprogramming of Fibroblasts, Blood, and Urine

Overview

Stemgent's latest evolution in RNA reprogramming combines non-modified RNA and microRNA technology to provide a kit for stem cell researchers with a new level of versatility, simplicity and time savings, enabling cellular reprogramming of human fibroblasts, and cells from blood and now urine for difficult to reprogram patient samples.



Key Benefits

Flexible technology generates high-quality human iPS cell lines from multiple target cell types

Simplified protocols minimize processing steps, increasing researcher's out-of-the-box success rate for reprogramming of human neonatal and adult fibroblasts, endothelial progenitor cells (EPCs) derived from fresh or frozen human peripheral and cord blood, and urine-derived epithelial cells (UDCs).

Simplified protocols and high efficiency for out-of-the-box reprogramming success

Stemgent's StemRNA-NM requires as few as four additional reagents beyond the three kit components depending upon the cell type, unlike other technologies requiring 11 or more additional reagents. Double-stranded microRNAs enhance reprogramming efficiency for the generation of stable iPS cell lines from refractory patient samples. As few as 25,000 starting cells are needed to generate industry-leading efficiencies for fibroblasts (2 – 4%), EPCs (0.4 – 3%), and UDCs (0.1 – 0.5%).

Time-saving protocol delivers faster results facilitating higher throughput

Colonies are ready to pick in only 10-14 days for fibroblasts and 12-16 days for EPCs and UDCs. This kit eliminates the need for screening primary iPS cell colonies, saving researchers an additional 2 to 10 weeks (3 – 10+ passages) needed for vector clearance required by other reprogramming technologies.

Features	StemRNA-NM (Cat. No 00-0076)			StemRNA-SR (Cat. No. 00-0075)
	Fibroblasts	Urine (UDCs)	Blood (EPCs)	Blood (EPCs)
No. wells per kit	9	3	3	5
No. Transfections required	4	8	8	2
Days to primary iPS cell colonies	10-14	14-16	14-16	28
Reprogramming efficiency	2-4%	0.1-0.5%	0.4-3%	0.001-0.005%
Screening required	No	No	No	Yes
Xeno-compatible protocol	Yes	No	No	No
GMP-compatible RNA manufacturing protocol	Yes	Yes	Yes	No

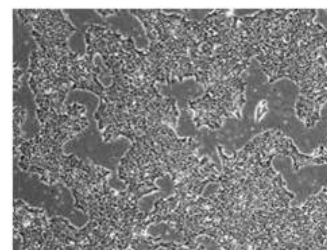


Figure 1. iPS cells derived from fibroblasts using the StemRNA-NM Reprogramming Kit were cultured on iMatrix-511 in NutriStem™ XF/FF Culture Medium (01-0005) for 7 passages. Magnification: 4x .

Reference

Poleganov MA; Eminli S; Beissert T; Herz S; Moon JI; Goldmann J; Beyer A; Heck R; Burkhart I; Barea Roldan D; Türeci Ö; Yi K; Hamilton B; Sahin U. Efficient reprogramming of human fibroblasts and blood-derived endothelial progenitor cells using non modified RNA for reprogramming and immune evasion. *Human Gene Therapy* 26:751 (2015)

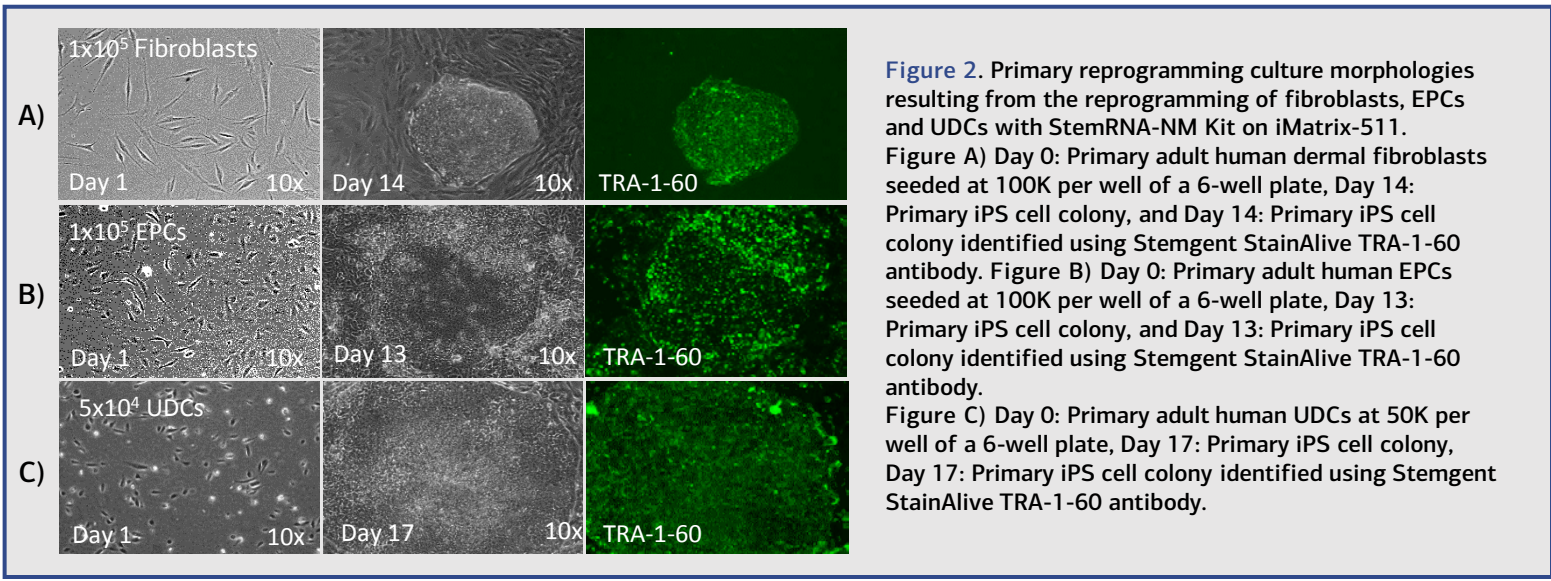


Figure 2. Primary reprogramming culture morphologies resulting from the reprogramming of fibroblasts, EPCs and UDCs with StemRNA-NM Kit on iMatrix-511. Figure A) Day 0: Primary adult human dermal fibroblasts seeded at 100K per well of a 6-well plate, Day 14: Primary iPS cell colony, and Day 14: Primary iPS cell colony identified using Stemgent StainAlive TRA-1-60 antibody. Figure B) Day 0: Primary adult human EPCs seeded at 100K per well of a 6-well plate, Day 13: Primary iPS cell colony, and Day 13: Primary iPS cell colony identified using Stemgent StainAlive TRA-1-60 antibody. Figure C) Day 0: Primary adult human UDCs at 50K per well of a 6-well plate, Day 17: Primary iPS cell colony, Day 17: Primary iPS cell colony identified using Stemgent StainAlive TRA-1-60 antibody.

Product Ordering Information

ReproCELL's Stemgent® StemRNA™-NM Reprogramming Kit

PRODUCT NAME	QUANTITY	CAT. NO.
Stemgent StemRNA-NM Reprogramming Kit	Kit	00-0076
Components	3 Components	
• OSKMNL NM-RNA		
• NM-microRNAs		
• EKB NM-RNA		
NutriStem™ XF/FF Culture Medium	500 mL	01-0005
FGF-Basic, Human Recombinant (not required for fibroblast reprogramming)	50 µg	03-0002
StainAlive™ TRA-1-60 (DyLight™ 488), mouse anti-human	100 µL	09-0068
iMatrix-511	350 µg (2 x 175 µg)	NP892-011

Related Reprogramming Reagents

PRODUCT NAME	QUANTITY	CAT. NO.
Stemgent StemRNA-SR Reprogramming Kit (Blood)	Kit, 3 components	00-0075
Stemgent mRNA Reprogramming Kit (Fibroblasts)	1 Kit	00-0071
Stemgent microRNA Booster Kit (Fibroblasts)	1 Kit	00-0073
mRNA Reprogramming Factors Set: hOKSML	1 Set	05-0014
Oct4 mRNA, Human	20 µg	05-0014
Klf4 mRNA, Human	20 µg	05-0015
Sox2 mRNA, Human	20 µg	05-0016
Lin28 mRNA, Human	20 µg	05-0017
c-Myc mRNA, Human	20 µg	05-0018
nGFP mRNA	20 µg	05-0019
eGFP mRNA	20 µg	05-0020
Nanog mRNA, Human	20 µg	05-0021
L-Myc mRNA, Human	20 µg	05-0022

This technology is based on BioNTech® iPS Cell Technology and exclusively licensed to Stemgent Inc. for research reagents and services.



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