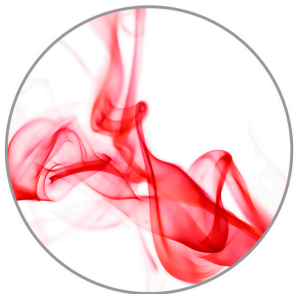
ReproCELL® Stemgent® StemRNA™-SR Reprogramming Kit

REPROCELL
INTEGRATED TOOLS FOR TRANSLATIONAL RESEARCH

Self-replicative RNA Kit for Cellular Reprogramming



Overview

ReproCELL's Stemgent® StemRNA™-SR Reprogramming Kit is the first commercial cellular reprogramming kit combining self-replicative RNA (srRNA) and microRNA technologies to provide stem cell researchers with safe, flexible, fast and cost-effective-reprogramming of both endothelial progenitor cells (EPCs) derived from human peripheral and cord blood as well as adult human and neonatal fibroblasts.

Key Benefits

Flexible technology generates high quality human iPS cell lines from both blood samples and fibroblast lines

The reprogramming kit protocol has the flexibility to use genetically stable EPCs derived from fresh or frozen human peripheral and cord blood, or neonatal and adult human fibroblasts.

Reproducible StemRNA-SR kit protocol requires two transfections

A two-transfection protocol includes one microRNA transfection to enhance reprogramming reproducibility and efficiency, and one srRNA transfection for OKSiM reprogramming factor delivery. Primary iPS cell colonies are generated in as few as three weeks with demonstrated patient-to-patient reprogramming efficiencies of ≥70% with the unmodified protocol (Table 1).

Virus and DNA-free StemRNA-SR kit extends RNA reprogramming technology for clinical research

Virus and DNA-free srRNA reprogramming of genetically stable EPCs combines easy clinical access to patient blood samples with integration-free RNA reprogramming technology. This facilitates the generation of clinically-relevant iPS cell lines.

BLOOD SOURCE	PRIMARY EPC ESTABLISHMENT EFFICIENCY	REPROGRAMMING EFFICIENCY (PATIENT TO PATIENT)
Peripheral Blood	18/22 = 82%	9/13 = 70%
Cord Blood	46/53 = 87%	33/41 = 81%
TOTAL	64/75 = 85%	42/54 = 78%

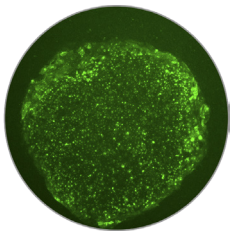


TABLE 1. Efficient establishment and cellular self-replicative RNA reprogramming of EPCs derived from human blood samples.
Primary EPC establishment efficiency for peripheral blood is cumulative of both fresh blood and cryopreserved MNC (mononuclear cell) samples. Cord blood efficiency data are from cryopreserved MNCs only. Each collagen-coated T-75 flask was seeded with a minimum of $5x10^7$ MNCs. The unmodified StemRNA-SR kit protocol demonstrated high patient-to-patient reprogramming efficiency using a single reprogramming run. Typical final yields are 10-20 iPS colonies per well in a 6-well plate format.

Features

- Robust, validated protocol for reprogramming genetically stable EPCs from human peripheral or cord blood
- Virus- and DNA-free OKSiM reprogramming factors using self-replicative RNA
- Two-transfection protocol eliminates need for conditioned medium, co-transfections, small molecules and feeder cells
- iPS cell colonies generated from EPCs and fibroblasts in as few as 25 days
- Protocol accommodates 5 reprogramming wells in a 6-well plate format

ReproCELL brings together three trusted brands to create a beginning-to-end stem cell solution with convenient one stop shopping.

REPROCELL GROUP COMPANIES

bioserve stemgent reinnervate

Product Ordering Information

ReproCELL's Stemgent® StemRNA™-SR Reprogramming Kit

PRODUCT NAME	QUANTITY	CAT. NO
Stemgent StemRNA-SR Reprogramming Kit Components: • OKSiM srRNA • microRNA Reprogramming Cocktail • B18R Recombinant Protein	1 Kit	00-0075
NutriStem™ XF/FF Culture Medium	500 mL	01-0005
FGF-Basic, Human Recombinant (bFGF)	50 µg	03-0002
StainAlive™ Tra-1-60 (Dylight™ 488), mouse anti-human	100 µL	09-0068

Additional Reprogramming Reagents

PRODUCT NAME	QUANTITY	CAT. NO
Stemgent mRNA Reprogramming Kit	1 Kit	00-0071
Stemgent microRNA Booster Kit	1 Kit	00-0073
Pluriton™ Reprogramming Medium	500 mL	00-0070
mRNA Reprogramming Factors Set: hOKSML	1 Set	00-0067
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

Related Stem Cell Products and Services

- Antibodies
- Culture media for hES/iPS cell culture and cellular reprogramming
- Services - Custom induced pluripotent (iPS) cell line generation
- Training – RNA Reprogramming

References

Yoshioka, N. *et al.* (2013) Efficient generation of human iPSCs by a synthetic self-replicative RNA. *Cell Stem Cell;* 13(2): 246-54.

Geti, I. *et al.* (2012) A practical and efficient cellular substrate for the generation of induced pluripotent stem cells from adults: blood-derived endothelial progenitor cells. *Stem Cells Transl Med.;* 1:855-65.

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