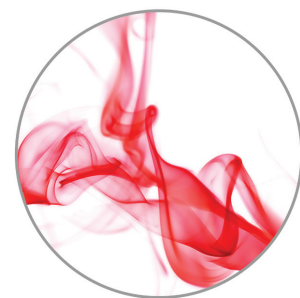


## Self-replicative RNA Kit for Cellular Reprogramming

### 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.

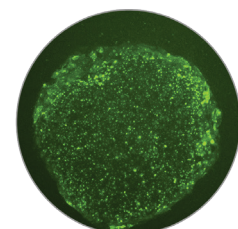
**Reproducible StemRNA-SR kit protocol requires two transfections**

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  $\geq 70\%$  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  $5 \times 10^7$  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.



# Product Ordering Information



## ReproCELL's Stemgent® StemRNA™-SR Reprogramming Kit

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

## Additional Reprogramming Reagents

PRODUCT NAME	QUANTITY	CAT. NO
<b>Stemgent mRNA Reprogramming Kit</b>	1 Kit	00-0071
<b>Stemgent microRNA Booster Kit</b>	1 Kit	00-0073
<b>Pluriton™ Reprogramming Medium</b>	500 mL	00-0070
<b>mRNA Reprogramming Factors Set: hOKSML</b>	1 Set	00-0067
<b>Oct4 mRNA, Human</b>	20 µg	05-0014
<b>Klf4 mRNA, Human</b>	20 µg	05-0015
<b>Sox2 mRNA, Human</b>	20 µg	05-0016
<b>Lin28 mRNA, Human</b>	20 µg	05-0017
<b>c-Myc mRNA, Human</b>	20 µg	05-0018
<b>nGFP mRNA</b>	20 µg	05-0019
<b>eGFP mRNA</b>	20 µg	05-0020
<b>Nanog mRNA, Human</b>	20 µg	05-0021
<b>L-Myc mRNA, Human</b>	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.



### AMERICAS-HUMAN TISSUE

9000 Virginia Manor Road, Suite 207  
Beltsville, MD 20705, USA  
Tel: (301) 470-3362  
Email: [info@bioserve.com](mailto:info@bioserve.com)  
[www.bioserve.com](http://www.bioserve.com)



### AMERICAS-REAGENTS

51 Moulton Street  
Cambridge, MA 02138, USA  
Tel: (617) 245-0000  
Email: [info@stemgent.com](mailto:info@stemgent.com)  
[www.stemgent.com](http://www.stemgent.com)



### ASIA PACIFIC

KDX Shin-yokohama381 Bldg9F  
3-8-11, Shin-yokohama, Kohoku-ku, Yokohama,  
Kanagawa 222-0033, Japan  
Tel: +81 45 475 3887  
Email: [info\\_jp@reprocell.com](mailto:info_jp@reprocell.com)  
[www.reprocell.com/en](http://www.reprocell.com/en)



### EUROPE

NETPark Incubator  
Thomas Wright Way  
Sedgefield, Co. Durham  
TS21 3FD, UNITED KINGDOM  
Tel: +44 (0)1740 625 526  
Email: [info@reinnervate.com](mailto:info@reinnervate.com)  
[www.reinnervate.com](http://www.reinnervate.com)