
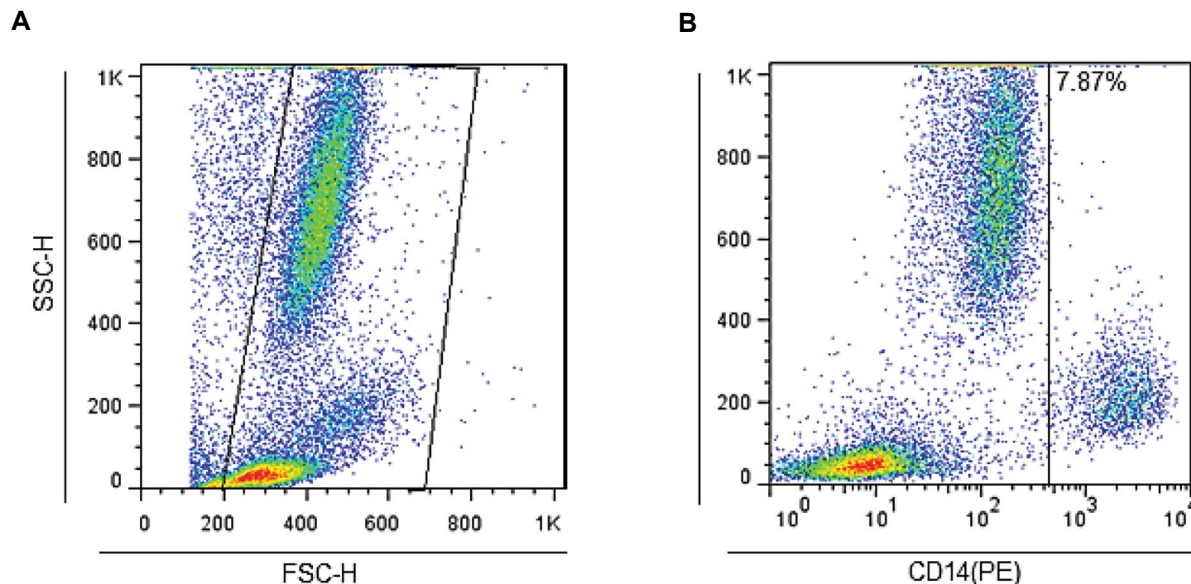


## Supplementary Information for

# Umbilical Cord Blood-Derived Monocytes as A Reliable Source of Functional Macrophages for Biomedical Research

Shukoofeh Torabi, Ph.D.<sup>1,2</sup>, Morteza Zarrabi, M.D., Ph.D.<sup>1,3</sup>, Nikoo Hossein-Khannazer, Ph.D.<sup>4</sup>,  
Majid Lotfinia, Ph.D.<sup>5</sup>, Masoumeh Nouri, Ph.D.<sup>3</sup>, Roberto Gramignoli, Ph.D.<sup>6, 7\*</sup> ,  
Moustapha Hassan, Ph.D.<sup>8</sup>, Massoud Vosough, M.D., Ph.D.<sup>1, 8\*</sup> 

1. Department of Regenerative Medicine, Cell Science Research Center, Royan Institute for Stem Cell Biology and Technology, ACECR, Tehran, Iran
2. Department of Applied Cell Sciences, Faculty of Basic Sciences and Advanced Medical Technologies, Royan Institute, ACECR, Tehran, Iran
3. R & D Department, Royan Stem Cell Technology Co, Tehran, Iran
4. Gastroenterology and Liver Diseases Research Center, Research Institute for Gastroenterology and Liver Diseases, Shahid Beheshti University of Medical Sciences, Tehran, Iran
5. Physiology Research Center, Kashan University of Medical Sciences, Kashan, Iran
6. Department of Laboratory Medicine, Division of Pathology, Karolinska Institute, Stockholm, Sweden
7. Department of Pathology and Cancer Diagnostic, Karolinska University Hospital, 141 83 Stockholm, Sweden
8. Experimental Cancer Medicine, Institution for Laboratory Medicine, and Karolinska University Hospital, Karolinska Institute, Stockholm, Sweden



**Fig.S1:** Frequency of monocytes in UCB. The percentage of CD14<sup>+</sup> cells in umbilical cord blood was analyzed by flow cytometry. **A.** Forward scatter versus side scatter of total leukocytes. **B.** The mean percentage of CD14<sup>+</sup> cells in gated total leukocytes of umbilical cord blood samples from at least eight different healthy donors.

Received: 21/February/2023, Revised: 15/May/2023, Accepted: 21/May/2023

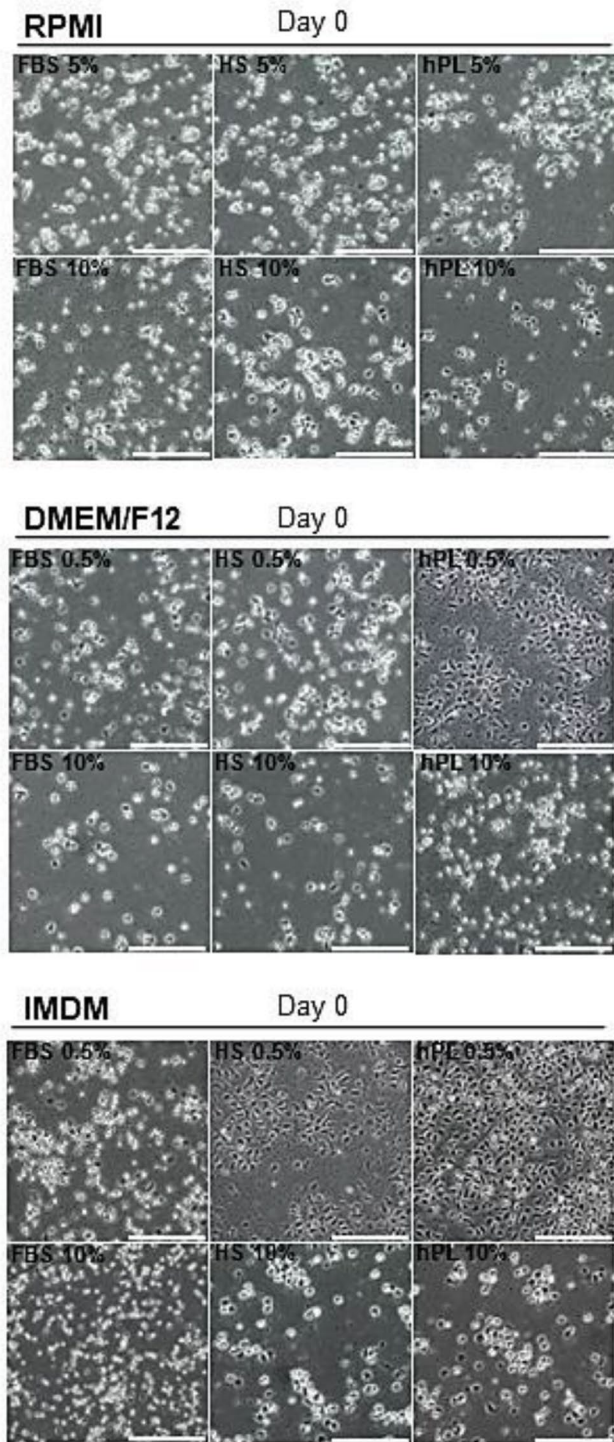
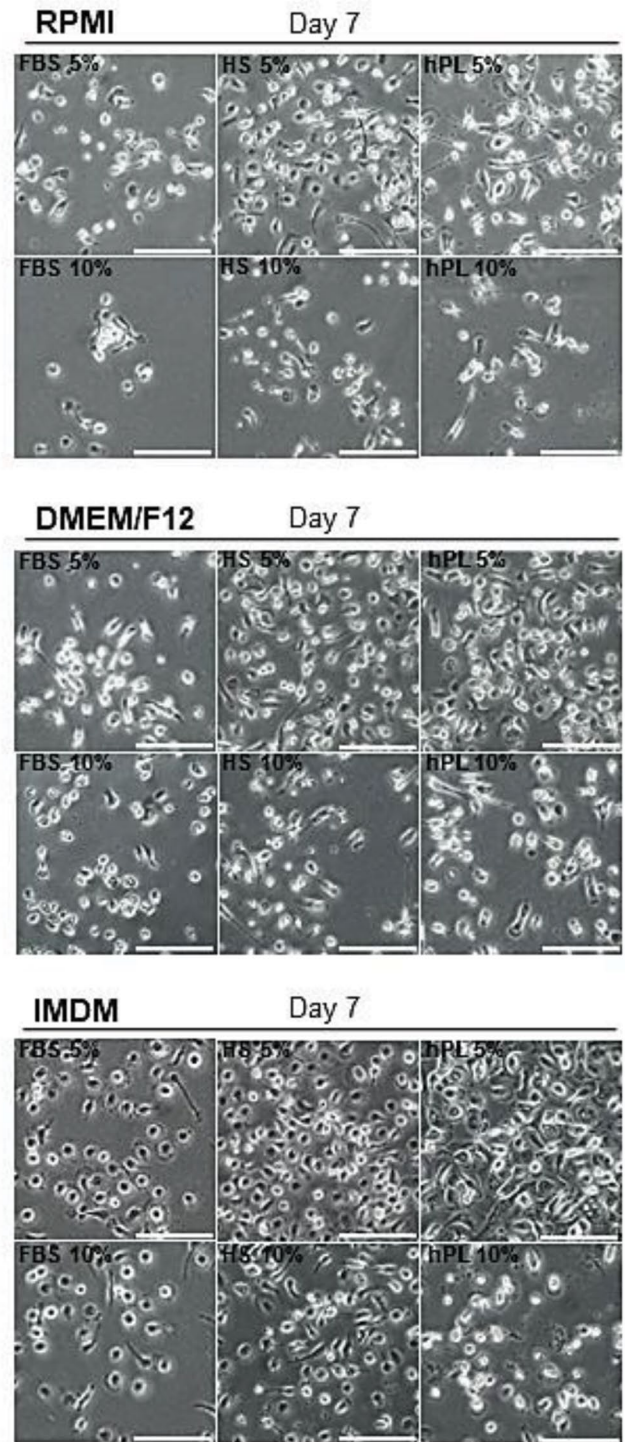
\*Corresponding Addresses: Department of Laboratory Medicine, Division of Pathology, Karolinska Institutet, Stockholm, Sweden

P.O.Box: 16635148, Department of Regenerative Medicine, Cell Science Research Center, Royan Institute for Stem Cell Biology and Technology, ACECR, Tehran, Iran

Emails: roberto.gramignoli@Ki.se, masvos@royaninstitute.org



Royan Institute  
Cell Journal  
(Yakhteh)

**A****B**

**Fig.S2:** Phenotype and adhesion of monocyte and differentiated macrophages. **A.** The phenotype and adhesion of isolated monocyte in different three media (RPMI, DMEM/F12 and IMDM) in the presence of low (0.5%) or high (10%) percent of different serums (FBS, HS and hPL). **B.** The phenotype and adhesion of differentiated macrophages after seven days of cultivation in different three medium (RPMI, DMEM/F12, and IMDM) with different percentages of FBS, HS, and hPL. FBS; Fetal bovine serum, HS; Human serum, hPL; Human platelet lysate. Data showed that monocyte adhesion to the plate was significantly increased in the presence of a low concentration of serum and macrophages cultivated in IMDM supplemented with 5% hPL exhibited the typical morphology of matured macrophages (scale bar: 100  $\mu$ m).

**Table S1:** The polymerase chain reaction (PCR) primer sequences

<b>Name</b>	<b>Primer sequence (5' - 3')</b>	<b>Annealing temperature (°C)</b>	<b>Product size (bp)</b>
<i>IL-10</i>	F: TGCAAAACCAAACCACAAGA R: TCTCGGAGATCTCGAAGCAT	60	176
<i>TGF-β1</i>	F: GAAACCCACAACGAAATCTATGAC R: TAACTTGAGCCTCAGCAGAC	60	144
<i>DC-SIGN</i>	F: TCCAGAAGTAACCGCTTCACC R: ATACTGCTTGAAGCTGGGCA	60	105
<i>Fizz1</i>	F: CCTAATCCCCCTTCTCCAGC R: AGTGACAGCCATCCCAGCA	60	193
<i>CD163</i>	F: TTTGTCAACTTGAGTCCCTTCAC R: TCCCCTACACTTGTTTTAC	60	127
<i>MRC1</i>	F: CAGACACGATCCGACCCTTC R: GTCTCCGCTTCATGCCATTG	60	125
<i>CD80</i>	F: AAACCTCGCATCTACTGGCAAA R: GGTTCCTTGACTCGGGCCATA	60	87
<i>IL-1β</i>	F: CTG TCCTGCGTGTTGAAAGA R: TTCTGCTTGAGAGGTGCTGA	60	180
<i>TNF-α</i>	F: GGGCCTGTACCTCATCTA R: AGACCCCTCCCAGATAGATG	60	212
<i>IL-6</i>	F: AGGAGACTTGCCTGGTGAAA R: CAGGGGTGGTTATTGCATCT	60	180