



EPC Enrichment and Enumeration Kit, human

Enumeration of endothelial progenitor cells (EPCs) within only two hours

- High sensitivity due to pre-enrichment of EPCs
- Optimal performance with pre-titrated high-quality antibody cocktails
- High level of standardization for comparable results
- All necessary reagents included
- Cell preparation and analysis within only two hours
- Comprehensive experimental protocol

EPCs are defined by the expression of CD34, CD133, and CD309 (VEGFR-2/KDR).^{1,2}

Circulating EPCs (cEPCs) have been enumerated based on the expression of these markers by several studies. cEPCs are considered a measurable parameter for the assessment of risk factors for various diseases³⁻⁷ as well as for the capacity for vascular repairing. cEPC numbers were correlated with, for example:

- certain phases during congestive heart failure⁴,
- acute myocardial infarction⁵,
- risk factors for atherosclerosis⁶,
- risk factors for cardiovascular disease⁷,
- physical training⁸,
- cessation of smoking⁹.

The EPC Enrichment and Enumeration Kit utilizes the EPC markers for efficient magnetic pre-enrichment by MACS® Technology and subsequent sensitive cell enumeration by flow cytometry.

References:

1. Peichev, M. *et al.* (2000) *Blood* 95: 952–958.
2. Rafii, S. and Lyden, D. (2003) *Nat. Med.* 9: 702–712.
3. Urbich, C. and Dimmeler, S. (2005) *Kidney Int.* 67: 1672–1676.
4. Valgimigli, M. *et al.* (2004) *Circulation* 110: 1209–1212.
5. Massa, M. *et al.* (2005) *Blood* 105: 199–206.
6. Werner, N. and Nickenig, G. (2006) *Arterioscler. Thromb. Vasc. Biol.* 26: 257–266.
7. Vasa, M. *et al.* (2001) *Circ. Res.* 89: e1–e7.
8. Steiner, S. *et al.* (2005) *Atherosclerosis* 181: 305–310.
9. Kondo, T. *et al.* (2004) *Arterioscler. Thromb. Vasc. Biol.* 24: 1442–1447.

The EPC Enrichment and Enumeration Kit contains all the reagents that are required to achieve reliable results.

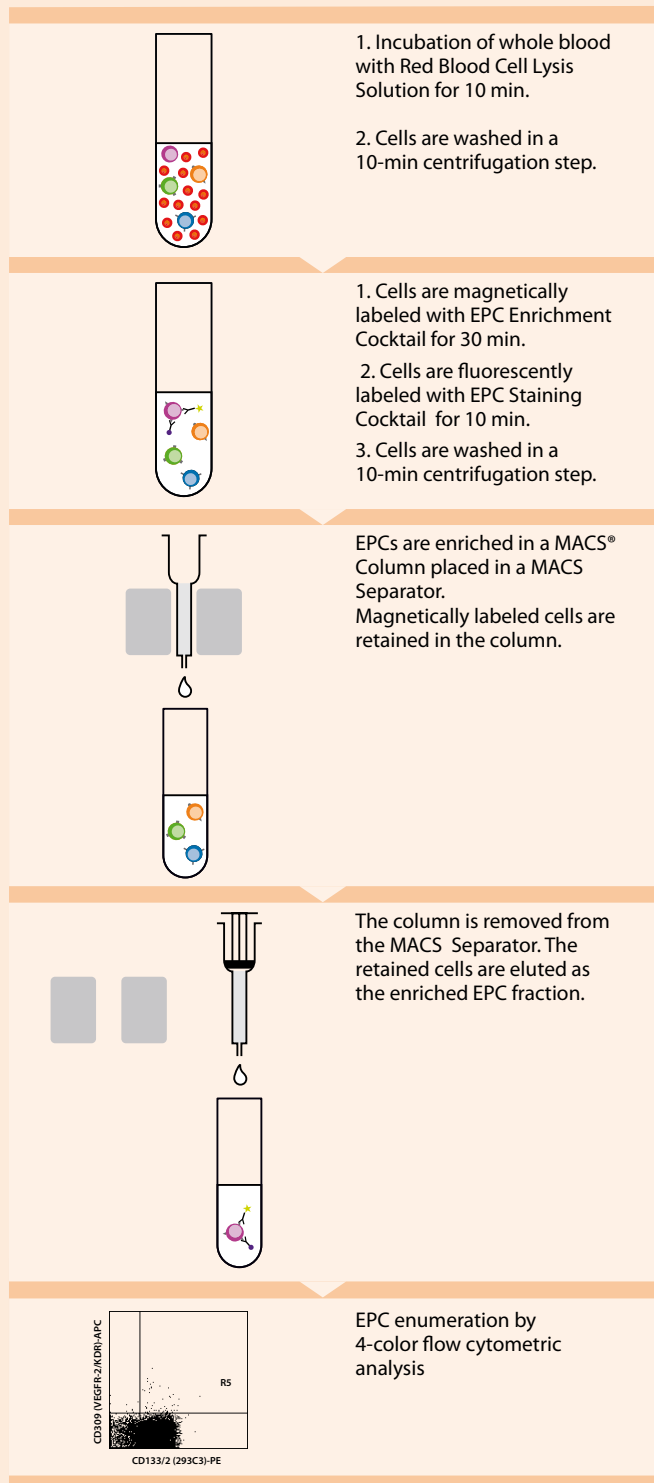


Figure 1

Product	Order no.
EPC Enrichment and Enumeration Kit, human	130-093-477

Component	Benefit
Red Blood Cell Lysis Solution	No density gradient centrifugation required. Loss of EPCs is minimized.
EPC Enrichment Cocktail, human	Enrichment of EPCs results in reduced cell numbers for fast fluorescent analysis and high sensitivity
FcR Blocking Reagent, human	No unspecific Fc receptor-mediated labeling of non-target cells.
EPC Staining Cocktail, human	<ul style="list-style-type: none"> Highly specific and sensitive staining by three markers (CD34, CD133, CD309 (VEGFR-2/KDR) and one exclusion marker (CD14) Optimal selection of fluorochrome-conjugated antibodies Optimal antibody clones and titer
EPC Control Cocktail CD309, human and EPC Control Cocktail CD133, human	Exclusion of false positive cells for highly reliable EPC enumeration
Propidium Iodide Solution	Exclusion of dead cells

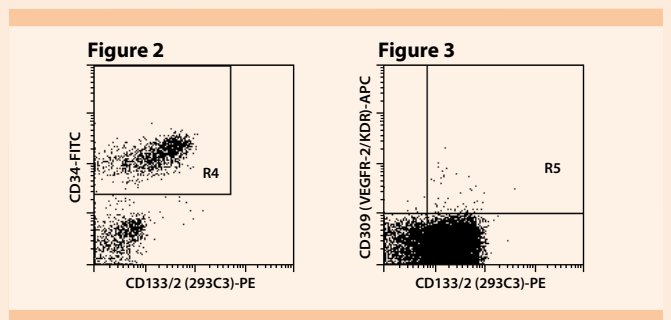


Figure 1: Schematic diagram for the enrichment and enumeration of EPC samples. Samples for the control of the specificity of CD133 and CD309 staining are prepared in a similar manner by adding the appropriate control cocktails. For the preparation of the CD133 control sample, the enrichment step is omitted.

Figure 2: Identification of CD34⁺CD133⁺ cells in the pre-enriched EPC sample. Cells were stained with CD34-FITC and CD133/2 (293C3)-PE and analyzed by flow cytometry. The population in R4 was used for further analysis of CD133 and CD309 expression shown in figure 3.

Figure 3: Enumeration of CD34⁺CD133⁺CD309 (VEGFR-2/KDR)⁺ EPCs in the pre-enriched EPC sample. Data were gated on CD34⁺ cells. Cells were stained with CD309 (VEGFR-2/KDR)-APC and CD133/2 (293C3)-PE.



Miltenyi Biotec GmbH
Friedrich-Ebert-Straße 68
51429 Bergisch Gladbach
Germany
Phone +49 2204 8306-0
Fax +49 2204 85197
macs@miltenyibiotec.de

Miltenyi Biotec Inc.
12740 Earhart Avenue
Auburn, CA 95602
USA
Phone 800 FOR MACS,
+1 530 888 8871
Fax +1 530 888 8925
macs@miltenyibiotec.com

Miltenyi Biotec Australia Pty. Ltd.
Phone +61 02 8877 7400
macs@miltenyibiotec.com.au

Miltenyi Biotec B.V. (Benelux)
macs@miltenyibiotec.nl
Customer service Netherlands
Phone 0800 4020120
Customer service Belgium
Phone 0800 94016
Customer service Luxembourg
Phone 800 24971

Miltenyi Biotec Trading (Shanghai) Co., Ltd. (P.R. China)
Phone +86 21 6235 1005
macs@miltenyibiotec.com.cn

Miltenyi Biotec SAS (France)
Phone +33 1 56 98 16 16
macs@miltenyibiotec.fr

Miltenyi Biotec S.r.l. (Italy)
Phone +39 051 646 0411
macs@miltenyibiotec.it

Miltenyi Biotec K.K. (Japan)
Phone +81 3 5646 8910
macs@miltenyibiotec.jp

Miltenyi Biotec Asia Pacific Pte. Ltd. (Singapore)
Phone +65 6238 8183
macs@miltenyibiotec.com.sg

Miltenyi Biotec S.L. (Spain)
Phone +34 91 512 12 90
macs@miltenyibiotec.es

Miltenyi Biotec Ltd. (UK)
Phone +44 1483 799 800
macs@miltenyibiotec.co.uk

www.miltenyibiotec.com