



Miltenyi Biotec

MACS® GMP Cytokines

Culture is key





MACS® GMP Cytokines

Facilitate *ex vivo* cell culture processing

Miltenyi Biotec is a global provider of products advancing cell-based clinical research and promoting the growth of cellular therapy. The production of high quality cytokines for the expansion and differentiation of target cells follows from our research focus on stem cell-based tissue regeneration as well as immunotherapy, including adoptive T cell transfer, NK cell-based therapies, and dendritic cell vaccination.

MACS® GMP Cytokines are manufactured in a GMP-certified facility. This facility is equipped with state-of-the-art production areas from class A to D, which allow for upstream (cell culture/ fermentation) and downstream processing.



Figure 1: MACS GMP Cytokines – Culture is key

Lot-to-lot consistency

No time consuming re-evaluation needed.

Lot-specific certificate of analysis with biological activity and protein content

Always know exactly how many units you use in your assays.

Tested to regulatory standards

Facilitates discussions with your regulatory authorities about sterility or endotoxin testing methods.

Extensive stability studies

Rely on consistent protein stability.

Regular audits by customers and notified bodies

See for yourself that we also comply to your standards.

Fully developed and validated workflows for cell therapy manufacturing

Save time and money by using products and protocols which have been proven to work together in a variety of applications.



MACS® GMP Cytokines

Excellence at Miltenyi Biotec

Highest quality standards

- Stringent quality control – specific activity, sterility, purity, identity, protein content, endotoxin content, host cell DNA and protein content.
- Produced in a modern GMP-certified facility, including a full quality management system according to ISO 9001 & ISO 13485.
- Manufactured and tested in compliance with relevant GMP guidelines.
- Following the recommendations of USP <1043> on ancillary materials.
- Intended for *ex vivo* cell culture processing and research use.

Reliability

- Extensive documentation.
- Lyophilized without carrier protein or preservatives.
- Reliable supply and fast delivery.
- Traceability of products and qualification of raw materials.

Flexibility

- Large-scale manufacturing.
- Customized formulations, flexible fill and finish options.
- Custom cytokines produced in bacterial or eukaryotic expression systems.

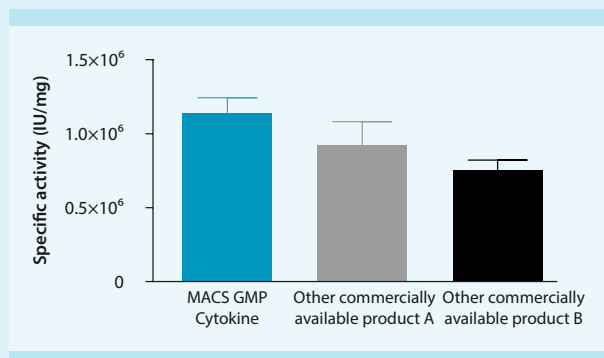


Figure 2: Human GM-CSF biological activity. Activity of MACS GMP Recombinant Human GM-CSF (blue bar) was compared to two other commercially available products (gray and black bars).

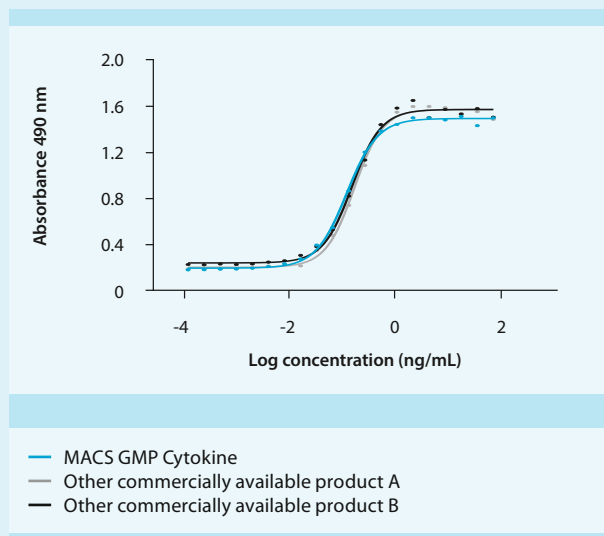


Figure 3: Human GM-CSF activity assay. The biological activity of MACS GMP Recombinant Human GM-CSF was determined by proliferation assay using TF-1 cells. Activity of Human GM-CSF, GMP grade (blue line) was compared to two other commercially available products (gray and black lines).

Product	Content	Order no.	Content	Order no.	Content	Order no.
MACS GMP Recombinant Human Activin A	5 µg	170-076-179	25 µg	170-076-180		
MACS GMP Recombinant Human EGF	100 µg	170-076-406	500 µg	170-076-407		
MACS GMP Recombinant Human FGF-2	25 µg	170-076-107	500 µg	170-076-125		
MACS GMP Recombinant Human Flt3-Ligand	100 µg	170-076-132				
MACS GMP Recombinant Human GM-CSF	25 µg	170-076-112	250 µg	170-076-136		
MACS GMP Recombinant Human IL-1β	25 µg	170-076-102				
MACS GMP Recombinant Human IL-2	25 µg	170-076-148	100 µg	170-076-146	500 µg	170-076-147
MACS GMP Recombinant Human IL-3	25 µg	170-076-110				
MACS GMP Recombinant Human IL-4	25 µg	170-076-101	250 µg	170-076-135		
MACS GMP Recombinant Human IL-6	10 µg	170-076-160	50 µg	170-076-161		
MACS GMP Recombinant Human IL-7	25 µg	170-076-111				
MACS GMP Recombinant Human IL-12	5 µg	170-076-173	25 µg	170-076-174	100 µg	170-076-175
MACS GMP Recombinant Human IL-15	25 µg	170-076-114				
MACS GMP Recombinant Human IL-18	25 µg	170-076-183				
MACS GMP Recombinant Human IL-21	25 µg	170-076-115				
MACS GMP Recombinant Human M-CSF	10 µg	170-076-170	50 µg	170-076-171	250 µg	170-076-172
MACS GMP Recombinant Human SCF	10 µg	170-076-149	100 µg	170-076-133		
MACS GMP Recombinant Human SHH (C24II)	25 µg	170-076-181	100 µg	170-076-182		
MACS GMP Recombinant Human TGF-β1	5 µg	170-076-166	25 µg	170-076-167	100 µg	170-076-168
MACS GMP Recombinant Human TNF-α	25 µg	170-076-103	100 µg	170-076-178		
MACS GMP Recombinant Human TPO	50 µg	170-076-134				



Miltenyi Biotec

Miltenyi Biotec B.V. & Co. KG
Friedrich-Ebert-Straße 68
51429 Bergisch Gladbach
Germany
Phone +49 2204 8306-0
Fax +49 2204 85197
macsde@miltenyi.com

Miltenyi Biotec Inc.
2303 Lindbergh Street
Auburn, CA 95602-9562, USA
Phone 800 FOR MACS
Phone +1 530 888 8871
Fax +1 877 591 1060
macsus@miltenyi.com

Miltenyi Biotec Australia Pty. Ltd.
Phone +61 2 8877 7400
macsau@miltenyi.com

Miltenyi Biotec B.V. (Benelux)
macsnl@miltenyi.com
Customer service The Netherlands
Phone 0800 4020120
Customer service Belgium
Phone 0800 94016
Customer service Luxembourg
Phone 800 24971

Miltenyi Biotec Technology & Trading (Shanghai) Co., Ltd. (P.R. China)
Phone +86 21 6235 1005
macscn@miltenyi.com

Miltenyi Biotec SAS (France)
Phone +33 1 56 98 16 16
macsfr@miltenyi.com

Miltenyi Biotec S.r.l. (Italy)
Phone +39 051 6 460 411
macsit@miltenyi.com

Miltenyi Biotec K.K. (Japan)
Phone +81 3 5646 8910
macsjp@miltenyi.com

Miltenyi Biotec Norden AB (Nordics and Baltics)
macsse@miltenyi.com
Customer service Sweden
Phone 0200 111 800
Customer service Denmark
Phone 80 20 30 10
Customer service Norway, Finland, Iceland, and Baltic countries
Phone +46 46 280 72 80

Miltenyi Biotec Asia Pacific Pte Ltd (Singapore)
Phone +65 6238 8183
macssg@miltenyi.com

Miltenyi Biotec Korea Co., Ltd. (South Korea)
Phone +82 2 555 1988
macskr@miltenyi.com

Miltenyi Biotec S.L. (Spain)
Phone +34 91 512 12 90
macses@miltenyi.com

Miltenyi Biotec Swiss AG (Switzerland)
Phone +41 32 623 08 47
macsch@miltenyi.com

Miltenyi Biotec Ltd. (UK)
Phone +44 1483 799 800
macsuk@miltenyi.com

www.miltenyibiotec.com

Miltenyi Biotec provides products and services worldwide. Visit www.miltenyibiotec.com/local to find your nearest Miltenyi Biotec contact.

Unless otherwise specifically indicated, Miltenyi Biotec products and services are for research use only and not for therapeutic or diagnostic use. MACS® GMP Products are for research use and *ex vivo* cell culture processing only, and are not intended for human *in vivo* applications. For regulatory status in the USA, please contact your local representative. MACS GMP Products are manufactured and tested under a quality system certified to ISO 13485 and are in compliance with relevant GMP guidelines. They are designed following the recommendations of USP <1043> on ancillary materials. MACS and the Miltenyi Biotec logo are registered trademarks or trademarks of Miltenyi Biotec and/or its affiliates in various countries worldwide. Copyright © 2021 Miltenyi Biotec and/or its affiliates. All rights reserved.