



**ACTIVE BIOSCIENCE**

PROTEINS · CELLS · ANTIBODIES

**Cytokines and Growth Factors**

**cell culture tested premium grade – cct-premium**



- High activity
- Low endotoxin
- Made in Germany
- Flexible pack sizes
- Carrier free or with stabilizer
- Tested in multiple applications

## Production

The cct-premium products are produced in *E. Coli* or insect cells. The identity is verified by N-terminal sequencing and mass spectrometry. SDS-PAGE and Western Blot are also used. Our production is ISO 9001:2015 certified.

## Quality controls

The purity is determined with SDS-PAGE and RP-HPLC if necessary. Test vials from each batch are reconstituted in our QC laboratory after lyophilization and carefully checked for protein quantity and activity. We generally store retention samples.

## Bioactivity

The bioactivity of our cct-premium range is measured in a suitable bioassay in direct comparison to the WHO standard. The specific activity is then stated in IU/mg in the data sheet. A CoA with batch-specific activity values is available. The batch-to-batch consistency is very high.

## Endotoxin

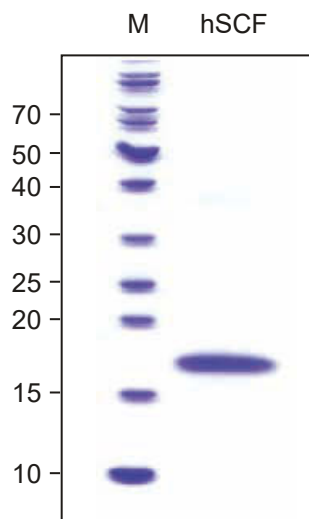
The endotoxin content of our products is consistently very low. For cct-premium products, our limit is a power of 10 lower than for our regular and many of our competitors' proteins. Usually, an additional step of endotoxin depletion is performed during production.

## Sterility

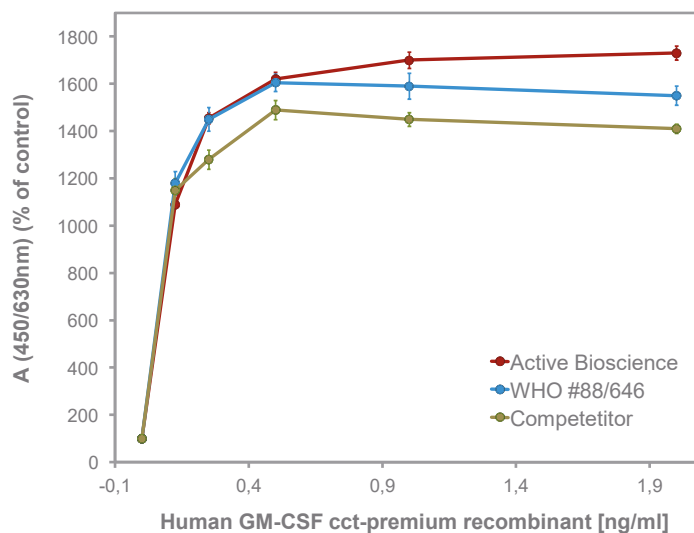
All products are sterile filtered (0.2µm) before lyophilization.

## Shelf life and storage

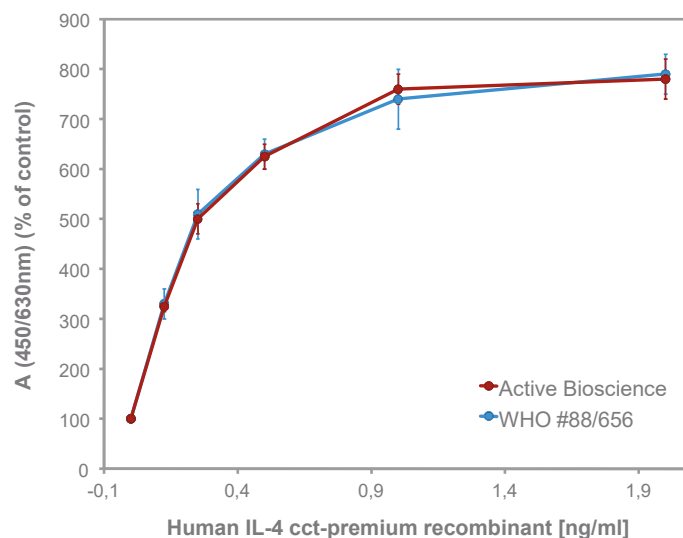
All cct-premium proteins are lyophilized and stable for at least two years from date of shipment. For easy and inexpensive shipping the stability of our products at room temperature has been tested and is guaranteed for 3-4 weeks. We recommend long-term storage at -20°C to -24°C. Instructions for reconstitution and storage of stock solutions can be found on the lot-specific data sheet.



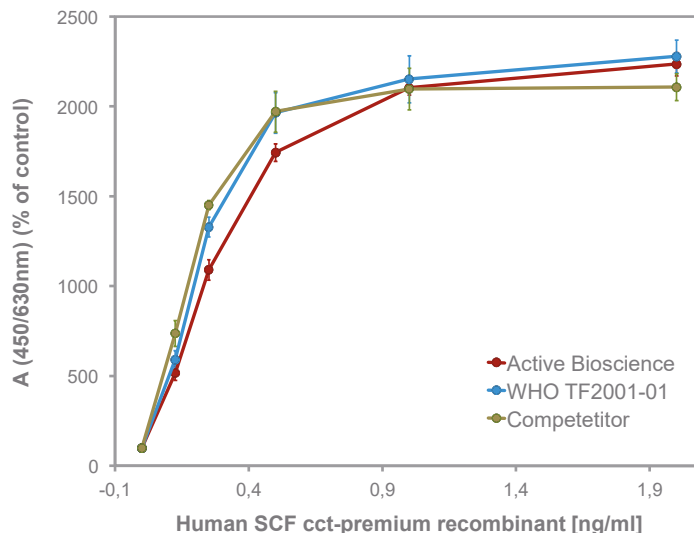
(SDS-PAGE 15%)



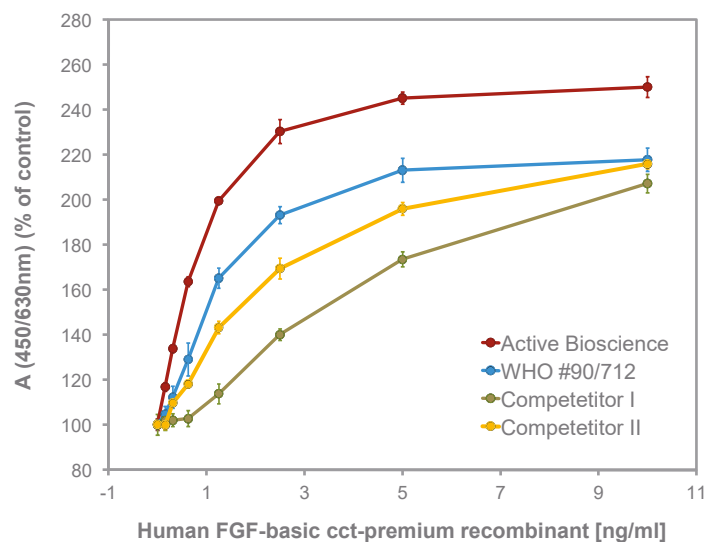
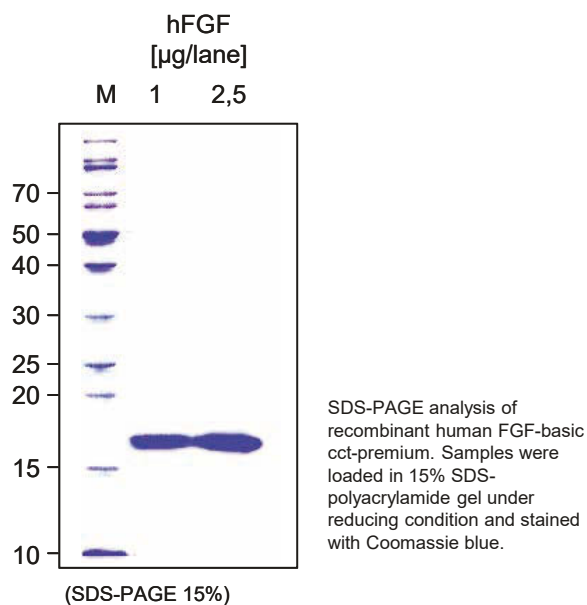
**Figure 1:** Measurement of the dose-dependent stimulation of cell proliferation in TF-1 cells by recombinant human GM-CSF cct-premium, the WHO standard 88/646 and human GM-CSF of a competitor. Values are the means ( $\pm$ SD) of triplicate determinations and expressed as percentage of control.



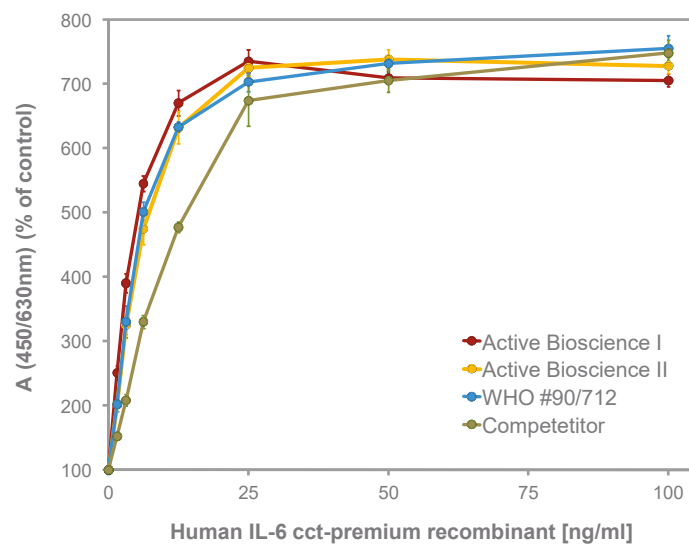
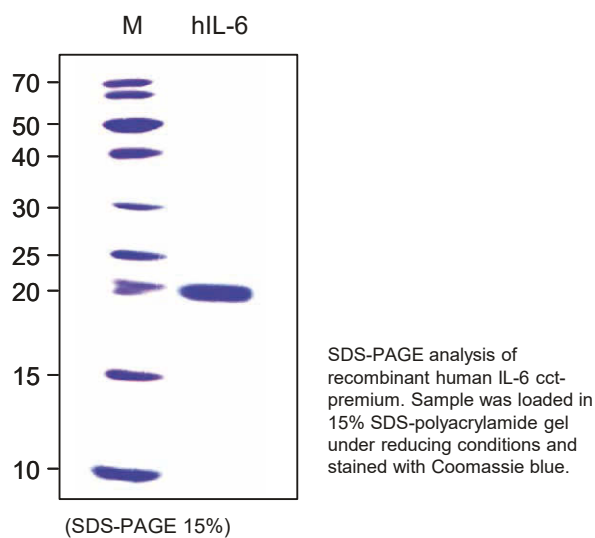
**Figure 2:** Measurement of the dose-dependent stimulation of cell proliferation in TF-1 cells by recombinant human IL-4 cct-premium and the WHO standard 88/656. Values are the means ( $\pm$ SD) of triplicate determinations and expressed as percentage of control.



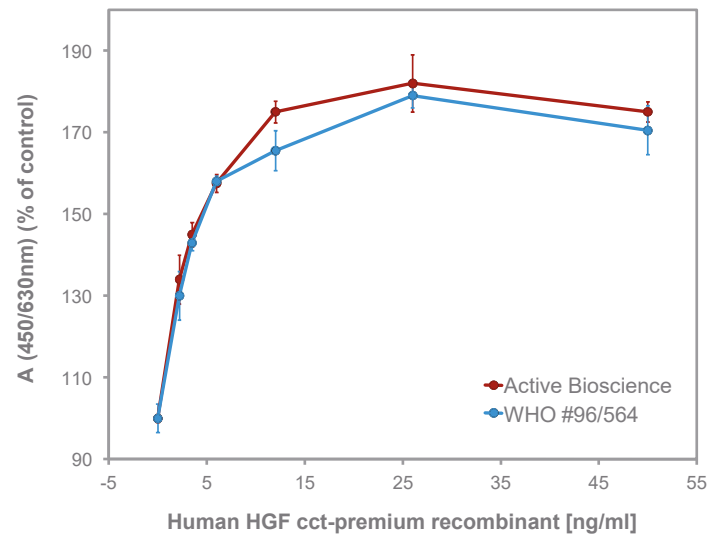
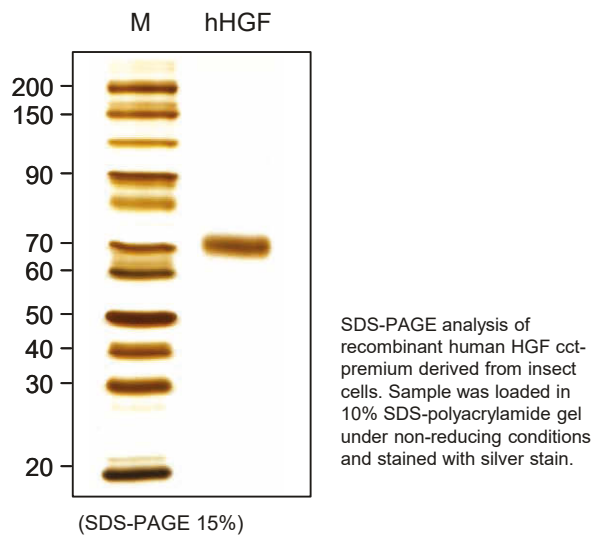
**Figure 3:** Measurement of the dose-dependent stimulation of cell proliferation in TF-1 cells by recombinant human SCF cct-premium and the WHO standard #91/682 and human SCF of a competitor. Values are the means ( $\pm$ SD) of triplicate determinations and expressed as percentage of control.



**Figure 4:** Measurement of the dose-dependent stimulation of cell proliferation in primary human umbilical vein endothelial cells (HUVEC) by recombinant human FGF-basic cct-premium and the WHO standard 90/712 and FGF-basic of two competitors. Values are the means ( $\pm$ SD) of triplicate determinations and expressed as percentage of control.



**Figure 5:** Measurement of the dose-dependent stimulation of cell proliferation in mouse hybridoma cell line B9 by IL-6 cct-premium and WHO standard 89/548 and an IL-6 protein from a competitor. The cells were stimulated with increasing amounts of recombinant human IL-6.



**Figure 6:** Measurement of the dose-dependent stimulation of cell proliferation in MDCK cells by recombinant human HGF cct-premium and the WHO standard 96/564. Values are the means ( $\pm$ SD) of triplicate determinations and expressed as percentage of control.



## cct-premium products

Some experiments are very sensitive to even small variations in bioactivity. In order to enable these customers to always use exactly the same units and therefore exactly the same activity, we introduced the cct-premium grade in 2006. The bioassay for our cct-premium products always follows the WHO standard, so that the exact activity can be indicated batch-specific. In the production process we add an additional step to remove edotoxin, so that endotoxin

value is almost always below the detection limit (LAL-Test). The majority of our customers use our research grade products. The cct-premium grade is mainly used by media manufacturers, biotech and pharmaceutical companies. Customers who use for example primary cells which already show a high variance or who generate dendritic cells often like to use the cct-premium grade too. We would be pleased to advise you, please contact us.

| Article                              | Source  | Size   | Article No.  | Price (€) |
|--------------------------------------|---------|--------|--------------|-----------|
| Human EGF, cct-premium               | E. coli | 100 µg | 4530.950.100 | 70        |
|                                      |         | 500 µg | 4530.950.500 | 185       |
|                                      |         | 1 mg   | 4530.950.199 | 250       |
| Human FGF-basic, cct-premium, FGF-2  | E. coli | 50 µg  | 1370.950.050 | 180       |
|                                      |         | 200 µg | 1370.950.200 | 390       |
|                                      |         | 1 mg   | 1370.950.199 | 750       |
| Human GM-CSF, cct-premium            | E. coli | 25 µg  | 1450.950.025 | 175       |
|                                      |         | 100 µg | 1450.950.100 | 490       |
|                                      |         | 1 mg   | 1450.950.199 | 2350      |
| Human IL-2 cct-premium               | E. coli | 50 µg  | 1503.950.050 | 180       |
|                                      |         | 200 µg | 1503.950.200 | 290       |
|                                      |         | 1 mg   | 1503.950.199 | 650       |
| Human IL-3, cct-premium              | E. coli | 50 µg  | 1509.950.050 | 320       |
|                                      |         | 100 µg | 1509.950.100 | 510       |
| Human IL-4, cct-premium              | E. coli | 25 µg  | 1515.950.025 | 240       |
|                                      |         | 50 µg  | 1515.950.050 | 320       |
|                                      |         | 200 µg | 1515.950.200 | 780       |
|                                      |         | 1 mg   | 1515.950.199 | 2390      |
| Human IL-6 cct-premium               | E. coli | 20 µg  | 1525.950.020 | 190       |
|                                      |         | 100 µg | 1525.950.100 | 480       |
|                                      |         | 1 mg   | 1525.950.199 | 2120      |
| Human SCF, cct-premium               | E. coli | 50 µg  | 1884.950.050 | 320       |
|                                      |         | 100 µg | 1884.950.100 | 520       |
|                                      |         | 1 mg   | 1884.950.199 | 2190      |
| Human TNF-alpha, cct-premium (Yeast) | Yeast   | 50 µg  | 1960.953.050 | 195       |
|                                      |         | 100 µg | 1960.953.100 | 375       |
|                                      |         | 1 mg   | 1960.953.199 | 2750      |



Please visit our website for a complete listing and more sizes.