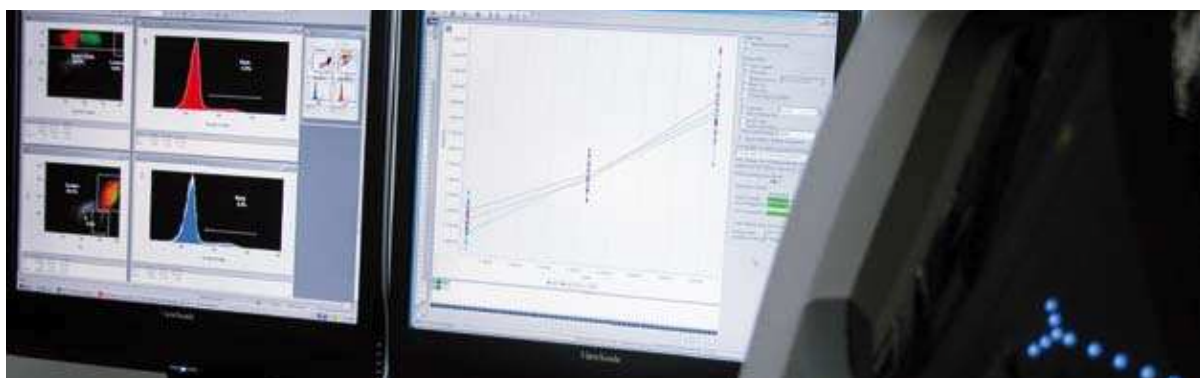


Bioanalytical Service

In-Vivo Potency Assays

Erythropoietin potency assay

- Determination of biological activity of erythropoietin by quantitative reticulocyte counts in flow cytometry (FACS)
- Validated method acc. to the European Pharmacopoeia (monograph no. 1316)
- GMP-certified execution
- Quality assured due to daily routine
- Analysis of more than 1000 test samples per year
- Successful participation in international round-robin testing; Publications: Pharmeuropa Bio, 2004 (1), 23-33 & Pharmeuropa Bio, 2007 (1), 49-66
- Extensive experience in research on erythropoietin analogues



Bioanalytical Service

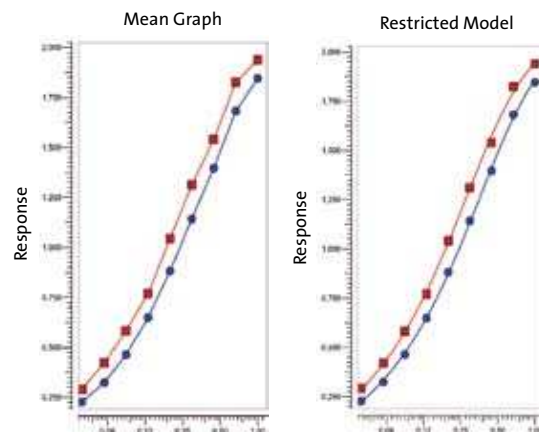
Cell based Potency Assays

G-CSF potency assay

- Determination of biological activity of G-CSF (Filgrastim)
- Validated method acc. to the European Pharmacopoeia (Monograph no. 2206)
- GMP-certified execution
- NFS 60 cell line
- Measurement of tetrazolium conversion

G- CSF potency assay example

- Calculated 80 % -activity
- Standard 100 % (640 pg/ml)
- Titration factor 1.5
- Measurement: 77.8 % activity
- Confidence interval: 7.0 %

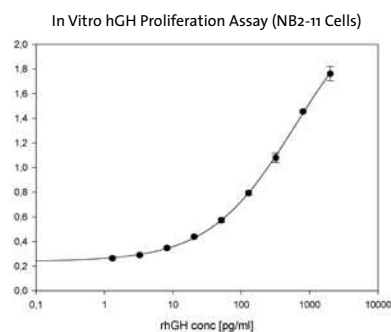


Bioanalytical Service

Cell based Potency Assays

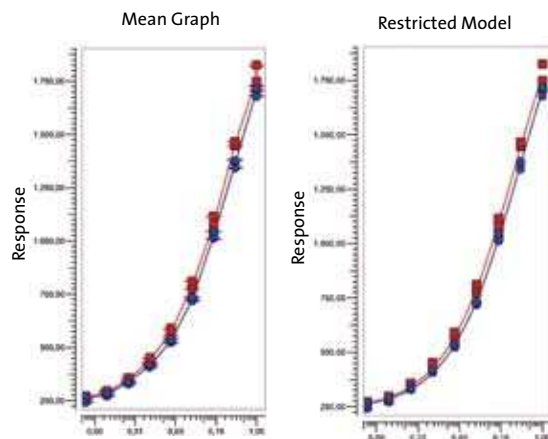
rhGH potency assay

- Determination of biological activity of recombinant human Growth Hormone
- NB2-11 cell line
- Measurement of proliferation
- Limit of Detection (LOD): 0.3 pg/ml
- Limit of Quantification (LOQ): 2.2 pg/ml



rhGH potency assay example

- Calculated 80 % -activity
- Standard 100 % (4 ng/ml)
- Titration factor 2.5
- Measurement: 81.7 % activity
- Confidence interval: 9.5 %



Bioanalytical Service

Multianalyt bead based FACS Assays

Technical Features

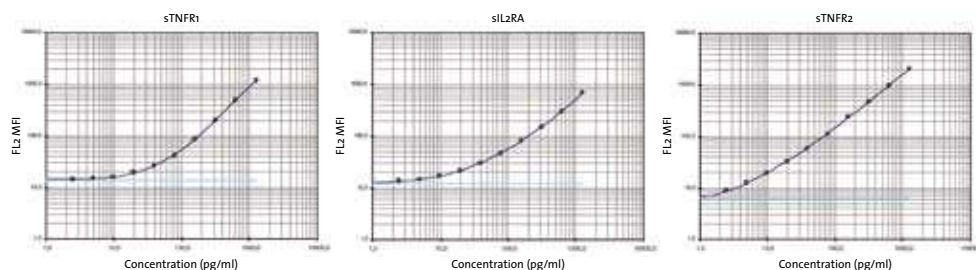
- Simultaneous tests of multiple analytes in a single sample
- Analytes: e.g. cytokines, growth factors, chemokines
- Basis: immunoassay sandwich technique
- Stained polystyrol beads of a distinct size
- Coupling with capture antigen/ antibody & a biotinylated AB
- FACS platforms: FACS-Calibur (BD) & FC 500 (BC)
- Sample volume: 25 µl

Advantages

- Total flexibility for individual solutions
- Immediate measurement
- Time & Cost saving method

Example: Triplex Assay of Soluble TNF and IL-Receptors

- Soluble TNF-Receptors: sTNF-R1 & sTNF-R2
- Soluble IL 2-Receptor: sIL2-R



Bioanalytical Service

Immunotoxicity

Immunophenotyping (Flow Cytometry)

- In-vivo analysis (rat)
- Oral or parenteral administration of test samples
- Immunophenotyping in target organs: blood, spleen, lymph nodes & bone marrow
- Standardization by ITOX 3 –Kit (Beckman Coulter)
- Analysis of T-, B- & NK-Cells by CD3, CD4 & CD8 detection
- Calculation of a cellularity index (comparison to negative and positive (Cyclophosphamide) control)

