

1) Methods that are applied for routine testing or characterization

Validation according to ICH Q2(R1) is performed upon request

Method and Application	
Visual Inspection acc. Ph.Eur.	According to Ph. Eur. for release, formulation and stability testing
pH	
Capillary electrophoresis	Application e.g. for determination of residual TFA
Endotoxins	LAL-Test according to Ph. Eur.
1 D Gel Electrophoresis	With various staining protocols under reducing, non-reducing or native conditions for identity or purity testing
2 D Gel Electrophoresis	With various staining or immunological detection for characterization of purified or complex protein solutions
Isoelectric Focussing	With various staining protocols for identity or purity testing
cIEF	For quantitative assessment of isoforms
Western Blotting	Applied in combination with 1 D or 2 D Gel electrophoresis for identity, potency and purity testing
Protein Quantification	Microtiter plate and cuvette based assays as BCA, Bradford, Nano-Orange
UV-Absorption	Measurement at A280 and A260 for content determination or scan for characterization
HPLC	Application with UV or DAD detection <ul style="list-style-type: none"> - Reverse Phase (RP-HPLC), - Size Exclusion (SEC), - Affinity chromatography - Ion Exchange chromatography
Light scattering	Application of batch modus or coupled to SEC for characterization or as stability indicating method
Peptide Map	Protein digest with HPLC-separation and UV detection
Quantification of residual DNA	<ul style="list-style-type: none"> - Threshold System of Molecular Devices (Pre-treatment of sample including Protein digest or WAKO Extraction) - Quantitative PCR

Quantification of Host Cell Proteins	<ul style="list-style-type: none"> - Development and Characterization of Mock Cell Line and Immunization substrate - Generation and characterization of antibodies (Immunization and Purification in cooperation) - Development of HCP assay in ILA or ELISA format
ELISA	Application for protein concentration or impurity testing
Activity assays	e.g. determination of enzyme activity
Bioassays	Cell culture based Bioassays with statistical evaluation according to Ph. Eur.
Agarose gel electrophoresis	With ethidium bromide or fluorescence staining for DNA and RNA
Capillary Gel Electrophoresis	With laser induced fluorescence detection for determination of homogeneity within a plasmid DNA preparation
Restriction analysis	Enzymatic digest and agarose gel electrophoresis for identity verification
DNA-Sequencing	Determination of identity
Quantitative PCR	Application for <ul style="list-style-type: none"> - determination of residual genomic DNA - determination of residual RNA by RT-PCR - determination copy number by combined Q-PCR methods
Quantification of RNA and DNA	Fluorescence based microtiter assays (e.g. Pico Green, Ribo Green)
E.coli strain characterization	Phenotypic by API and Genotypic by RAPD or AFLP analysis
Replica Picking	For determination of plasmid retaining cells

2) Studies performed

Formulation and stability studies

- Assessment of stability indication methods by stress studies
- Formulation studies (e.g. for determination of buffer systems and pH as well as additives)
- Stability studies (ICH-conform)

Characterization studies

- Characterization and qualification of reference standards (in cooperation with external Laboratories for mass spectrometry)
- Characterization of end of production cells