Oligonucleotides Manufacturing Workflow
Oligonucleotide drug substances (DS) and drug products (DP)

Starting materials qualification and testing
- <1083> Supplier Qualification

Reference Standards (Amidites): iBu dG Beta-Cyanoethyl Phosphoramidite
T Beta-Cyanoethyl Phosphoramidite
Bz dA Beta-Cyanoethyl Phosphoramidite
5-MeBz dC Beta-Cyanoethyl Phosphoramidite
Bz dC Beta-Cyanoethyl Phosphoramidite

Oligonucleotide Synthesis
- DMT
- DMT
- Oxidation or Sulfurization
- Detritylation
- Coupling
- Capping

Drug Substance Testing and Release
- <791> pH
- <467> Residual Solvents
- <1469> Nitrosamine Impurities

- Bioburden
- <61> <1111> <1115>

- Extractables and Leachables
- <665> <1663> <1664>

- Nucleic acid-based techniques
- <1125> General
- <1127> Amplification
- <1128> Microarray
- <1129> Genotyping

- MANUFACTURING OF DRUG PRODUCT

- <71> Sterility
- <233> Elemental Impurities—Procedures
- <697> Container Content for Injections
- <698> Deliverable Volume
- <785> Osmolality and Osmolarity
- <905> Uniformity of Dosage Units
- <791> pH
- <929> Water Determination
  (DS and DP if DP is lyophilized powder)
- <1231> Water for Pharmaceutical Purposes
- <1149> Guidelines for Assessing and Controlling the Physical Stability of Chemical and Biological Pharmaceutical Raw Materials, Intermediates and Dosage Forms

- Excipient Reference Standards available at https://store.usp.org/excipients/category/USP-1002

- Extractables and Leachables
- <665> <1663> <1664>

- Endotoxins
- <85> (DS and DP)
- <1085> (DS and DP)
  (Reference Standard: Endotoxin, cat. # 1235503)

- Immunogenicity Assays
- <1106> <1106.1>

- Subdivisible particle matter
- <1788.1> <1788.3>
  (Reference Standard: Particle Count Set, cat. # 1500502)

- Drug product testing and release

- Nucleic acid-based techniques
- <1125> General
- <1127> Amplification
- <1126> Detection and Sequencing
- <1128> Microarray
- <1129> Genotyping

- Packaging and distribution
- <7> Labeling
- <659> Packaging and Storage Requirements
- <1079> Risks and Mitigation Strategies for the Storage and Transportation of Finished Drug Products
- <1207> Package Integrity Evaluation—Sterile Products

Contact Us

Effective on Feb 26, 2024

Applicable to Oligonucleotide platforms: DNA, RNA, MOEs, siRNA, etc