

# Application Solution



Focus on used analytical  
instrument

## RNA interference Industry



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- RNA interference : Including ASO siRNA miRNA saRNA mRNA Aptamer and etc.
- Whether you are developing small nucleic acid drugs, or producing oligonucleotides and conducting quality control analysis for molecular diagnostic applications or research applications, we can provide small nucleic acid drug analysis solutions to meet your application needs
- Quality Control Solution:
  - Uplc meet regulatory verification systems
  - Optimize the LC-MS workflow for quality control monitoring
  - Solvent residue monitoring
  - Heavy metal residue monitoring
- RNA interference high-end research –
  - HRMS for small nucleic acid drug characterization analysis

# RNA interference Industry

## ➤ RNA interference Industry Quality Control

**Waters Acquity UPLC can meet the regulatory verification systems**



**Waters Acquity UPLC H-Class**

- ✓ The superior performance of ACQUITY UPLC system and ACQUITY UPLC Oligonucleotide BEH C18 oligonucleotide analysis columns and reagents -- they work together to bring you industry-leading chromatographic performance, separation, sensitivity and flux
- ✓ Empower chromatographic analysis software provides powerful data processing capabilities for instrument validation solutions that meet regulatory requirements
- ✓ A variety of detection options are available, with optional TUV detector, PDA detector and FLR detector to meet different requirements of oligonucleotide analysis
- ✓ Recommend Waters ACQUITY UPLC H-Class

# RNA interference Industry

## ➤ RNA interference Industry Quality Control

### Thermo LTQ LC-MS optimize the workshop of quality control



Waters UPLC+Thermo LTQ

- ✓ QC monitoring with mass spectrometry: Based on the superior separation capability of Waters Acquity UPLC and the perfect qualitative capability of Thermo LTQ series mass spectrometry
- ✓ The UPLC separation capability can detect small impurities and main peak molecular weight information at a single time
- ✓ Features: the platform can give consideration to sensitivity and chromatographic separation effect, with high detection flux and good detection quality
- ✓ The Xcalibur data acquisition software combined with PROMASS data processing software enables one-touch automated data analysis and reporting functions, such as spectral deconvolution of mass number data, target mass number screening/oligonucleotide identification results validation, and impurity analysis, and provides the industry with instrument verification solutions that meet regulatory requirements
- ✓ Recommended configuration of Waters ACQUITY UPLC combined with Thermo Scientific VELOS PRO dual pressure linear ion trap instrument

# ➤ RNA interference Industry

## ➤ RNA interference Industry Quality Control

### Agilent 7890 GC/GCMS for monitoring solvent residue



Agilent 7890 GC

- ✓ Headspace-gc-fid is a widely used method for the determination of residual organic solvents in raw materials, which is highly efficient and stable with good reproducibility and recovery
- ✓ Upgraded to headspace-GC-MS for the determination of residual organic solvents in the API, it can not only meet the above stable and efficient performance, but also carry out database retrieval, more accurately detect the residual organic solvents, and achieve a lower limit of quantification
- ✓ Agilent 7890 series GC and 7890-5975/5977 series GCMS have the most mature organic solvent residue solutions on the market, including equipment, software support, and fully meet the regulatory requirements
- ✓ The instrument has high durability, good stability and high user friendliness, making it the best choice for solvent residue solutions



# ➤ RNA interference Industry

## ➤ RNA interference Industry Quality Control

### Agilent 7500/7700 ICPMS for monitoring heavy metal test



**Agilent 7700 ICP-MS**

- ✓ ICP-MS can detect the residual limits of heavy metals, such as arsenic (As), lead (Pb), cadmium (Cd), mercury (Hg), copper (Cu), etc. in pharmaceutical raw materials, excipients and manufacturing equipment
- ✓ In the process of pharmaceutical production, heavy metals from raw materials, auxiliary materials and production equipment are brought into the drug. Although they are processed by refining and purification, it is difficult to completely remove them. Heavy metal is very harmful to human body, so the pharmacopoeia of all countries have stipulated the limit of heavy metal inspection
- ✓ ICPMS can collect a variety of heavy metal element signals at the same time with a single sample injection, with high detection efficiency, the best detection sensitivity, and simple and easy sample pretreatment
- ✓ Recommend Agilent 7500/7700 series ICPMS, it can meet the requirements of regulations and the sensitivity requirements of heavy metal detection

# ➤ RNA interference Industry

## ➤ RNA interference high-end research

### Thermo Q Exactive HRMS



Thermo Scientific Q Exactive HRMS

- ✓ UPLC-HRMS are used for sample characterization and high-resolution detection of small nucleic acid drugs, such as accurate molecular weight determination or impurity detection, MS/MS sequence confirmation and other detection requirements
- ✓ Thermo Scientific Q Exactive HRMS workflow can break the limits of traditional mass spectrometry for further characterization and identification of oligonucleotides and related impurities
- ✓ It can be used for complete mass number confirmation and purity analysis of synthetic oligonucleotides including siRNA and sg RNA oligonucleotides and their impurities. Analysis of the synthesized mRNA cap structure; Analysis of siRNA conjugations of antibody small molecule interfering RNA
- ✓ ORBITRAP Mass analyzer redefines high-resolution performance, achieving unmatched mass number accuracy without the real-time calibration required for traditional time-of-flight mass spectrometry



**Thank you !**

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