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ASIA EDITION

Waters introduces new bioseparations tools to improve development of RNA-based vaccines using LC-MS analysis

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New waters_connect MAP Sequence software accelerates RNA oligonucleotide mapping using semi-automated workflows



US-based Waters Corporation has introduced a comprehensive set of sample preparation enzymes, reagents, and waters_connect software that simplify sequence and modification confirmation of large molecule RNA therapeutics using liquid chromatography-mass spectrometry (LC-MS) analysis.

When used together in a workflow, these bioseparations tools help accelerate and improve the development of innovative large molecule RNA-based pharmaceuticals, such as CRISPR sgRNA and mRNA therapeutics.

Large molecule RNA (ribonucleic acid) therapeutics represent some of the most exciting and potentially life-saving developments in pharmaceuticals today. They include new and more effective vaccines for diseases like COVID-19, personalised cancer treatments, as well as emerging CRISPR RNA therapies that address challenging genetic conditions, such as sickle cell anaemia.

The Waters RNA analytical tools include:

- **Enzymes:** Two novel enzymes, RapiZyme MC1 and RapiZyme Cusativin, are used in a simplified three-step protocol that provides complete LC-MS sequence coverage over traditional digestion methods enabling more confident characterization of RNA molecules.
- **Reagents:** IonHance HFIP, an LC-MS-grade reagent, is formulated to improve ionization and delivers increased spectral clarity and detection accuracy of RNA components.
- **Software:** New MAP Sequence application on the waters_connect software platform simplifies RNA LC-MS oligo mapping workflows to accelerate analysis and data processing time over manual techniques using spreadsheets.

Used together within a workflow, the tools generate an LC-MS fingerprint to confirm product identity, purity, and efficacy. The tools improve sequence coverage, LC-MS spectral data quality, and data interpretation. Supported by the compliance-ready waters_connect software platform, these tools help transition LC and LC-MS-based digestion analysis from discovery and development to release and at-line process analytical testing.