INTRODUCTION

Microscale LC-MS techniques are widely used by analytical chemists for high-throughput applications. Advancements in instrument design have enabled the development of smaller, more efficient columns that can resolve and detect trace-level components, high peak capacities, and increased detection limits. These developments are particularly advantageous when screening for protein impurities in biotherapeutic products.

Microscale LC-MS techniques are widely used by analytical chemists for high-throughput applications. Advancements in instrument design have enabled the development of smaller, more efficient columns that can resolve and detect trace-level components, high peak capacities, and increased detection limits. These developments are particularly advantageous when screening for protein impurities in biotherapeutic products.

RESULTS AND DISCUSSION

Utility of Charged Surface Hybrid C18 and Ion Mobility Enabled MS

The advantage of using CSH C18 is that it has been shown to enable even higher mass loads to be achieved with better peak shape and higher efficiency. Moreover, the use of CSH C18 in the 2nd dimension of a 2D-RP/RP system can provide significantly improved resolution of HCPs, where there is a need to identify low-ppm impurities in biotherapeutic products. The combination of CSH C18 with high-energy collision-induced dissociation (HCD) fragmentation can provide reliable detection of low-concentration HCP impurities.

Microscale LC-MS is a powerful tool for analyzing complex proteomic samples, and it is particularly useful for the detection of trace-level components. In this study, we used the ACQUITY UPLC M-Class system to perform microscale LC-MS analyses.

METHODS

In this study, we used the ACQUITY UPLC M-Class system to perform microscale LC-MS analyses. In a 2D-RP/RP system, the first-dimensional separation is performed using a trapping column followed by a second-dimensional separation using an analytical column. This approach allows for the resolution of highly abundant product-derived peptides that are present in low concentrations.

The Microscale 2D-RP/RP system can also be used for the detection of low-concentration HCP impurities. In this study, we used the ACQUITY UPLC M-Class system to perform microscale LC-MS analyses.

CONCLUSION

In conclusion, the use of the ACQUITY UPLC M-Class system for microscale LC-MS analyses is a powerful tool for detecting low-concentration HCP impurities in biotherapeutic products. This approach allows for the resolution of highly abundant product-derived peptides that are present in low concentrations. The use of CSH C18 in the 2nd dimension of a 2D-RP/RP system can provide significantly improved resolution of HCPs, where there is a need to identify low-ppm impurities in biotherapeutic products.

Advancing Host Cell Protein Analyses through Improved Microscale Peptide Separations and 2D UHPLC Chromatography

Matthew A Lauber, Catalin Doneanu, Stephan M Koza, Weinbin Chen, and Kenneth J Fountain

Waters Corporation, Milford, MA

Previous microscale LC based HPLC analyses, targeting the low abundance HCP impurities in biotherapeutic products, exhibit detection limits of approximately 20 ppm. The ACQUITY UPLC® WISP (with Intelligent Sample Introduction) technology, 2D-RP/RP operated at near 10K psi with an ACQUITY UPLC M-Class System and ACQUITY UPLC® M-Class with Dynamax® HDMS® detection, provide a robust method enabling the detection of low-concentration HCP impurities.

Microscale LC-MS is a powerful tool for analyzing complex proteomic samples, and it is particularly useful for the detection of trace-level components. In this study, we used the ACQUITY UPLC M-Class system to perform microscale LC-MS analyses.

CONCLUSION

In conclusion, the use of the ACQUITY UPLC M-Class system for microscale LC-MS analyses is a powerful tool for detecting low-concentration HCP impurities in biotherapeutic products. This approach allows for the resolution of highly abundant product-derived peptides that are present in low concentrations. The use of CSH C18 in the 2nd dimension of a 2D-RP/RP system can provide significantly improved resolution of HCPs, where there is a need to identify low-ppm impurities in biotherapeutic products.

Advancing Host Cell Protein Analyses through Improved Microscale Peptide Separations and 2D UHPLC Chromatography

Matthew A Lauber, Catalin Doneanu, Stephan M Koza, Weinbin Chen, and Kenneth J Fountain

Waters Corporation, Milford, MA

Previous microscale LC based HPLC analyses, targeting the low abundance HCP impurities in biotherapeutic products, exhibit detection limits of approximately 20 ppm. The ACQUITY UPLC® WISP (with Intelligent Sample Introduction) technology, 2D-RP/RP operated at near 10K psi with an ACQUITY UPLC M-Class System and ACQUITY UPLC® M-Class with Dynamax® HDMS® detection, provide a robust method enabling the detection of low-concentration HCP impurities.

Microscale LC-MS is a powerful tool for analyzing complex proteomic samples, and it is particularly useful for the detection of trace-level components. In this study, we used the ACQUITY UPLC M-Class system to perform microscale LC-MS analyses.

CONCLUSION

In conclusion, the use of the ACQUITY UPLC M-Class system for microscale LC-MS analyses is a powerful tool for detecting low-concentration HCP impurities in biotherapeutic products. This approach allows for the resolution of highly abundant product-derived peptides that are present in low concentrations. The use of CSH C18 in the 2nd dimension of a 2D-RP/RP system can provide significantly improved resolution of HCPs, where there is a need to identify low-ppm impurities in biotherapeutic products.