

PEPTIDES AND PROTEINS
ARE NOT SMALL MOLECULES.

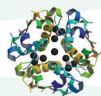
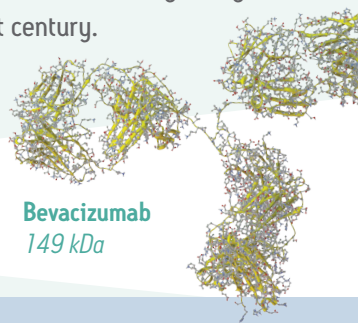
WHY TREAT THEM
THE SAME?

Analyzing large molecules may be one of the greatest challenges that the bioanalyst faces at the beginning of the 21st century.

SMALL MOLECULES

PEPTIDES AND PROTEINS

Aspirin 180 Da

Insulin Glargine
6,063 DaBevacizumab
149 kDa

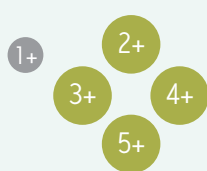
WHY is it harder to
quantify large molecules?

Increased sensitivity and specificity challenges:

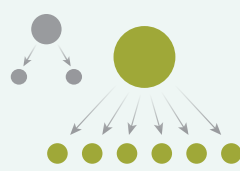
Fewer molecules in
equal volume of analyte



Multiple precursor
charge states dilute signal



Increased fragmentation
further reduces signal



Endogenous peptides and
proteins yield high background

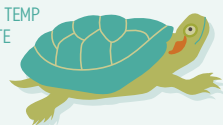


Complex sample prep means
possible loss of analyte



More LC and MS parameters to
consider reduces efficiency

CAPILLARY VOLTAGE
MOBILE PHASE COMPOSITION
CHROMATOGRAPHIC PORE SIZE
COLUMN TEMP
FLOW RATE



WHY are biotherapeutics
more important than ever?

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Biotherapeutics
publications¹

Year 1990 1995 2000 2005 2010 2014

In 2013, **7 of the top 10** best-selling prescription drugs were large molecules²



HOW can Waters help?

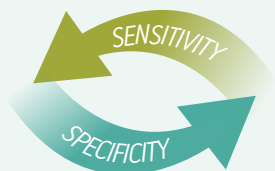
Optimize specificity of sample prep

Oasis® MAX and WCX SPE µElution Plates help achieve high recovery and low limits of detection for a wide range of endogenous, therapeutic and surrogate peptides.



Wide mass range, reliable sensitivity

The Xevo® family of tandem quadrupole mass spectrometers delivers high sensitivity at high and low mass, detecting all fragments without compromise, while sensitivity at high m/z enhances specificity.

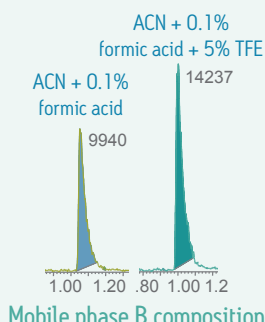
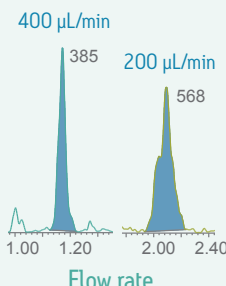
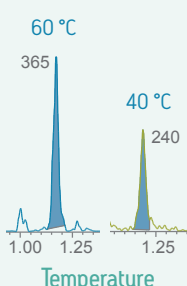


Improved microfluidics for
better sensitivity and reduced sample load

The ionKey/MS™ System integrates the UPLC analytical separation directly into the source of the mass spectrometer, delivering significant increases in sensitivity, solvent savings, and reductions in sample volume.

Increasing sensitivity through LC optimization

Use a generic set of chromatographic conditions and evaluate with the ACQUITY UPLC® BEH C₁₈ 300 Å, ACQUITY UPLC CSH, and CORTECS® UPLC C₁₈+ Columns to identify the best peak and separation and then optimize key parameters, such as column temperature, flow rate, and mobile phase composition.



Learn more with the
Peptide Bioanalysis Solution Guide

Search literature code 720004563EN at waters.com

¹ Electronic search performed in PubMed.org on January 13, 2015 with keyword "biotherapeutics."
² Kollwe, J. (2014, March 27). The world's 10 best-selling prescription drugs. The Guardian. Retrieved Jan. 13, 2015.