

# The Thermo Scientific LCMS portfolio

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# Introduction

- Mass spectrometry is uniquely positioned for the identification and quantitation of unknown and known substances in complex matrixes
- Mass spec can be used to detect one compound or up to thousands of compounds simultaneously
- Mass spec is becoming the industry standard for many applications, including:
  - Environmental monitoring for contaminants
  - Biopharmaceutical characterisation
  - Clinical and translational research

# Thermo mass spectrometers



## Thermo single quad or triple quad range

- Accurate, routine measurements
- Easy to use, highly sensitive
- TSQ enables targeted, quantitative workflows



## Thermo Exploris range

- New offering of compact, high-performance mass spectrometers to suit most analytical needs
- High resolution, accurate mass
- Easy to use and maintain!



## Thermo Tribrid ID-X, Fusion, and Eclipse

- High resolution, high mass range
- Highest quality data
- Can perform MS<sup>n</sup> to identify unknowns in complex sample matrixes

# Thermo liquid chromatography systems



## **New Thermo Vanquish Core HPLC**

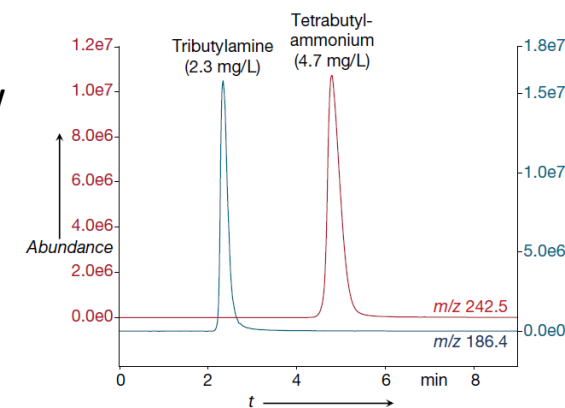
- Simple to use, easy to maintain
- Extremely robust results
- The Vanquish HPLC/UPHLC system delivers retention time and peak area precision for most lab applications
- Joins the Vanquish Flex and Vanquish Horizon, which can be customized to perform the most complex LC workflows

# Application: Environmental contaminants



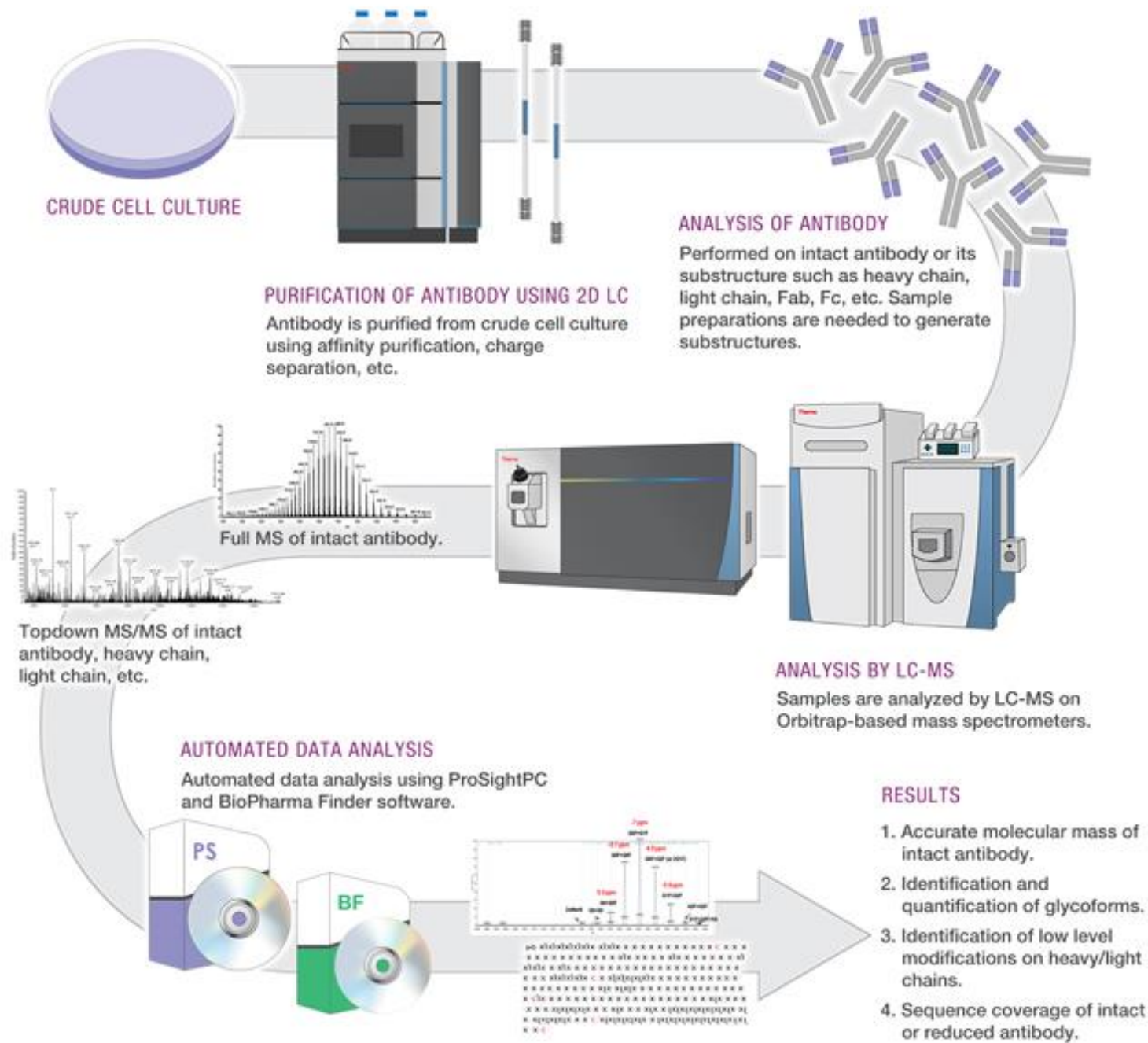
- ISQ Single Quadrupole MS
- Can be coupled to an LC or IC system

- Trialkyl amines (TAMs) and quaternary ammonium compounds (QACs) are commonly used germicidal surfactants, and are ubiquitously released into water, with QACs in particular being resistant to biological degradation
- Analysis by GC requires derivatization and sometimes complex sample preparation, and matrix effects can further complicate analysis
- Analysis by LC-MS is significantly easier:
  - Mobile phases: Water, ACN, and formic acid
  - Samples: Frozen wastewater samples were diluted with deionized water immediately prior to analysis
  - Single ion monitoring MS was performed
  - Interference free detection of both compounds at low concentrations



# Application: Biopharmaceuticals

- Biopharmaceuticals are the fastest growing segment of the drug industry
- These include monoclonal antibodies, antibody-drug conjugates, and other large, complex molecules
- The size and complexity of these important compounds makes high-resolution mass spectrometry the ideal tool for the characterization and identification of novel biopharmaceuticals
- The Thermo QE HFX, Exploris 240 and 480, and Tribrid range are ideal for biopharmaceutical applications



# Application: Bacterial toxins

- Mycotoxins are secondary metabolic products generated by many bacteria, many of which are used in the production of food and beverages, like cereals and beer
- Mycotoxins can cause nausea, immunosuppression, and even death
- Industrial testing for mycotoxins in commercially produced beverages is therefore extremely important
- High resolution mass spectrometry using an Orbitrap instrument allows for the identification of mycotoxins in complex background matrixes
- A method measuring 32 mycotoxins simultaneously (per injection) has been validated for an Orbitrap instrument
- A method measuring 17 mycotoxins simultaneously has been validated for a triple quadrupole instrument

# Thank you!

- Any questions?