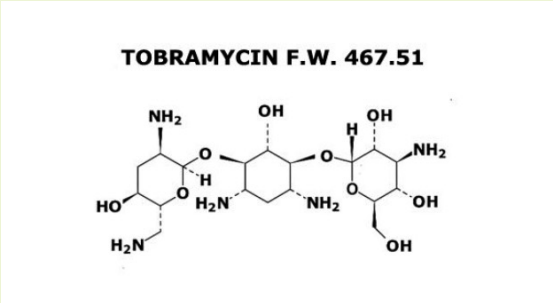
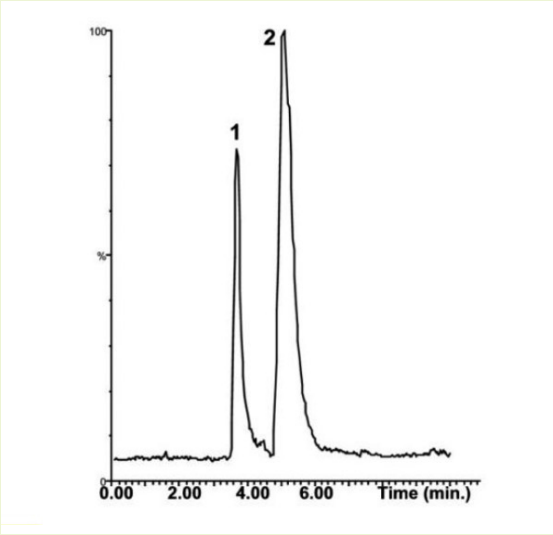
Determination of an Antibiotic

Using Carboxylic Acid Phase (LC-MS - Ion Interaction)





Note: UV detection would require derivatization of the compound which can compromise the method ruggedness due to varying derivatization efficiencies and reagent instabilities. These techniques also require handling and disposal of hazardous materials. Aminoglycoside drugs are difficult to retain on conventional HPLC columns due to their highly polar characteristics and Ion pair reagents are typically used to induce retention. These interfere with MS detection.
Note: NO DERIVATIZATION AND NO ION PAIR REAGENTS ARE USED IN THE METHOD ABOVE.

Method Conditions

Column: **Cogent UDA™**, 4µm, 100Å

Catalog No.: 40031-75P

Dimensions: 4.6 x 75 mm

Mobile Phase: 80% DI H_2O/ 20% acetonitrile/ 0.5% formic acid

Injection vol.: 1µL (internal loop)

Flow rate: 0.5 mL/min

Detection: Atmospheric Pressure Chemical Ionization in positive mode: APCI+ Single Ion Monitoring

Sample: 1 mg/L of each dissolved in DI H_2O

Peaks: 1. Uracil (m/z 113)
2. Tobramycin (m/z 468)

Discussion

Tobramycin is a water-soluble aminoglycoside antibiotic purified from the fermentation of the actinomycete Streptomyces tenebrarius. It is used in a variety of pharmaceutical applications: ophthalmic suspensions and ointments, such as TobraDex® (Alcon Inc., Fort Worth, TX), inhalation solutions such as TOBI® (Chiron Corporation, Woodstock, IL), and intravenous administrations such as Tobramycin Sulfate Injection (Eli Lilly and Company, Indianapolis, IN). Tobramycin is a compound that lacks a sufficient chromophore, and is therefore difficult to determine using reversed-phase HPLC with absorbance detection. In the method shown here, notice that the symmetrical peak shape and retention make this an excellent choice for Tobramycin identity, assay, and purity.

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