



Naziv uređaja

Tečni hromatograf pod ultra visokim pritiskom sa maseno–masenim detektorom (UHPLC/MS/MS)

Apparatus

Ultra high pressure liquid chromatography with mass–mass detector (UHPLC/MS/MS)

Proizvođač i model/The manufacturer and model

Waters Corporation, Milford, USA, UHPLC with tandem quadrupole MS/MS detector
(Waters Acquity; H–Class core systems, Waters Xevo™ TQD)

Kratak opis metode

Tečna hromatografija pod ultra visokim pritiskom/tandemska masena spektrometrija (UHPLC/MS/MS) je kombinovana metoda hromatografskog razdvajanja i detekcije masenim spektrometrom. UHPLC je separaciona metoda koja se zasniva na različitoj raspodeli komponenata smeše između mobilne i stacionarne faze. Mobilna tečna faza se kroz hromatografsku kolonu sa stacionarnom fazom propušta pod ultra visokim pritiskom. U spregnutoj metodi tečna hromatografija/masena spektrometrija, komponente analizirane smeše se nakon razdvajanja detektuju i identifikuju u masenom spektrometru, na osnovu njihove jonizacije i odnosa masa/naelektrisanje (m/z).

Short description of the method

Ultra high pressure liquid chromatography/tandem mass spectrometry, (UHPLC/MS/MS) is the combined method of chromatographic separation and mass spectrometer detection. UHPLC is a separation method based on the different distribution of components of the mixture between mobile and stationary phase. The mobile liquid phase is passed through a chromatographic column with the stationary phase under ultra high pressure. In the coupled liquid chromatography/mass spectrometry method, the components of the analyzed mixtures after separation are detected and identified by the mass spectrometer, according to their ionization and mass/charge ratio.

Tehničke karakteristike

UHPLC/MS/MS instrument sadrži Waters Acquity H–Class sistem za separaciju i Waters Xevo TQD tandem kvadripolni maseni detektor Acquity H–Class system obuhvata kvaternerni mešač rastvarača, degazer, kvaternerne pumpe maksimalnog pritiska od 1034 bara i protoka mobilne faze do 1 mL/min, automatski sistem za injektiranje uzorka, termostatirani deo za kolonu, mogućnost grejanja kolone u opsegu temperatura 20–90 °C. Xevo TQD tandem kvadripolni maseni detektor opremljen je multimodnim izvorom jonizacije koji uključuje elektrosprej izvorjonizacije (ESI), elektrosprej izvor hemijske jonizacije (ESCI), kao i sondu za analizu čvrstih supstanci na atmosferskom pritisku (ASAP). Sadrži dva kvadripolna masena analizatora visoke rezolucije i stabilnosti (MS1/MS2). Opseg masa 2–2048 m/z , brzina skeniranja preko 10000 D/s. Obrada podataka vrši se softverom, podržanim sistemima MassLynx™, OpenLynx™ i TargetLynx™ XS.

Technical characteristics

UHPLC/MS/MS instrument consists of a Waters Acquity H–Class system for separation and Waters Xevo TQD tandem quadrupole mass detector. Acquity H–Class system consists of a quaternary mixer of solvents, a degasser, a quaternary pump max pressure of 1034 bar and flow rate of mobile phase up to 1 mL min⁻¹, an automatic sample injection system, thermostated column compartment with a possibility of heating the column in the temperature range 20–90° C. Xevo TQD tandem quadrupole mass detector is equipped with a multi–mode ionization source which includes electrospray ionization source (ESI), electrospray source of chemical ionization (ESCI), as well as a probe for the analysis of solid substances at atmospheric pressure (atmospheric solids analysis probe (ASAP). It contains two high resolution and high stability quadrupole mass analyzers (MS1/MS2). The mass range 2–2048 m/z , and scan speed over 10,000 D/s. Data processing is done by software, supported by MassLynx™, OpenLynx™ and TargetLynx™ XS systems.

<p>Primena i tip uzorka UHPLC/MS/MS metoda primenjuje se za razdvajanje komponenata smeše, identifikaciju i kvantifikaciju različitih jedinjenja. Koristi se za kvalitativnu i kvantitativnu analizu organskih jedinjenja, aktivnih farmaceutskih supstanci, farmaceutskih oblika i njihovih metabolita, kao i biološki aktivnih jedinjenja. Metoda je pogodna za razdvajanje i određivanje velikog broja biološki značajnih jedinjenja (proteina, peptida, aminokiselina, oligonukleotida, RNK, vitamina i dr.). Koristi se za farmakokinetička ispitivanja, analizu nečistoća, pesticida u hrani i vodi, kozmetičkih preparata i sredstava za ličnu higijenu, kontrolu kvaliteta sirovina i gotovih proizvoda, detekciju i kvantifikaciju mikotoksina i dr.</p>	<p>Applicationandsamplotype UHPLC/MS/MS method is applicable for separation of the components of the mixture, identification and quantification of different compounds.It is used for the qualitative and quantitative analysis of organic compounds, active pharmaceutical substances, pharmaceutical dosage forms and their metabolites, as well as biologically active compounds. The method is suitable for the separation and determination of many biological important compounds (proteins, peptides, amino acids, oligonucleotides, RNA, vitamins, etc.).It is used for pharmacokinetic testing, analysis of impurities, pesticides in food and water, cosmetics and personal hygiene products, quality control of raw materials and finished products, detection and quantification of mycotoxins, etc.</p>
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<p style="text-align: center;">Link ka uređaju na sajtu proizvođača / Link of the product on the manufacturer's website https://www.waters.com/waters/en_RS/UPLC-UHPLC-system-with-quaternary-or-binary-solvent-management-for-method-development/nav.htm?cid=10138533&locale=en_RS</p>	