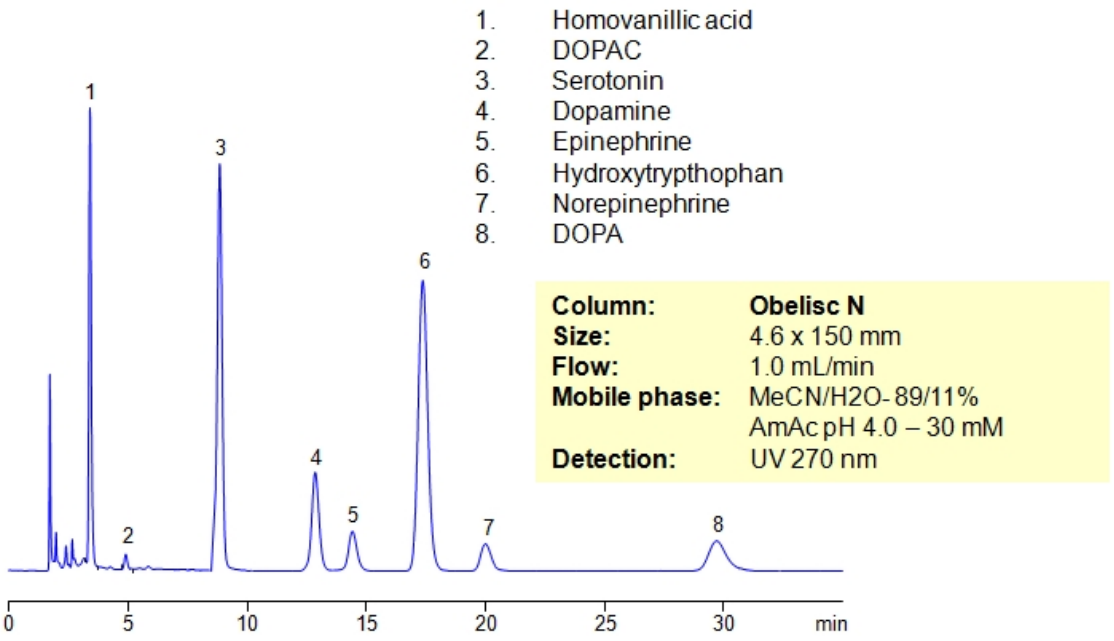
Separation of Serotonin, Dopamine, and Related Compounds



Catecholamines are chemical compounds derived from the amino acid tyrosine containing catechol and amine groups. Some of them are biogenic amines. Retention of compounds of the catecholamine pathway is achieved on Obelisc N column. All polar compounds are well retained by combination of HILIC and ion-exchange mechanisms. Obelisc N columns produce very good peak shapes for all analytes. The method is very sensitive to amount of ACN, buffer and buffer pH. The retention time changes with variation of the main parameters. This method can be used for quantitation of biogenic amines and related compounds (homovanillic acid, dihydroxyphenyl acetic acid, serotonin, dopamine, epinephrine, hydroxytryptophan, epinephrine and DOPA) in urine, blood and other biological fluids. Further optimization of this HPLC method can be used during screening and validation. Amines and acids can be analyzed in the same run and retained by a combination of polar organic mode, cation-exchange and anion-exchange modes. Various buffers within specified pH can be employed (ammonium formate, ammonium acetate, sodium phosphate, etc.).

SIELC has developed the Obelisc™ columns, which are mixed-mode and utilize Liquid Separation Cell technology (LiSC™). These cost-effective columns are the first of their kind to be commercially available and can replace multiple HPLC columns, including reversed-phase (RP), AQ-type reversed-phase, polar-embedded group RP columns, normal-phase, cation-exchange, anion-exchange, ion-exclusion, and HILIC (Hydrophilic Interaction Liquid Chromatography) columns. By controlling just three orthogonal method parameters - buffer concentration, buffer pH, and organic modifier concentration - users can adjust the column properties with pinpoint precision to separate complex mixtures.

Method Parameters

Column	Obelisc N, 4.6×150 mm, 5 µm, 100 Å
Mobile Phase	MeCN/H2O
Buffer	AmAc pH 4.0- 30 mM
Flow Rate	1.0 mL/min
Detection	UV, 270 nm

Quelle: https://sielc.com/Application-Separation-of-Serotonin-Dopamine-and-Related-Compounds