

Simple, Optimized HPLC Analysis of Catecholamines

Increase Retention by Using an Allure™ PFP Propyl Column

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- No derivatization or ion-pairing—save time, ensure reproducible results.
- Excellent retention and resolution of low molecular weight amine compounds.
- Excellent peak shapes for reliable quantification of basic compounds.

Biogenic amines are low molecular weight intercellular messengers that relay much of the body's chemical signaling. Many synthesized drug compounds are chemically similar to these very biologically active compounds, including stimulants, hallucinogens, antidepressants, and bronchodilators.

One group of biogenic amines, the catecholamines (Figure 1), traditionally have been assayed by GC or HPLC, but either approach requires modifications. Derivatization is necessary for GC analysis, and stability issues can pose a problem. Limited retention on hydrophobic alkyl (ODS) or polar embedded (cyano) HPLC phases makes derivatization or ion-pairing techniques necessary. These modified HPLC techniques are laborious and disrupt reproducibility, and many derivatizing reagents are not LC/MS compatible.

Pentafluorophenyl HPLC phases show greater retention for compounds that have electrophilic properties, like protonated amine groups in basic compounds, and a propyl spacer between the functional group and the silica surface - a pentafluorophenyl propyl phase - further increases retention. Consequently, when an acidic mobile phase is used to induce protonation of the analytes' amine groups, the Allure™ PFP Propyl phase makes possible a simple reversed phase HPLC analysis (Figure 1). A nearly 100% aqueous mobile phase is needed, but retention of norepinephrine, the first eluting analyte, is sufficient. By changing the organic modifier, differing selectivities can be achieved (Figure 2), giving the analyst more flexibility in optimizing specific separations. By using an Allure™ PFP Propyl column, an analyst can achieve simple, reproducible analyses of catecholamines or similar low molecular weight polar compounds.

Allure™ PFP Propyl, 5µm Columns

5µm Column, 4.6mm	cat. #	price
150mm	9169565	\$390
150mm (with Trident™ Inlet Fitting)	9169565-700	\$405

Allure™ PFP Propyl Guard Cartridges

Allure™ PFP Propyl	qty.	cat. #	price
10 x 2.1mm	3-pk.	916950212	\$131
10 x 4.0mm	3-pk.	916950210	\$131
20 x 2.1mm	2-pk.	916950222	\$131
20 x 4.0mm	2-pk.	916950220	\$131

Figure 1 Superior retention of catecholamines on an Allure™ PFP Propyl column—better separations, without ion pairing.

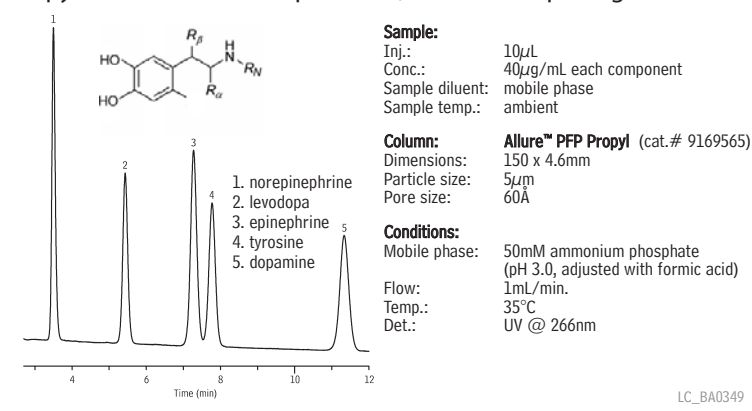


Figure 2 Changing organic modifiers alters selectivity for catecholamines, for more flexibility in optimizing separations.

