

COSMOSIL PBr is a reversed-phase column suitable for separating hydrophilic compounds, with high retention for compounds not sufficiently retained on ODS columns. Below are some featured applications for several classes of hydrophilic compounds.

Contents

Category		Applications	Page
1	Nucleotide-related compounds	Nucleotides	AMP / ADP / ATP
		Sugar nucleotides	UDP-galactose / UDP-glucose
2	Nucleic acid base-related compounds	Pyrimidine / purine rings	Nucleic acid bases
		Halogenated compounds	Uracil derivatives
3	Other aromatics and heterocycles	Catechol rings	Catecholamines
		Triazine rings	Melamine derivatives
4	Peptide-related compounds	Peptides of different chain lengths	Peptides
5	Aminoglycoside antibiotics	Gentamicin C complex	Gentamicin

Applications

1. Nucleotide-related compounds

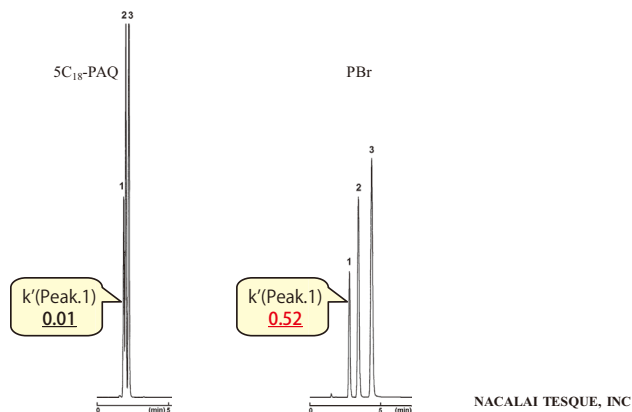
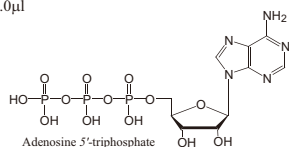
• Nucleotides (AMP / ADP / ATP)

Nucleotide analysis is a challenge due to the phosphate groups, which are highly polar. COSMOSIL PBr achieves baseline analysis without ion-pair reagents.

COSMOSIL Application Data

Column: 4.6mm I.D.-150mm
 Column size: 4.6mm I.D.-150mm
 Mobile phase: Methanol/ 20mmol/l Phosphate buffer(pH7.0) = 10/90
 Flow rate: 1.0 ml/min
 Temperature: 30°C
 Detection: UV260nm

Sample: 1; Adenosine 5'-triphosphate (0.5mg/ml)
 2; Adenosine 5'-diphosphate (0.8mg/ml)
 3; Adenosine 5'-monophosphate (0.8mg/ml)
 Inj.Vol.: 1.0μl



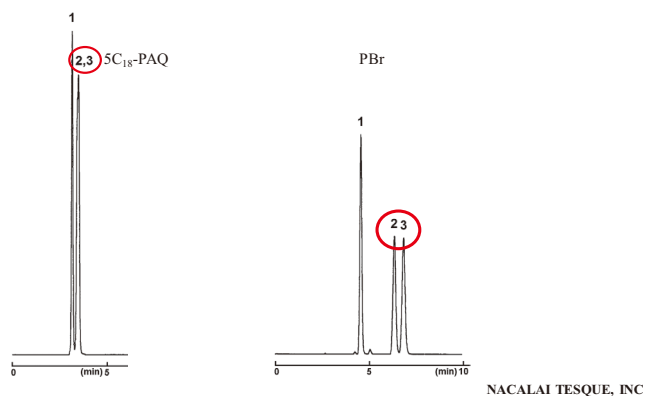
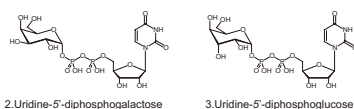
• Sugar nucleotides (UDP-galactose / UDP-glucose)

Due to the hydrophilicity of sugars, retention times are very close on C₁₈ columns. However, COSMOSIL PBr was able to separate the below compounds under simple conditions.

COSMOSIL Application Data

Column: 4.6mm I.D.-250mm
 Column size: 4.6mm I.D.-250mm
 Mobile phase: 100mmol/l Phosphate buffer(pH7.0)
 Flow rate: 1.0 ml/min
 Temperature: 30°C
 Detection: UV260nm

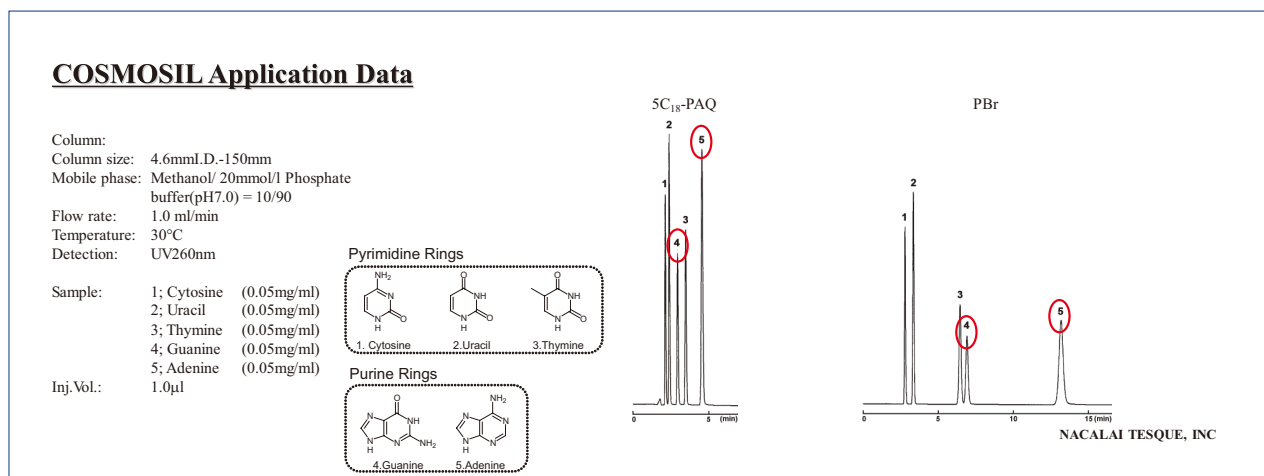
Sample: 1; Uridine-5'-diphosphate (0.8mg/ml)
 2; Uridine-5'-diphosphogalactose (0.8mg/ml)
 3; Uridine-5'-diphosphoglucose (0.8mg/ml)
 Inj.Vol.: 1.0μl



2. Nucleic acid base-related compounds

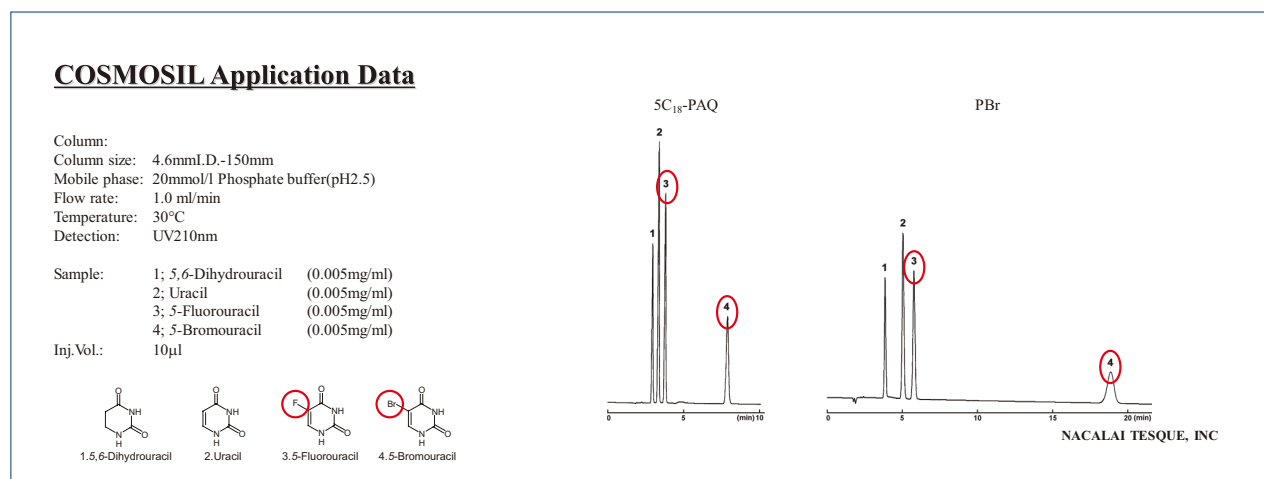
• Pyrimidine / purine rings

COSMOSIL PBr strongly retains analytes containing pyrimidine and purine rings, such as nucleobases. Compounds with more rings are retained more strongly.



• Halogenated compounds (uracil derivatives)

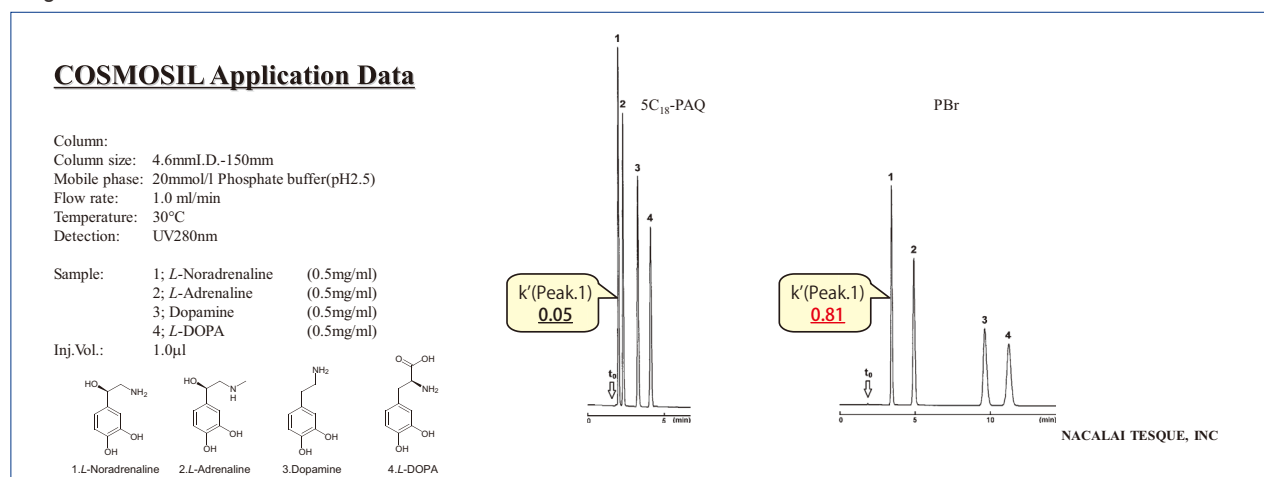
COSMOSIL PBr offers stronger retention of halogenated analytes.



3. Other aromatics and heterocycles

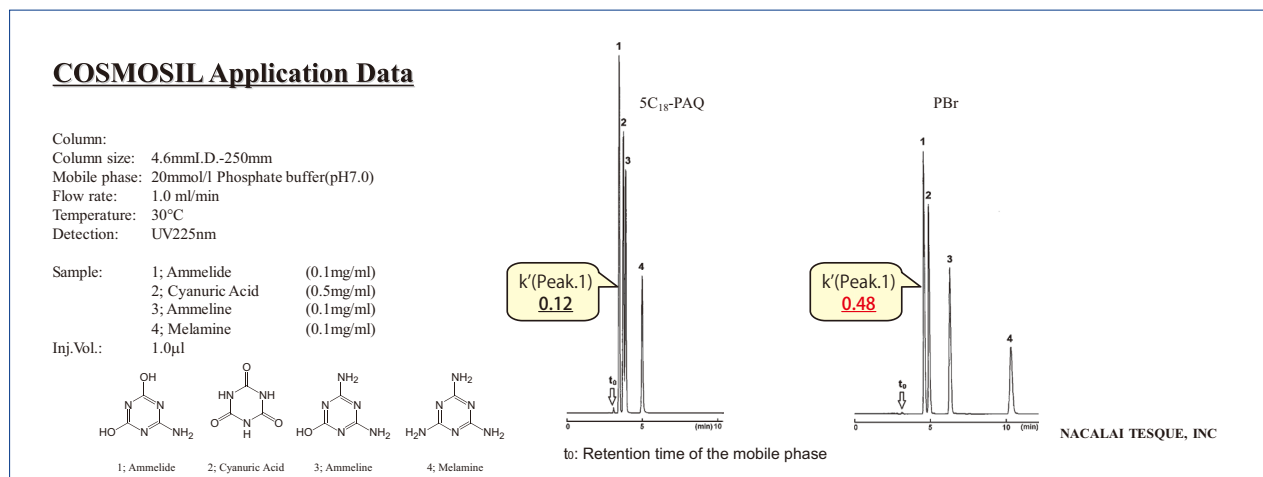
• Catechol rings (catecholamines)

Catecholamines are challenging due to their highly polar amino group. COSMOSIL PBr achieves baseline analysis without ion-pair reagents.



● Triazine rings (melamine derivatives)

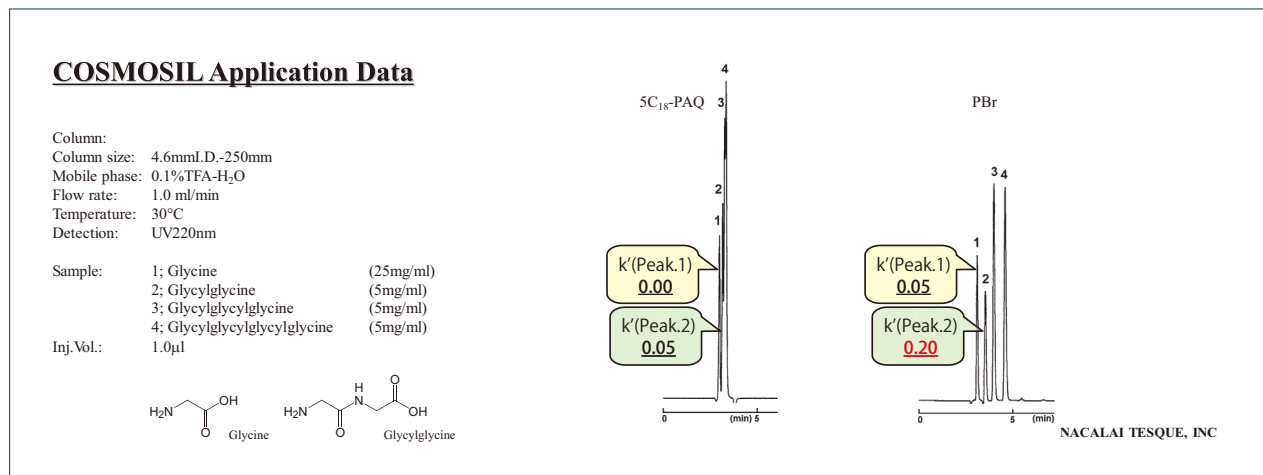
Melamine derivatives are highly polar compounds due to the amino groups bound to the triazine ring. COSMOSIL PBr retains these analytes longer than C₁₈.



4. Peptide-related compounds

● Peptides of different chain lengths

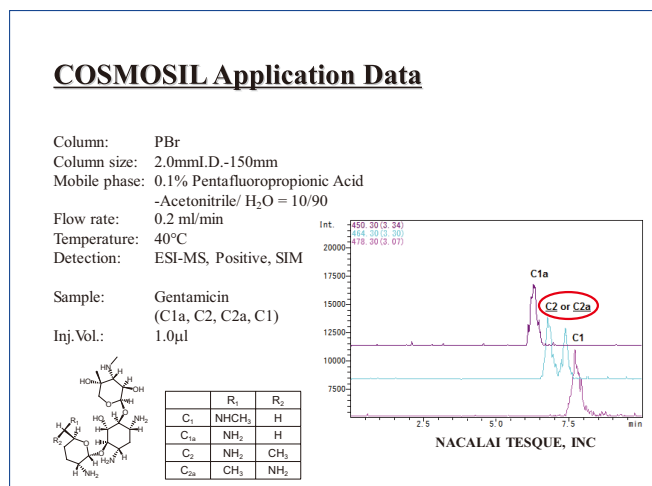
Glycine is not retained well by C₁₈ or PBr. However, longer peptide chains, such as glycylglycine, were retained more strongly by PBr.



5. Aminoglycoside antibiotics

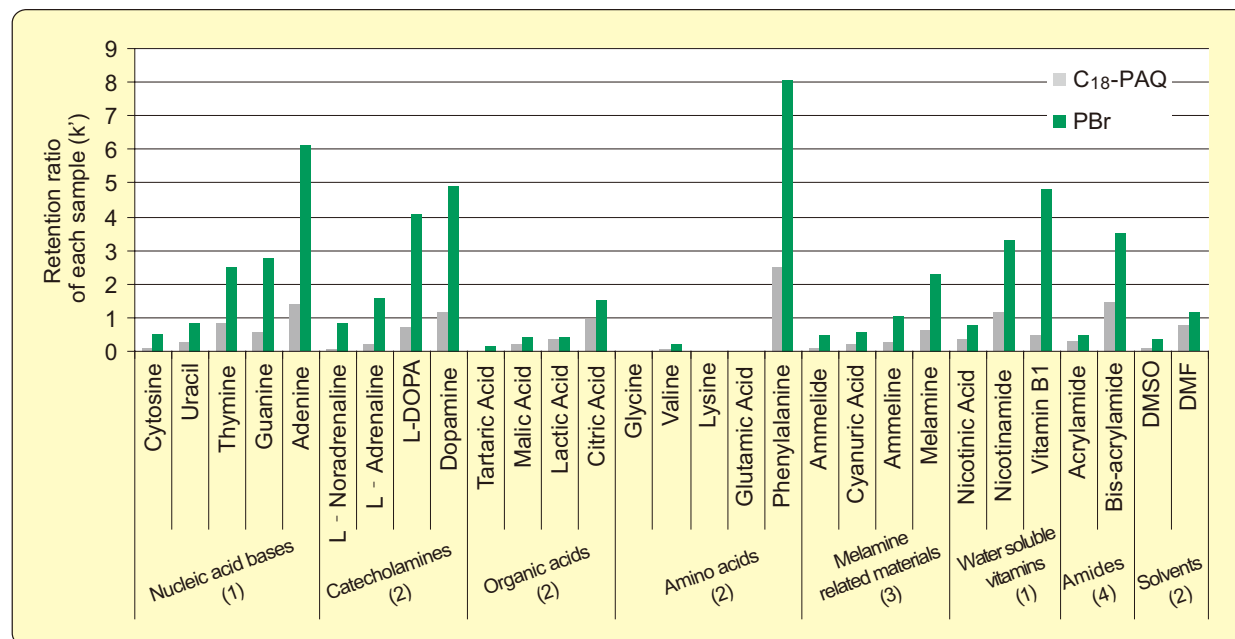
● Gentamicin C complex

The positions of the amino and methyl groups are different for gentamicin C₂ and C_{2a}. COSMOSIL PBr was able to separate them.



Suitable Samples

Although hydrophilic compounds show weak retention by C₁₈ columns, COSMOSIL PBr retains them using dispersion force. PBr exhibits especially strong retention for compounds containing aromatic rings or heterocycles, amides and halogenated compounds. If retention with PBr is insufficient, COSMOSIL HILIC is your next choice.



(Mobile phase)

(1) Methanol/ 20mmol/l Phosphate buffer(pH7.0) = 10/90

(2) 20mmol/l Phosphate buffer(pH2.5)

(3) 20mmol/l Phosphate buffer(pH7.0)

(4) Methanol/ H₂O = 10/90

Ordering Informations

Column Size I.D. x Length (mm)	Product Number	Column Size I.D. x Length (mm)	Product Number	Column Size I.D. x Length (mm)	Product Number
2.0 x 50	12943-61	10 x 50	13253-71	4.6 mm I.D. x 10 mm cartridge*	12444-14
2.0 x 100	13245-81	10 x 100	13254-61	10 x 20	12396-41
2.0 x 150	12392-81	10 x 150	13255-51	20 x 20	13256-41
2.0 x 250	13247-61	10 x 250	13297-31	4.6 mm I.D. Cartridge Holder	38009-79
3.0 x 50	12592-61	20 x 50	13257-31	*Cartridge Holder is required.	
3.0 x 100	13249-41	20 x 100	13258-21		
3.0 x 150	13250-01	20 x 150	13259-11		
3.0 x 250	13251-91	20 x 250	12398-21		
4.6 x 50	13252-81	28 x 100	13260-71		
4.6 x 150	12394-61	28 x 150	13261-61		
4.6 x 250	12395-51	28 x 250	13262-51		

Core-shell column "COSMOCORE PBr" is available.

For research use only, not intended for diagnostic or drug use.