InertSustain C18

InertSustain AQ-C18

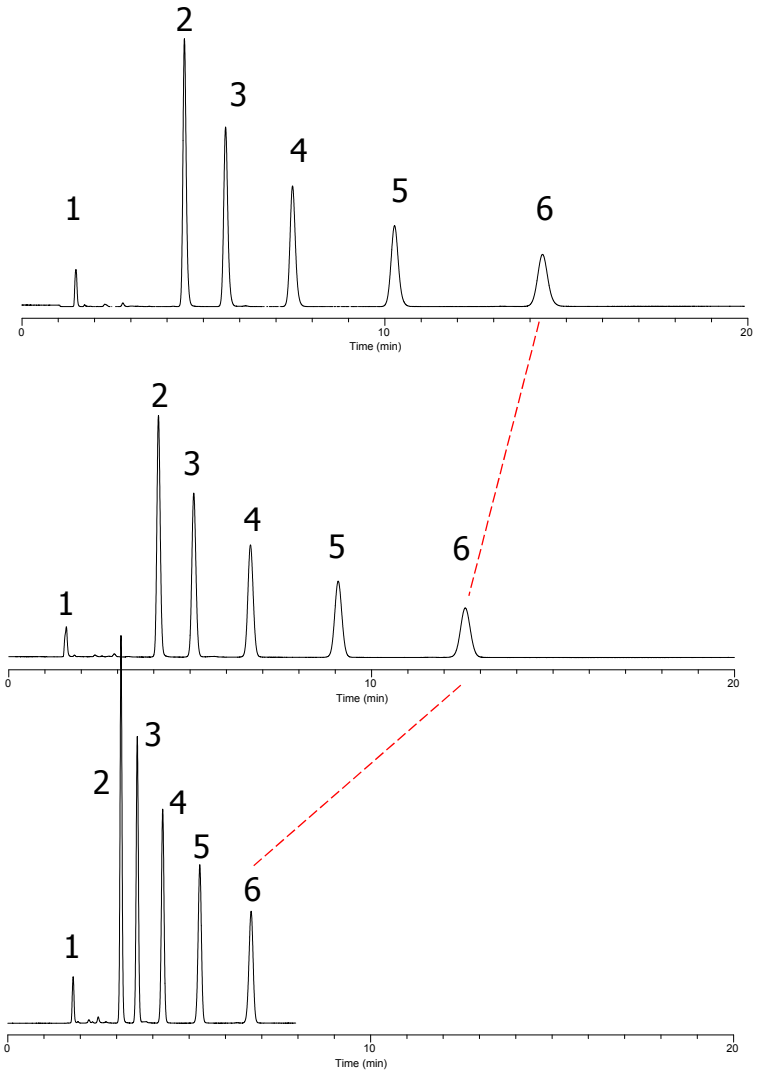
InertSustainSwift C18

Retention of hydrophobic compounds

Conditions

Column: 5 μm, 150 × 4.6 mm I.D.

Eluent : CH_3OH/H_2O = 80/20, v/v
Flow Rate : 1.0 mL/min
Col. Temp. : 40 ℃
Detection : UV 254 nm
Injection Vol : 2.5 μL
Sample : 1. Uracil 2. Toluene 3. Ethylbenzene 4. Propylbenzene
5. n-Butylbenzene 6. n-Amylbenzene

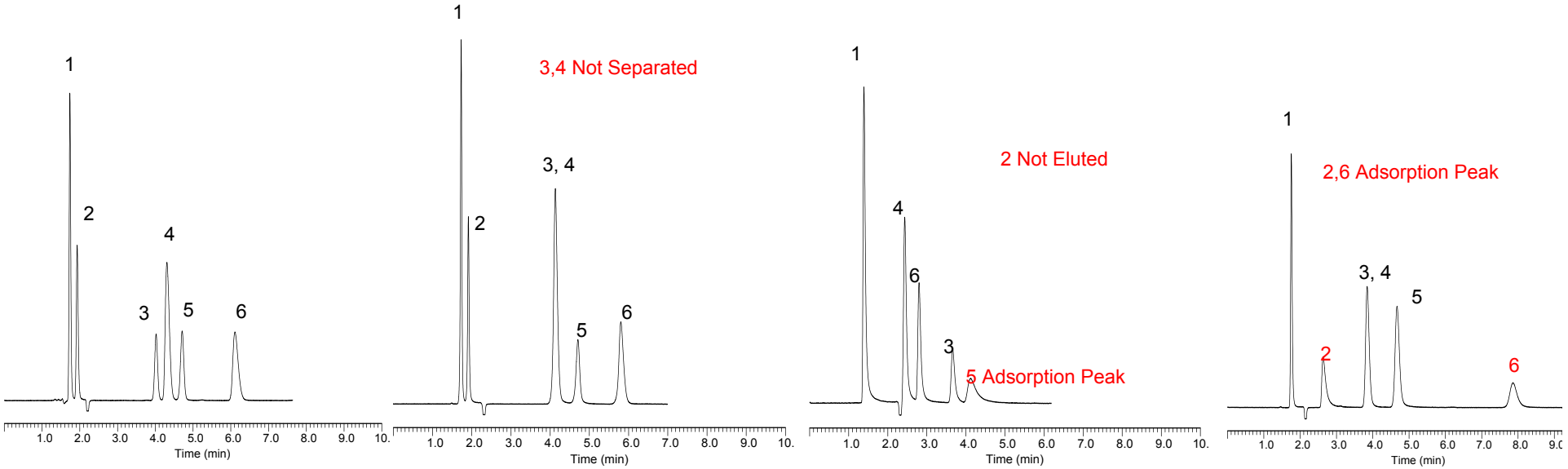


Retention and Separation of Hydrophobic Compounds

Conditions

Column	: 5 µm, 150 × 4.6 mm I.D.
Eluent	: 0.1 %HCOOH
Flow Rate	: 1 mL/min
Col. Temp.	: 40 ℃
Detection	: UV 210 nm
Injection Vol	: 2 µL
Sample	: 1. Pyridoxamine (VB6) 2. Thiamin (VB1)
	3. Nicotinic Acid (VB3) 4. Pyridoxal (VB6)
	5. Nicotinamide (VB3) 6. Pyridoxine (VB6)

Water-Soluble Vitamins



InertSustain AQ-C18

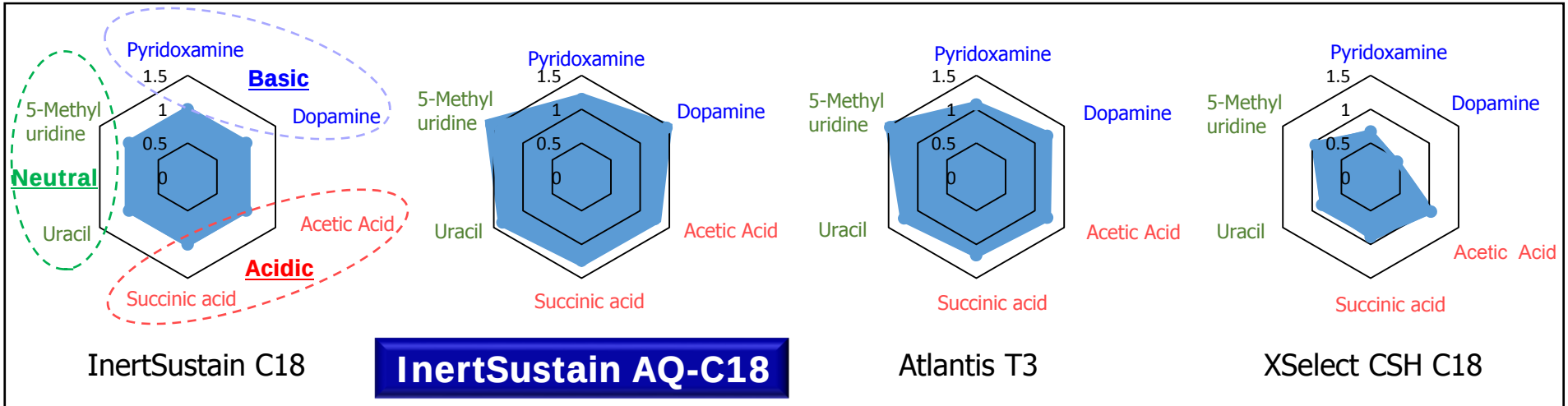
Atlantis (Waters)

Synargi Fusion RP (Phenomenex)

Aquasil C18 (Thermo)

Determination of Retentivity for Hydrophilic Compounds

The following radar chart was created with reference to the retention factor values obtained from **InertSustain C18 (conventional ODS)**. **When the surface of silica is neutral and interactions between hydrophobic molecules are present under water rich mobile phases, the blue highlighted area will show larger area.**



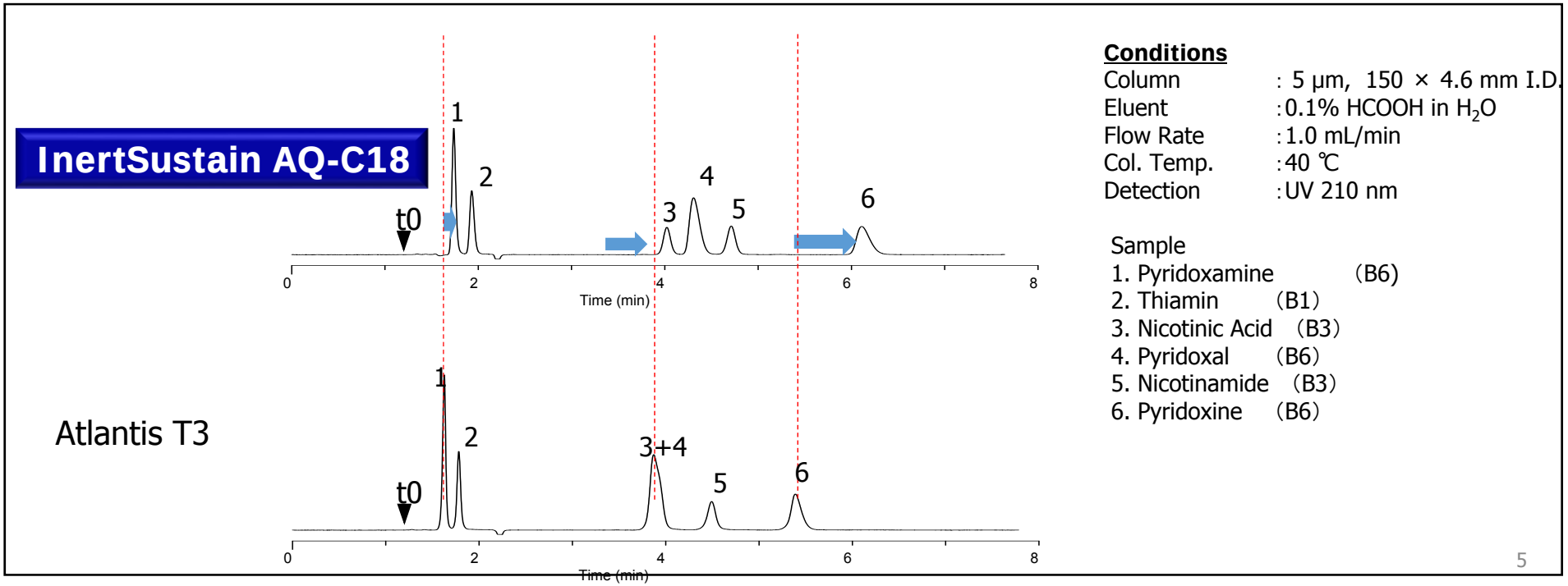
InertSustain C18 | **InertSustain AQ-C18** | Atlantis T3 | XSelect CSH C18

When the surface of the silica gel is basic: Retentivity = Acidic >> Basic (Neutral compounds are not influenced)

When the surface of the silica gel is acidic: Retentivity = Basic >> Acidic (Neutral compounds are not influenced)

Comparison of Retention for Water-Soluble Vitamin B

The use of ion-pairing reagents is a popular approach to retain water-soluble vitamins. Instead, 0.1% HCOOH in H_2O was used to demonstrate and compare the retention for water-soluble vitamins. As proven below, InertSustain AQ-C18 delivered significant retention without the need for such reagents.



Conditions

Column	: 5 µm, 150 × 4.6 mm I.D.
Eluent	: 0.1% HCOOH in H_2O
Flow Rate	: 1.0 mL/min
Col. Temp.	: 40 ℃
Detection	: UV 210 nm

Sample
1. Pyridoxamine (B6)
2. Thiamin (B1)
3. Nicotinic Acid (B3)
4. Pyridoxal (B6)
5. Nicotinamide (B3)
6. Pyridoxine (B6)

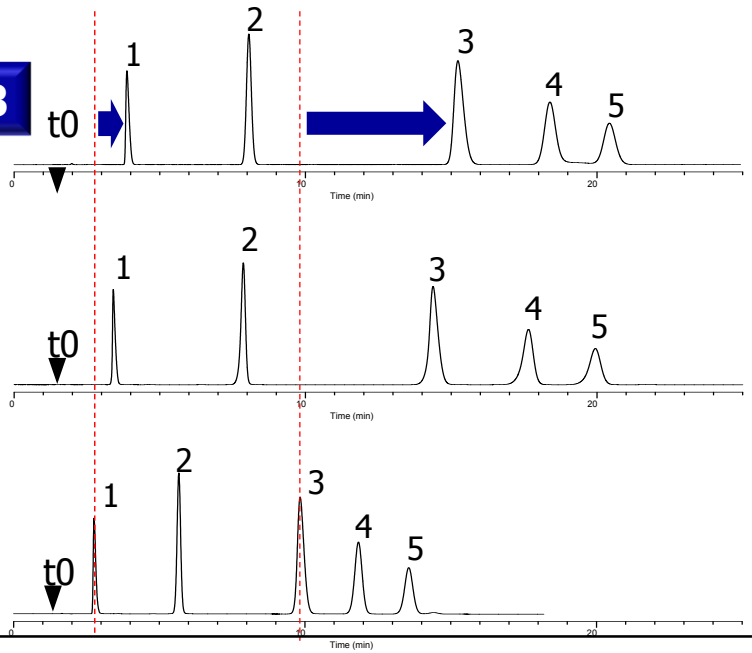
Comparison of Retention for Nucleosides

Nucleosides are often analyzed in HILIC mode as they are highly hydrophilic . However, ODS columns also show some retention under 100% water mobile phase. In the following test, InertSustain AQ-C18 demonstrated to show simply stronger retention without the change of selectivity and analytical condition.

InertSustain AQ-C18

Atlantis T3

InertSustain C18
(Conventional ODS)



Conditions

Column	: 5 µm, 150 × 4.6 mm I.D.
Eluent	: 0.1% HCOOH in H_2O
Flow Rate	: 1.0 mL / min
Col. Temp.	: 40 ℃
Detection	: UV 254 nm

Sample
1. Cytidine
2. Uridine
3. Adenosine
4. Guanosine
5. 5-Methyl uridine

Summary

First Choice Column
Conventional ODS Column

In case there were no retention of polar compounds…

Second Choice Column
InertSustain AQ-C18

***Easier to develop and optimize analytical conditions**
***Offer strong polar compound retention even under 100% water or water rich mobile phases**
***The usage of highly inert packing results in delivering symmetric peaks for virtually any type of compounds**
***Eliminating the use of ion-pairing reagents improves method reproducibility, extends column lifetime and reduces instrument maintenance**

Column Selection Guide on InertSustain Series

- InertSustain C18 — First Choice Conventional ODS Column
- **InertSustain AQ-C18** — **For Retaining Highly Polar Compounds**
- InertSustainSwift C18 — For Rapid Elution of samples
- InertSustain Phenyl
- InertSustain Phenylhexyl

} For Changing Elution Pattern and to Improve Separation via pi-pi- Interaction