

# ProntoCore

New Generation Coreshell HPLC Column  
With CSP Technology

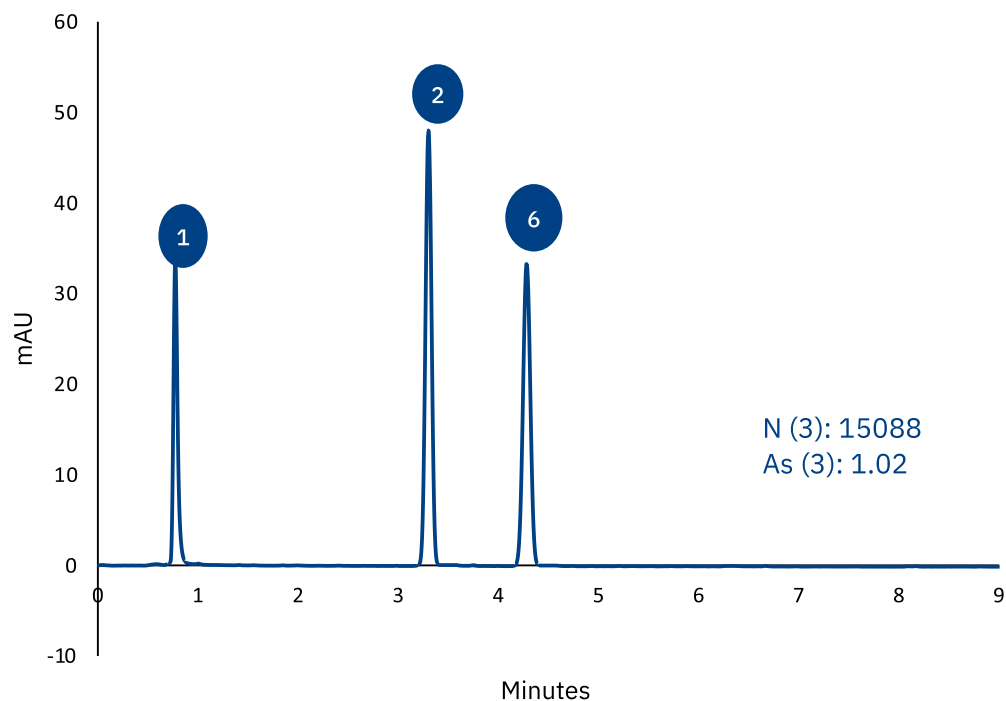


## Application & Comparison

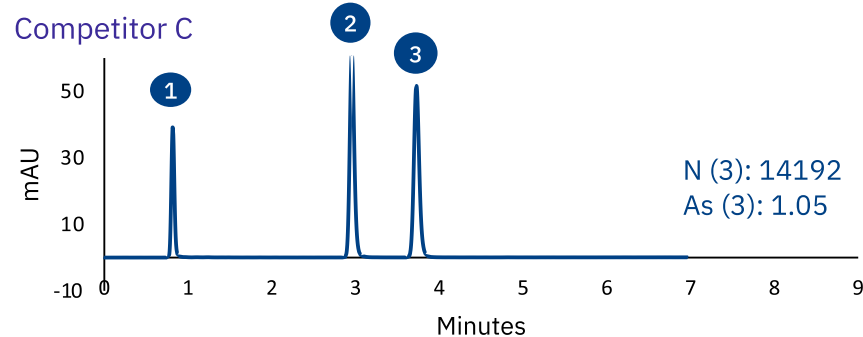
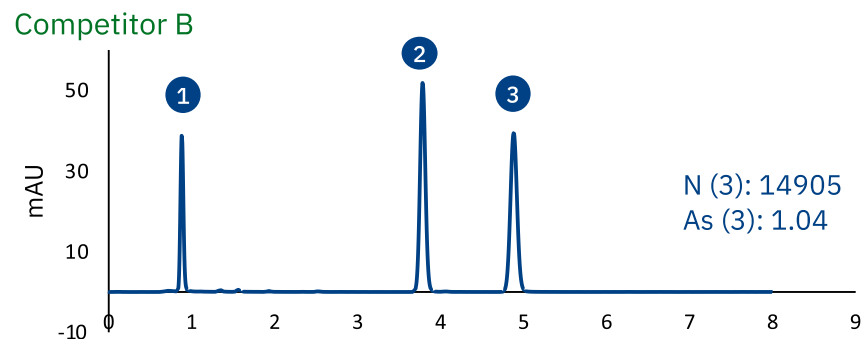
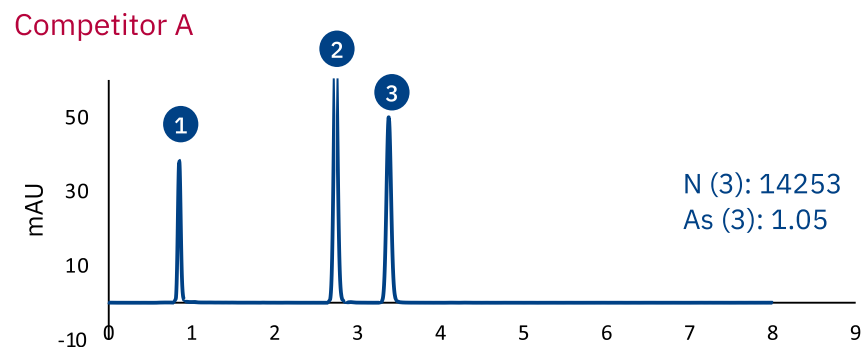
## Comparison Performance Test – ProntoCore 2.6µm C18 vs Competitor columns

Chromatographic conditions:		Mobile Phase: 60/40 Acetonitrile/Water; Flow rate: 1.0mL/Minutes; Injection Volume: 1.0uL; UV: 254nm			
Parameters	ProntoCore C18	Competitor A	Competitor B	Competitor C	
3	N	15088	14253	14905	14192
	As	1.02	1.05	1.04	1.05

### ProntoCore 2.6µm C18 100 x 4.6mm



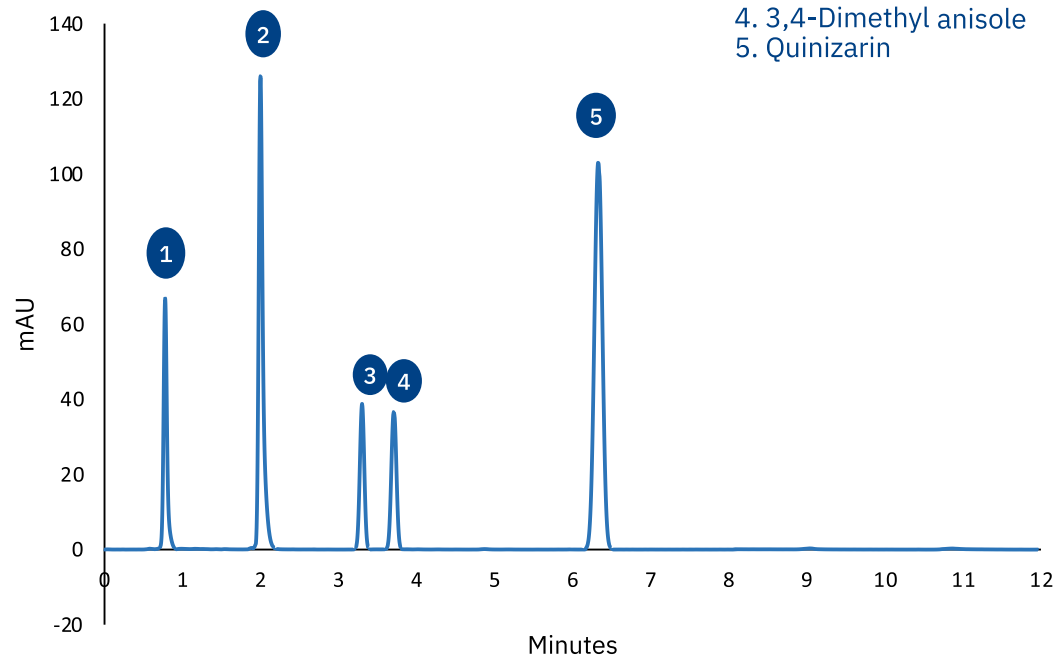
1. Uracil
2. Toluene
3. Naphthalene



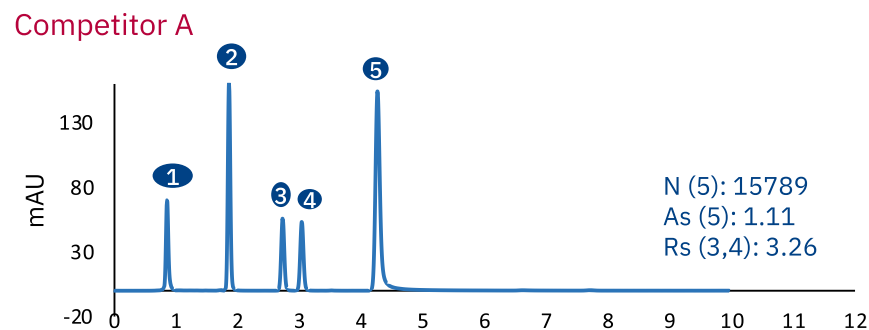
## Comparison Efficiency Test – ProntoCore 2.6µm C18 vs Competitor columns

Chromatographic conditions:		Mobile Phase: 60/40 Acetonitrile/Water; Flow rate: 1.0mL/Minutes; Injection Volume: 1.0uL; UV: 254nm			
Parameters	ProntoCore C18	Competitor A	Competitor B	Competitor C	
5	N	16345	15789	15107	14774
	As	1.07	1.11	1.08	1.21
	Rs(3,4)	3.86	3.26	3.18	3.23

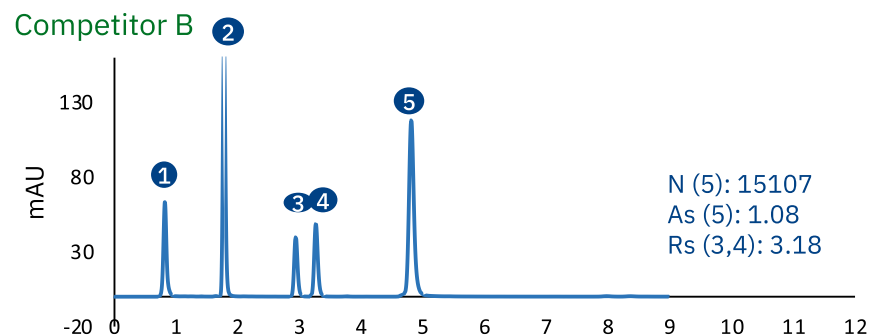
**ProntoCore 2.6µm C18 100 x 4.6mm**



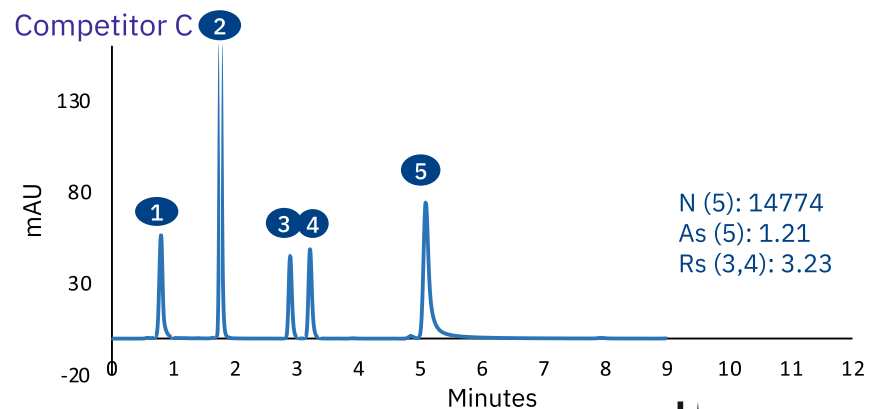
1. Uracil
2. p-Tolunitrile
3. Toluene
4. 3,4-Dimethyl anisole
5. Quinizarin



N (5): 15789  
As (5): 1.11  
Rs (3,4): 3.26



N (5): 15107  
As (5): 1.08  
Rs (3,4): 3.18

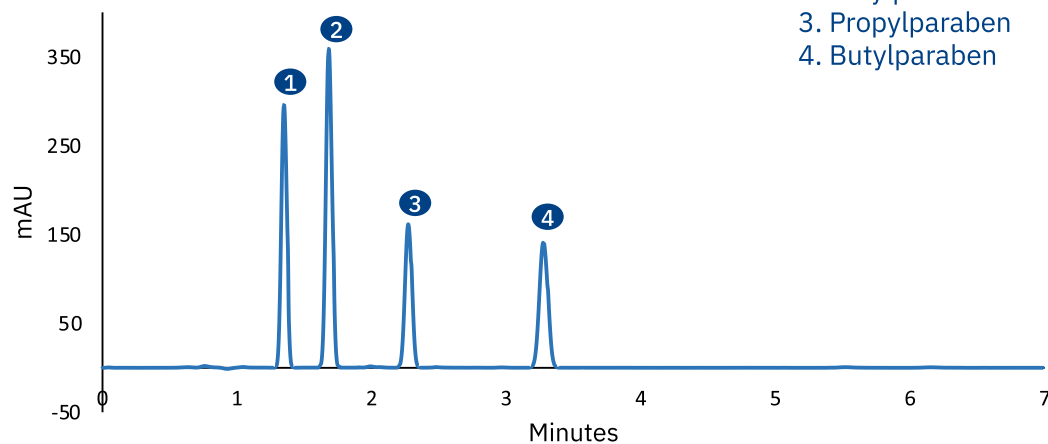


N (5): 14774  
As (5): 1.21  
Rs (3,4): 3.23

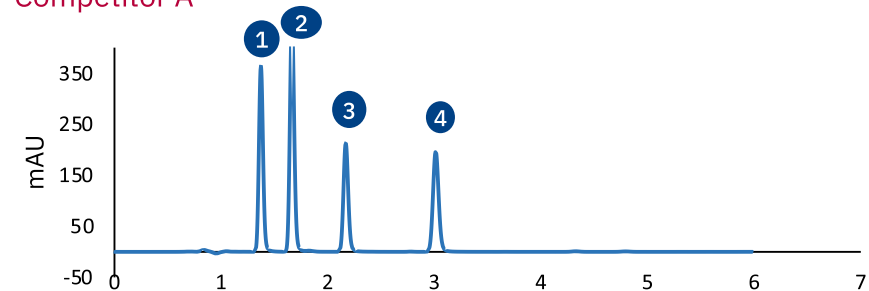
## APPLICATION – Parabens (Preservatives in cosmetic and pharmaceutical products)

Chromatographic conditions:		Mobile Phase: 50/50 Acetonitrile/Water; Flow rate: 1.0mL/Minutes; Injection Volume: 1.0uL; Standard Concentration: 100ug/mL; UV: 254nm			
Parameters	ProntoCore C18	Competitor A	Competitor B	Competitor C	
1	N	4879	4844	4717	4644
	As	1.11	1.11	1.18	1.11
2	N	5843	5619	5402	5335
	As	1.05	1.06	1.15	1.13
	Rs	3.90	3.93	3.70	3.56
3	N	8430	7640	7514	7081
	As	1.08	1.10	1.09	1.10
	Rs	6.31	6.28	6.26	6.10
4	N	11734	10830	10573	9764
	As	1.08	1.08	1.08	1.08
	Rs	9.12	9.20	9.50	9.44

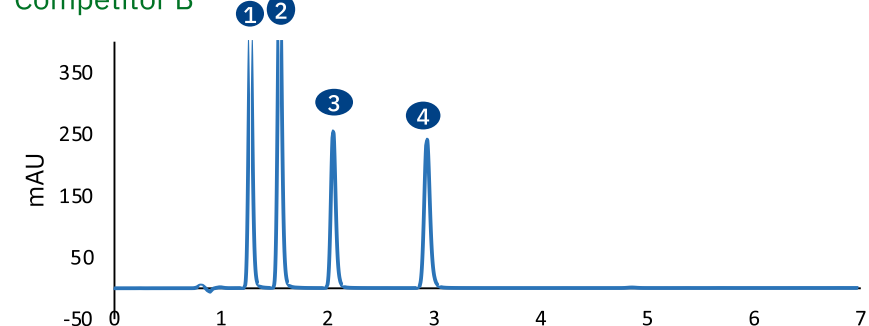
### ProntoCore 2.6µm C18 100 x 4.6mm



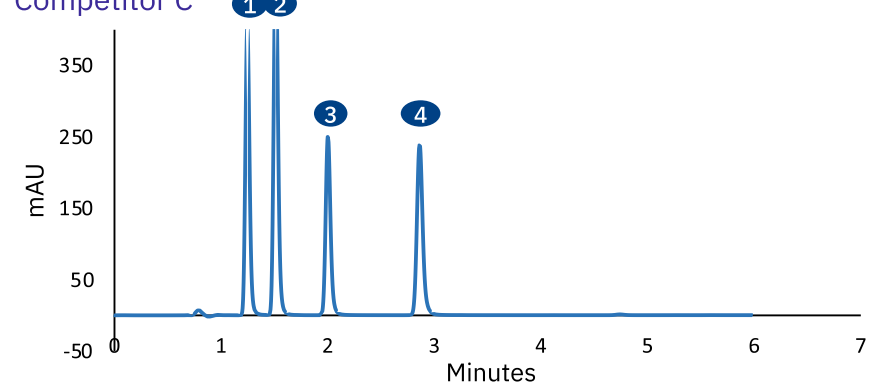
### Competitor A



### Competitor B



### Competitor C

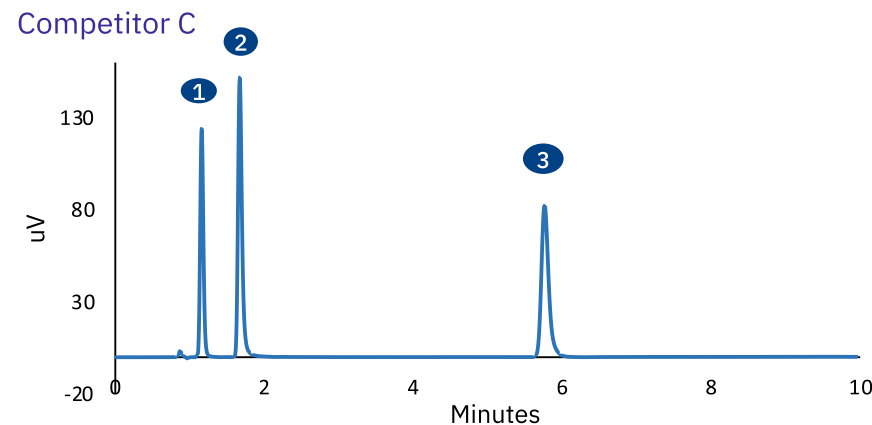
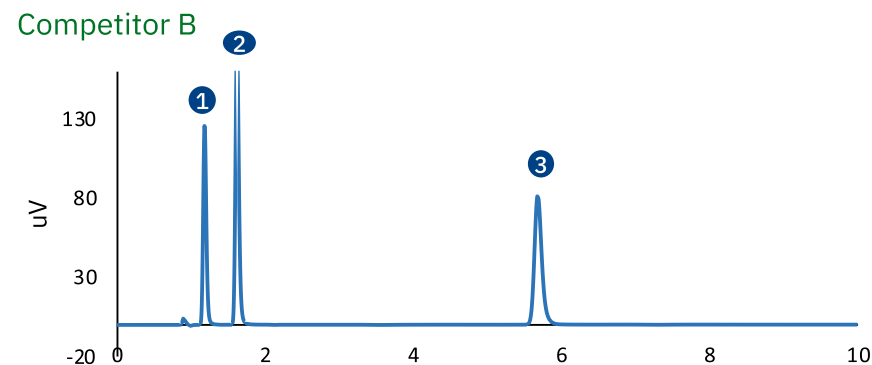
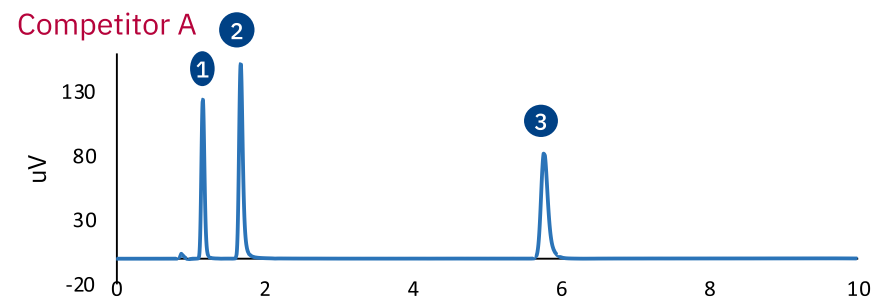


## APPLICATION – Acetaminophen (Analgesics)

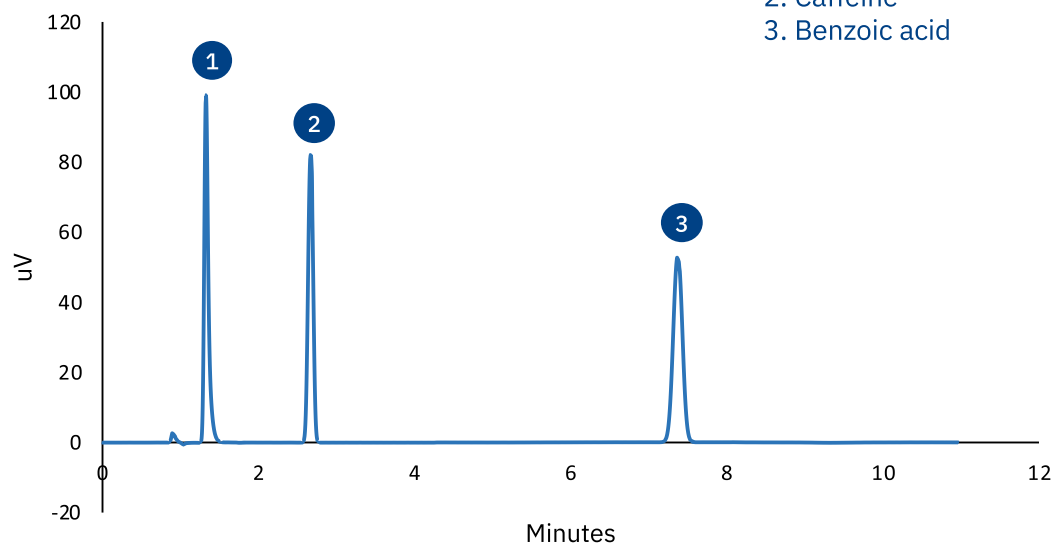
### Chromatographic conditions:

Mobile Phase: 69:28:3 Water: Methanol : Acetic acid; Flow rate: 1.0mL/Minutes; Injection Volume: 1.0uL; Standard Concentration: 500ug/mL Acetaminophen, 200ug/mL Caffeine and 1000ug/mL Benzoic acid; UV: 275nm

Parameters		ProntoCore C18	Competitor A	Competitor B	Competitor C
1	N	3486	2758	3677	3431
	As	1.20	1.27	1.21	1.25
2	N	4489	4832	5671	5189
	As	1.12	1.12	1.11	1.17
	Rs	10.84	5.76	5.35	5.97
3	N	18740	15452	16746	18291
	As	1.04	1.04	1.05	1.05
	Rs	23.88	26.88	31.06	31.04



### ProntoCore 2.6µm C18 100 x 4.6mm



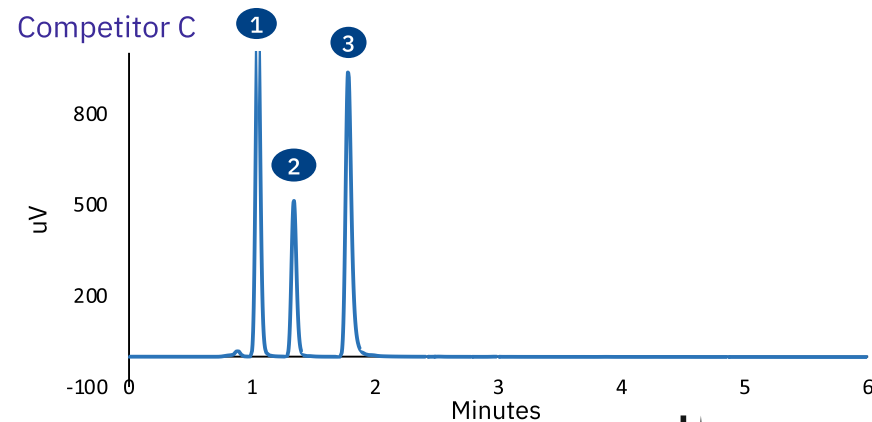
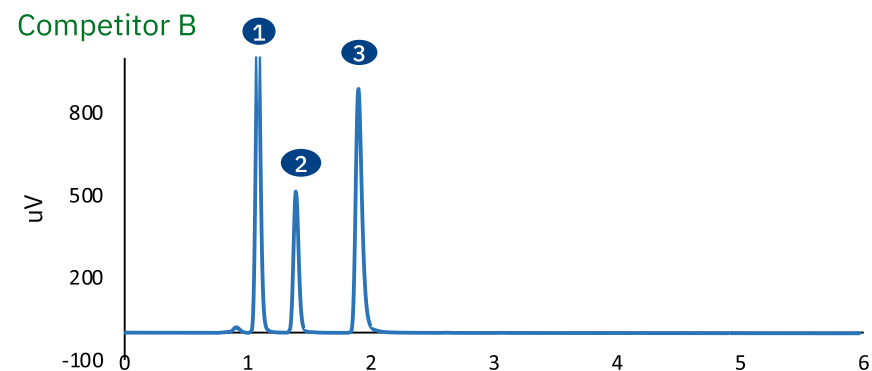
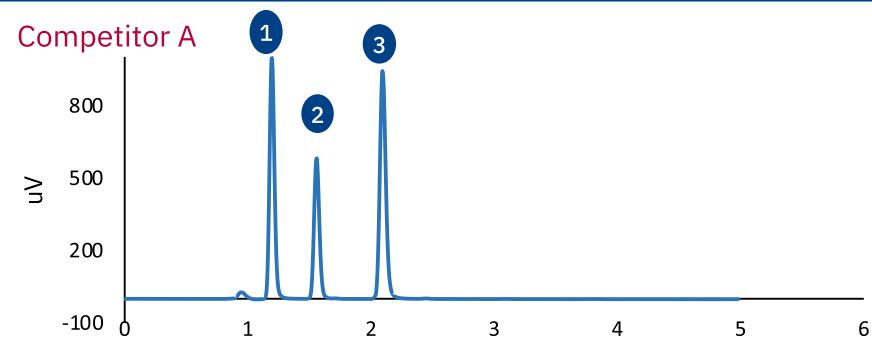
- 1. Acetaminophen
- 2. Caffeine
- 3. Benzoic acid

## APPLICATION – Salicylic acids (Non steroidal anti - inflammatory drug)

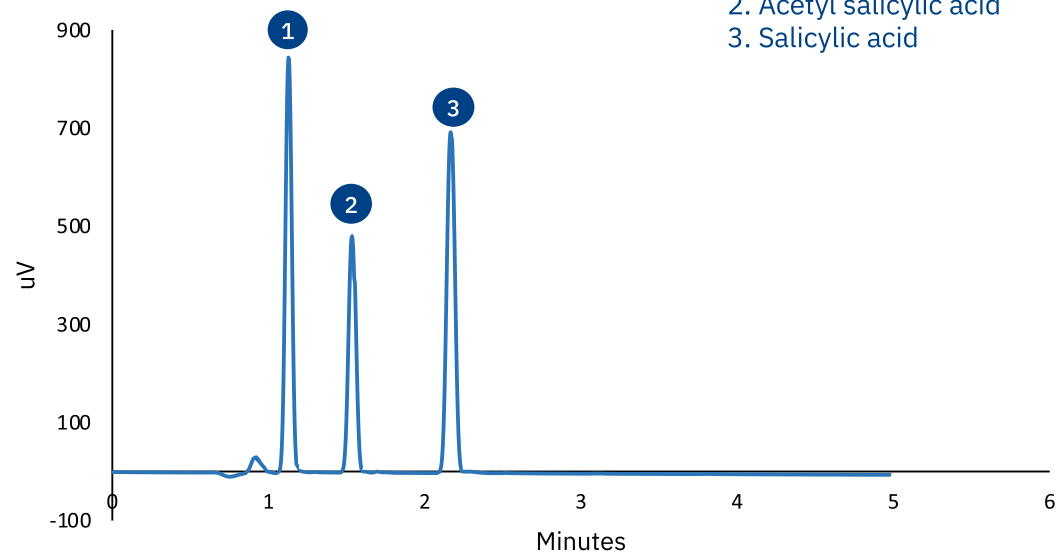
### Chromatographic conditions:

Mobile Phase: 40/60/0.2 Acetonitrile/Water/H3PO4; Flow rate: 1.0mL/Minutes; Injection Volume: 5.0uL; Standard Concentration: 200ug/mL Hydroxybenzoic acid, 200ug/mL Acetylsalicylic acid and 500ug/mL Salicylic acid; UV: 237nm; Column Temperature: 30°C.

Parameters		ProntoCore C18	Competitor A	Competitor B	Competitor C
1	N	4993	4307	3408	3300
	As	1.19	1.19	1.15	1.15
2	N	6593	6003	5032	4977
	As	1.07	1.07	1.19	1.17
	Rs	4.68	4.74	4.12	3.92
3	N	8526	8179	6596	6977
	As	1.10	1.10	1.20	1.20
	Rs	6.37	6.38	5.97	5.47



### ProntoCore 2.6µm C18 100 x 4.6mm



1. Hydroxybenzoic acid
2. Acetyl salicylic acid
3. Salicylic acid

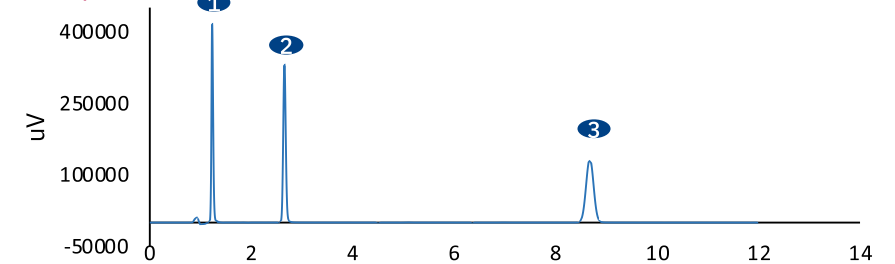
## APPLICATION – Lidocaine (local anaesthetics and antiarrhythmic)

### Chromatographic conditions:

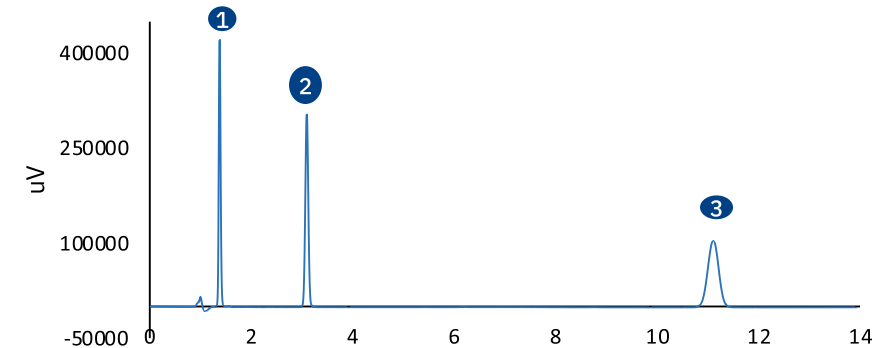
Mobile Phase: 30/70 Acetonitrile/0.05M KH<sub>2</sub>PO<sub>4</sub> pH 3.5; Flow rate: 1.0mL/Minutes; Injection Volume: 5.0uL; Standard Concentration: 200ug/mL Lidocaine, 100ug/mL Methylparaben and 100ug/mL Propylparaben; UV: 214nm; Column Temperature: 30°C.

Parameters		ProntoCore C18	Competitor A	Competitor B	Competitor C
1	N	4889	4549	4468	4121
	As	1.12	1.24	1.14	1.30
2	N	10820	10381	10501	9654
	As	1.13	1.07	1.01	1.16
	Rs	15.514	18.34	19.237	14.952
3	N	14484	13504	12021	13357
	As	1.01	1.01	0.99	1.06
	Rs	31.803	31.99	31.158	32.914

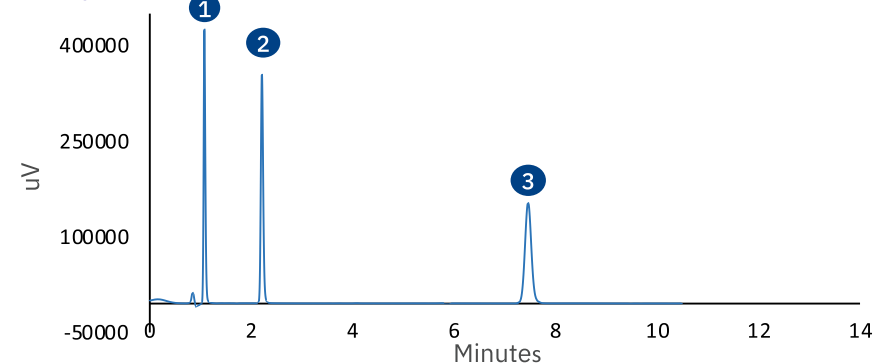
### Competitor A



### Competitor B

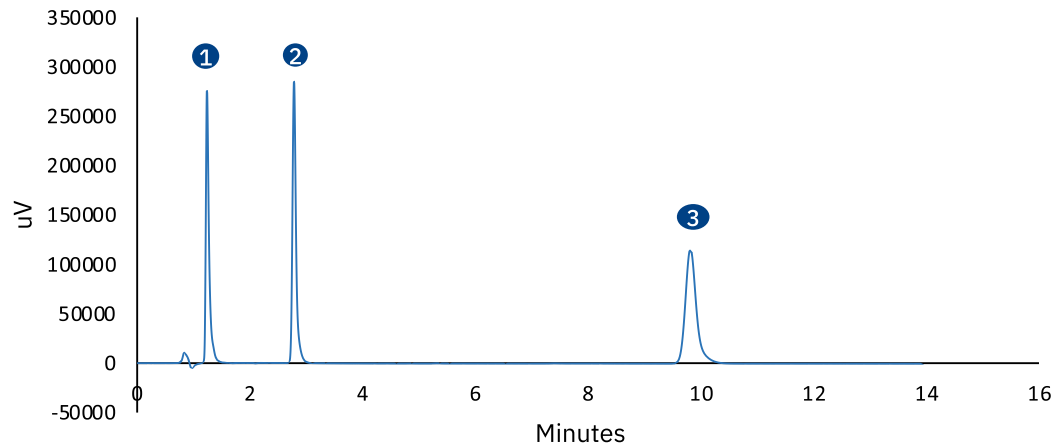


### Competitor C



### ProntoCore 2.6µm C18 100 x 4.6mm

1. Lidocaine
2. Methyl paraben
3. Propyl paraben

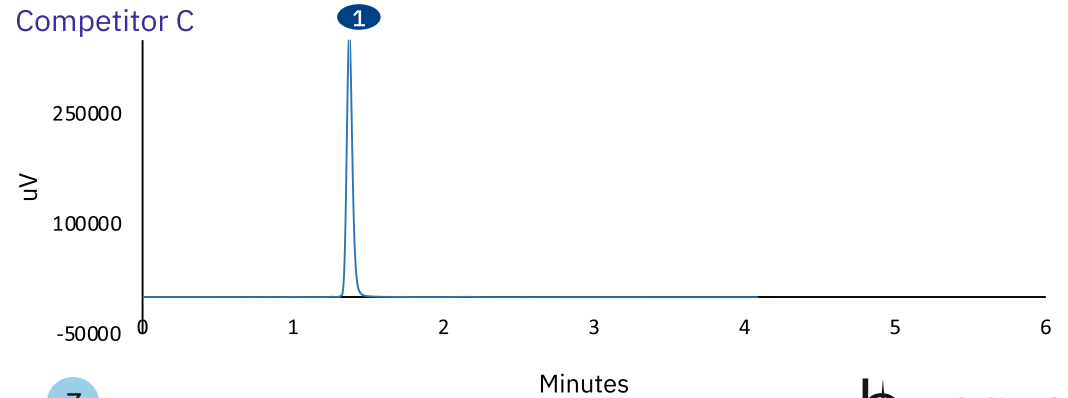
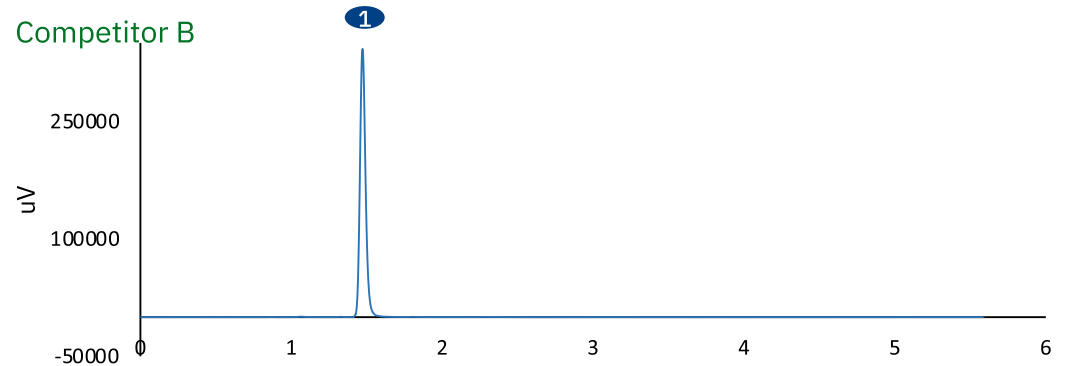
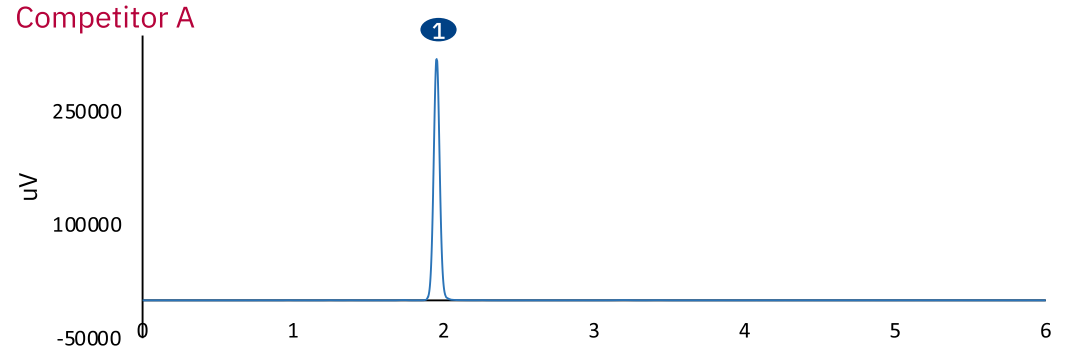


## APPLICATION – Amoxicillin (Antibiotics)

### Chromatographic conditions:

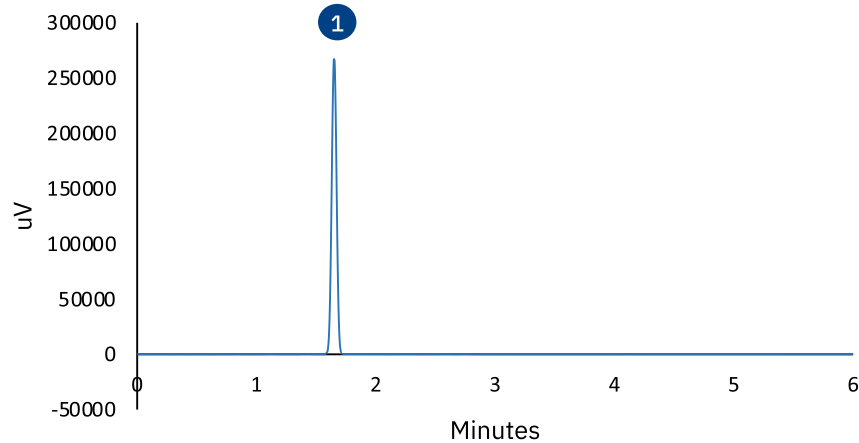
Mobile Phase: 4/96 Acetonitrile/50mM KH<sub>2</sub>PO<sub>4</sub> pH 5.0.; Flow rate: 1.0mL/Minutes; Injection Volume: 1.0uL; Standard Concentration: 1000ug/mL; UV: 237nm; Column Temperature: 30°C.

Parameters	Amoxicillin	
	N	As
ProntoCore C18	6995	1.01
Competitor A	5649	1.02
Competitor B	5467	1.21
Competitor C	5956	1.20



ProntoCore 2.6µm C18 100 x 4.6mm

1. Amoxicillin





## APPLICATION – Ibuprofen (Non steroidal anti - inflammatory drug)

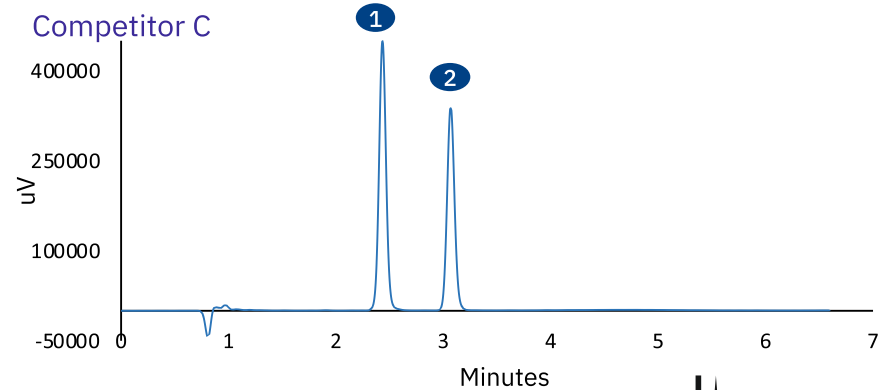
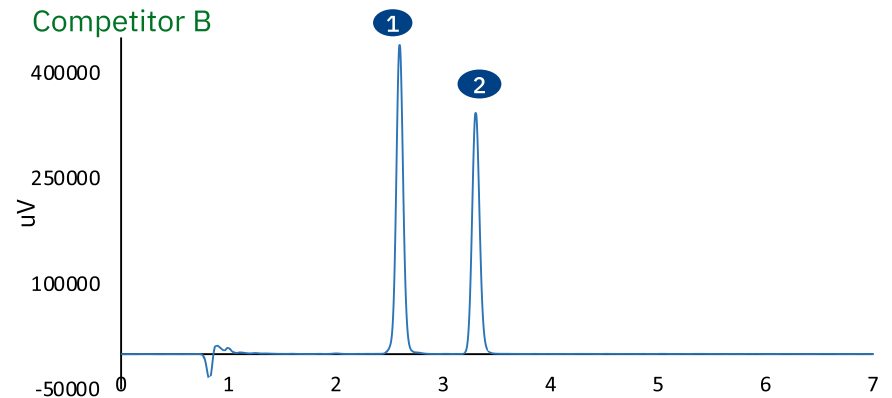
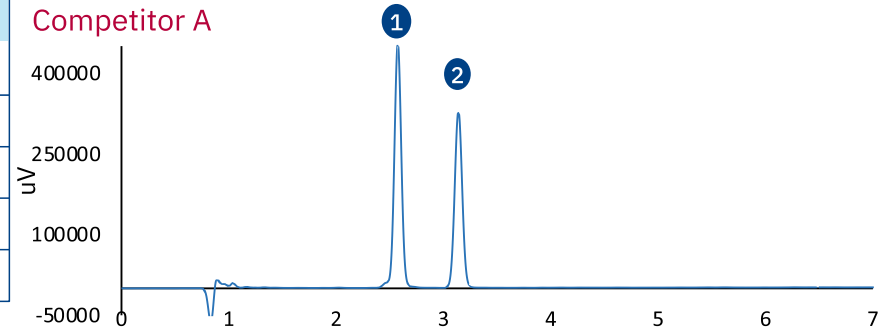
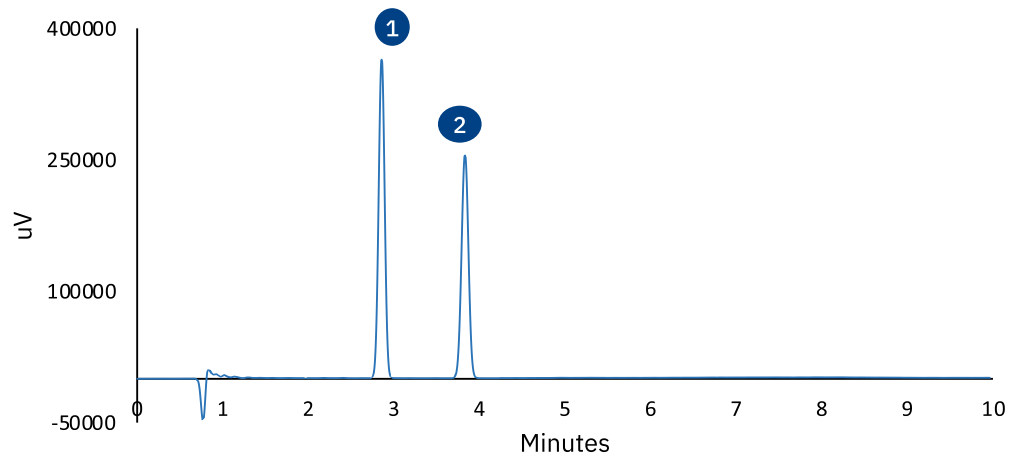
### Chromatographic conditions:

Mobile Phase: 60/40 Acetonitrile/25mM Chloroacetic acid pH 3.0; Flow rate: 1.0mL/Minutes; Injection Volume: 2.0uL; Standard Concentration: 600ug/mL Ibuprofen and 1000ug/mL Valerophenone; UV: 214nm; Column Temperature: 30°C.

Parameters		ProntoCore C18	Competitor A	Competitor B	Competitor C
1	N	7936	7114	7018	6665
	As	1.02	1.02	1.04	1.05
2	N	9921	9142	9091	9000
	As	1.05	1.06	1.08	1.07
	Rs	6.704	4.529	5.61	5.167

ProntoCore 2.6µm C18 100 x 4.6mm

1. Ibuprofen  
2. Valerophenone

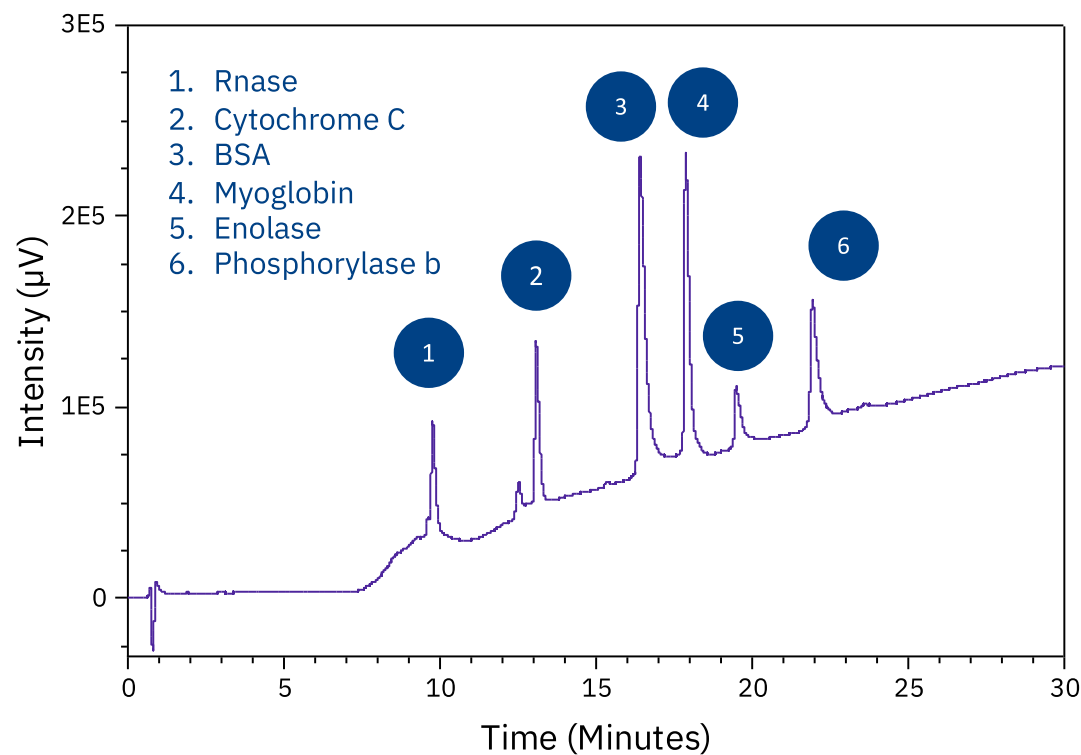


## ProntoCore C4 400 Å 50x2.1mm 2.6µm – Protein Separation

### Chromatographic conditions:

Mobile Phase: A-0.1% TFA in Water B-0.075% TFA in Acetonitrile Gradient -%B 18-70% in 0-25 minutes; Flow rate: 0.2mL/Minutes; Injection Volume: 5.0µL; UV: 220nm, Column Oven Temperature: 60°C

Compounds	ProntoCore C4 50x2.1mm 2.6 µm 500A°		
	Asymmetry (As)	No. of Plates (N)	Resolution (Rs)
RNase (80ug/mL)	1.368	17846	N/A
Cytochrome C (110ug/mL)	1.558	27001	12.313
BSA (400ug/mL)	2.429	21959	9.792
Myoglobin (250ug/mL)	2.053	41156	2.579
Enolase (430ug/mL)	2.000	60190	4.881
Phosphorylase b (1.18ug/mL)	1.226	59494	7.765

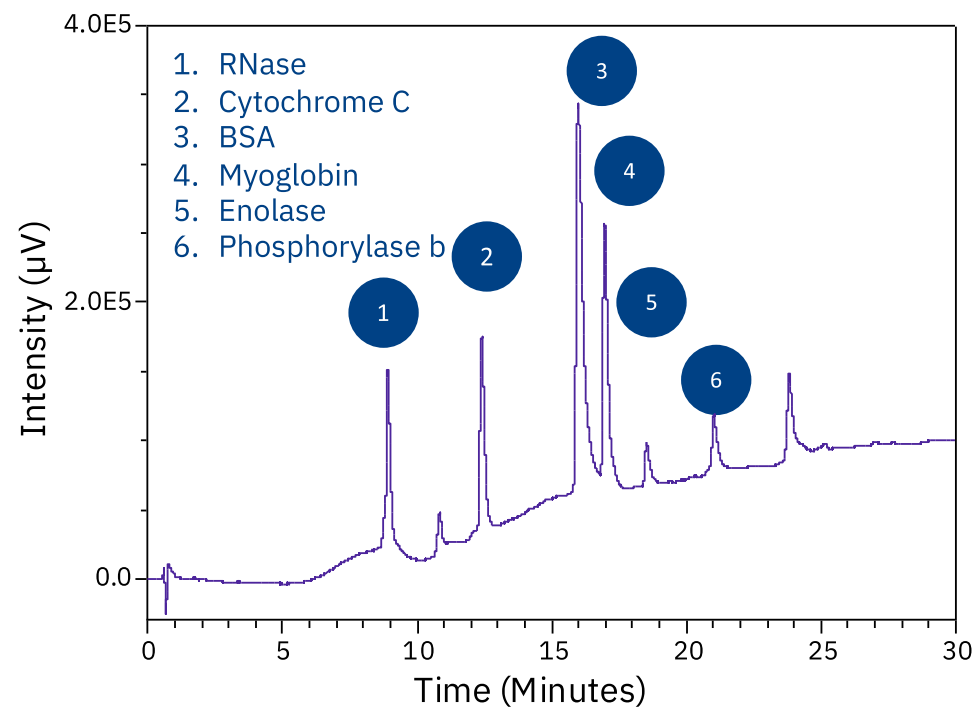


## ProntoCore C4 1000 Å 50x2.1mm 2.6µm – Protein Separation

### Chromatographic conditions:

Mobile Phase: A-0.1% TFA in Water B-0.075% TFA in Acetonitrile Gradient-%B 18-70% in 0-25 minutes; Flow rate: 0.2mL/Minutes; Injection Volume: 5.0µL; UV: 220nm, Column Oven Temperature: 60°C

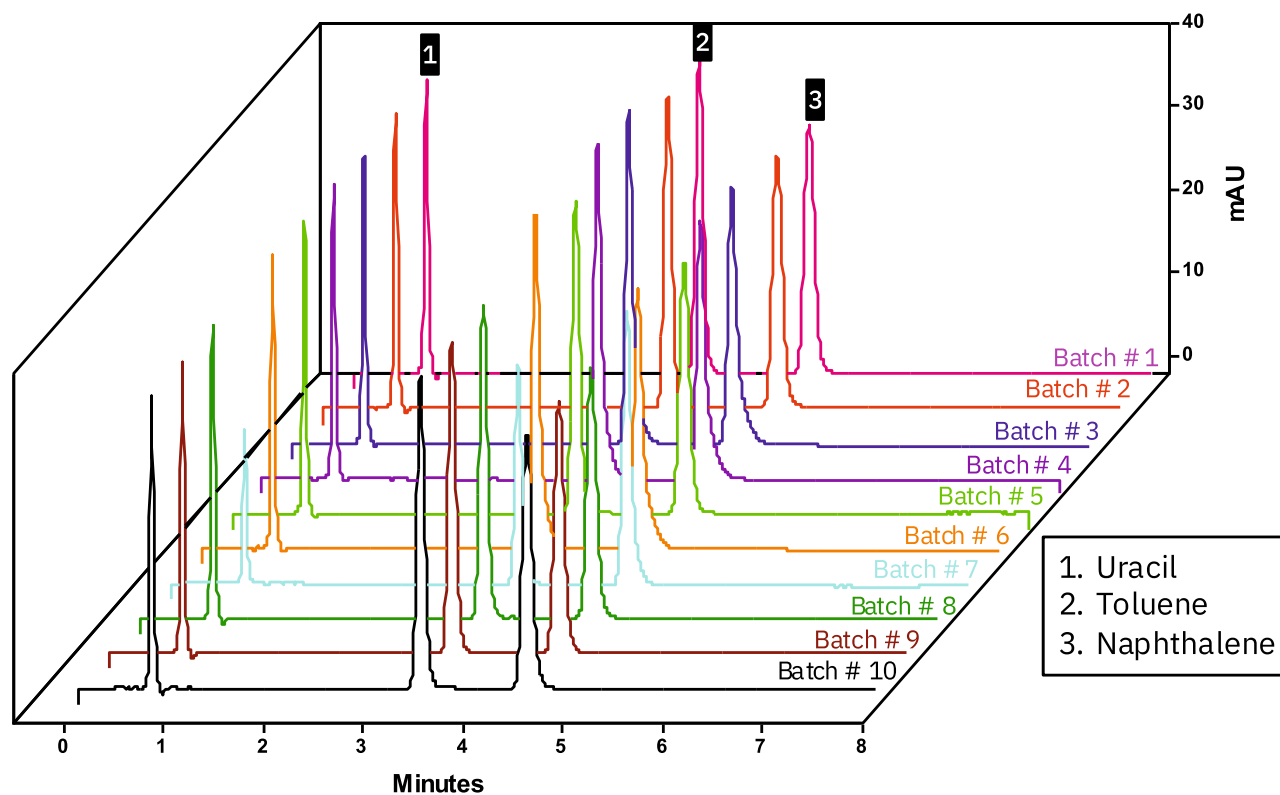
Compounds	ProntoCore C4 50x2.1mm 2.6 µm 500A°		
	Asymmetry (As)	No. of Plates (N)	Resolution (Rs)
RNase (80ug/mL)	1.838	29974	N/A
Cytochrome C (110ug/mL)	1.821	46978	14.245
BSA (400ug/mL)	2.420	28796	10.634
Myoglobin (250ug/mL)	2.138	60225	4.328
Enolase (430ug/mL)	2.113	55566	5.210
Phosphorylase b (1.18ug/mL)	2.181	52631	6.880



## ProntoCore C18 100 x 4.6mm 2.6µm Batch to Batch Stability

### Chromatographic conditions:

Mobile phase – 60:40 Acetonitrile: water; Flow rate – 1.0 mL/minutes; UV@ 254nm; Injection volume: 1.0 µL; Standard mixture – Uracil (83 µg/mL), Toluene (250 µg/mL) and Naphthalene (200 µg/mL)



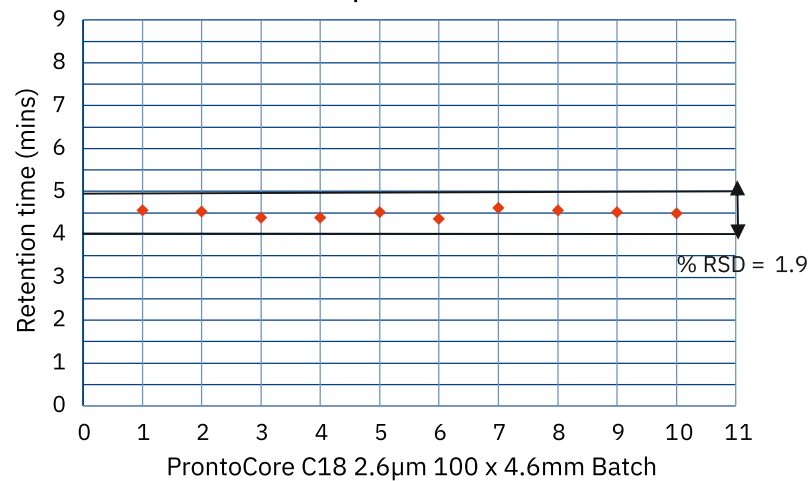
## Batch to Batch Reproducibility : ProntoCore Columns

Chromatographic conditions:

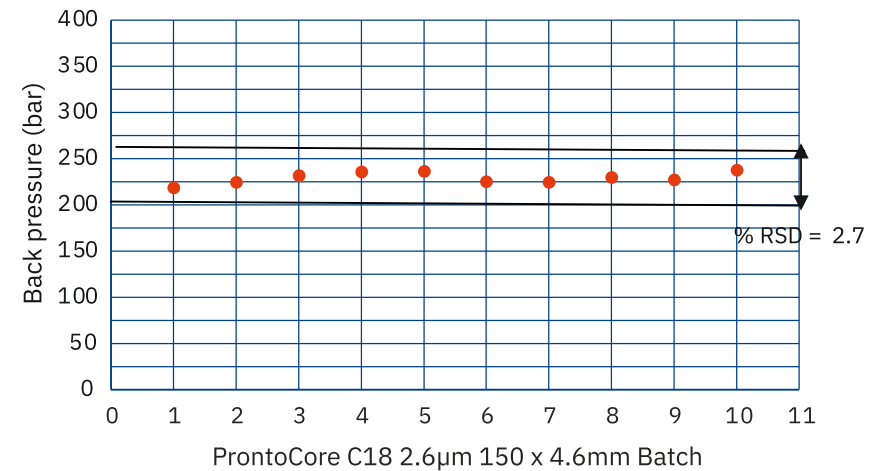
Mobile phase – 60:40 Acetonitrile: water; Flow rate – 2.0 mL/minutes; UV@ 254nm; Injection volume: 1.0  $\mu$ L; Standard: Naphthalene (200  $\mu$ g/mL)

### ProntoCore C18 100 x 4.6mm 2.6 $\mu$ m

Reproducibility Retention time  
Naphthalene



Reproducibility Back pressure

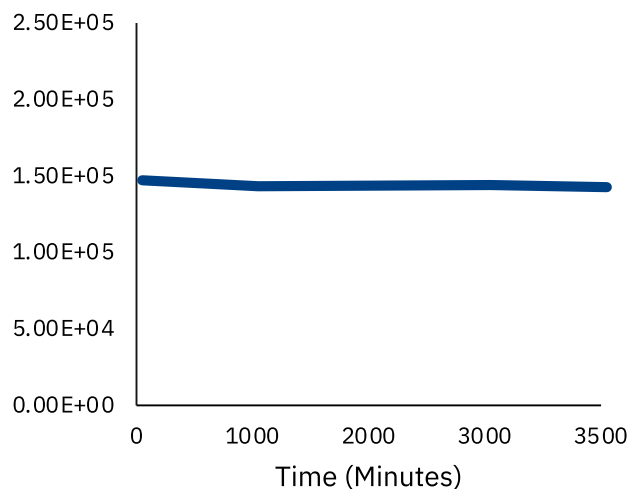


## Long Term Stability ProntoCore C18 2.6m 100 x 4.6 µm

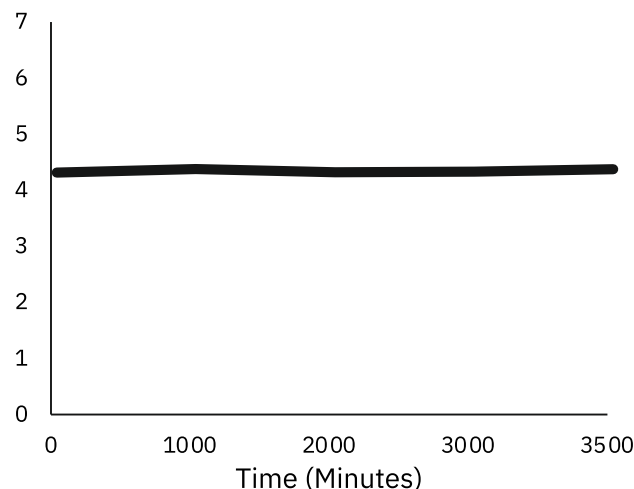
### Chromatographic conditions:

Mobile Phase: 60/40 Acetonitrile/Water; Flow rate: 1.0mL/Minutes; Injection Volume: 1.0µL; Standard Concentration: 166 µg/mL Naphthalene; UV: 254nm; Column Temperature: Ambient

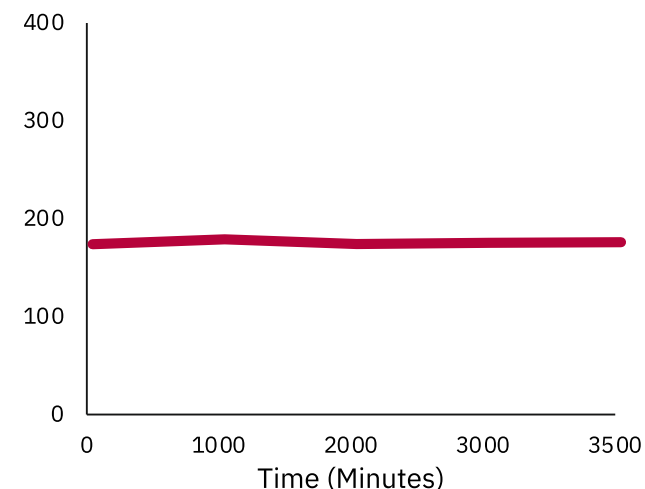
Plates Number, N/m



Retention Time (Minutes)



Back Pressure (bar)



### Summary

- Application data shown in this appendix shows that ProntoCore C18 columns outperform competitor HPLC Columns.
- ProntoCore C18 columns are high resolution columns which provide excellent peak shapes for acidic, basic and neutral compound Chromatographers can expect ultrafast analysis of basic compounds with highly quantitative and sensitive analysis by ProntoCore C18.
- ProntoCore C18 will shorten the analysis time by two thirds compared to the conventional fully porous C18 columns with the same column dimension and under the same analysis condition. Moreover, ProntoCore C18 maintains the theoretical plate number at a two times faster flow rate. It allows us to decrease analysis time by one thirds while maintaining resolution, and at an operating pressure less than 300 bar.
- ProntoCore C18 columns have much greater efficiency than traditional 3µm particles then resolution is naturally enhanced just by the switch in technology.

# ProntoCore

New Generation Coreshell HPLC Column  
With CSP Technology

## Germany:

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Web: [www.bischoff365.com](http://www.bischoff365.com)

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