

Astra®

HPLC kolony z dílny Chromservis

The logo for ARION, featuring the word "ARION" in green, slanted capital letters, enclosed within a blue circular arc.The logo for ASTRA, featuring the word "ASTRA" in green, slanted capital letters, enclosed within a blue circular arc.The logo for CHROMSHELL, featuring the words "CHROM" and "SHELL" stacked vertically in green, slanted capital letters, enclosed within a blue circular arc.

Ing. Jan Merhaut, Mgr. Luděk Vlček

Před rokem...

- Uvedení kompletního portfolia kolon ARION®
- Představení nových aplikací

ARION

ASTRA

CHROM
SHELL



Proč Astra®



- Cílem je:
 - Úplná kontrola nad výrobou a surovinami
 - Nezávislost na globálních firmách
 - Nebylo jich málo, se kterými máme špatné zkušenosti...
 - Navázat na tradice české chromatografie



Naše R&D a výroba



Červen 2020

- První kolony ARION

Prosinec 2020

- 1. R&D laboratoř

Září 2021

- První kolon ASTRA



Listopad 2020

- ARION/CHROMSHELL
– rozšíření fází

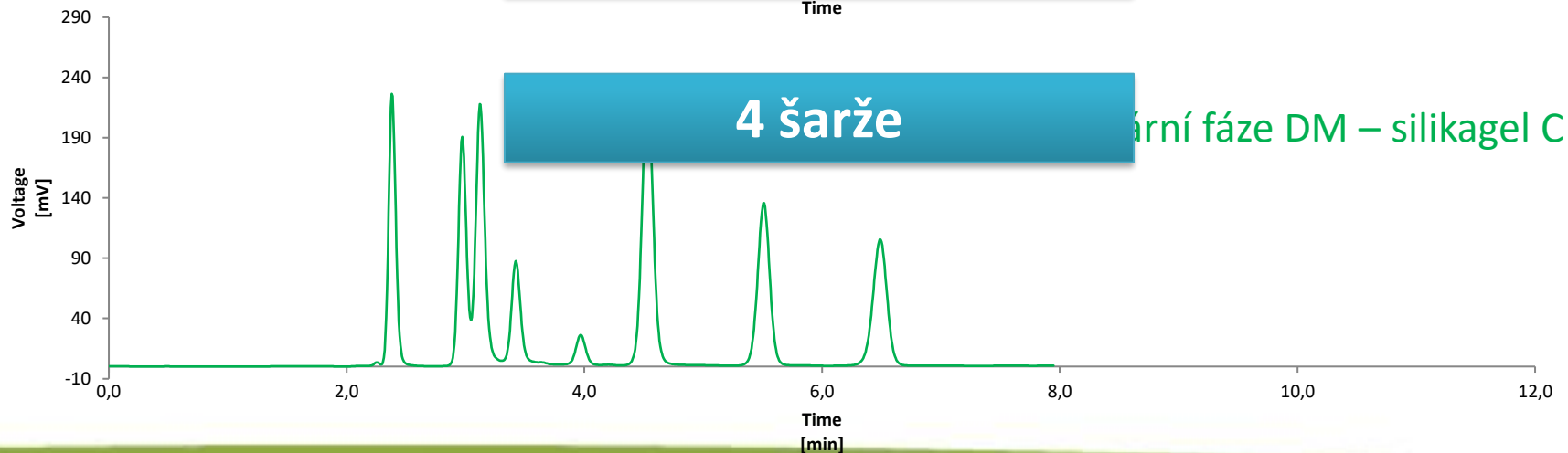
June 2021

- 2. laboratoř



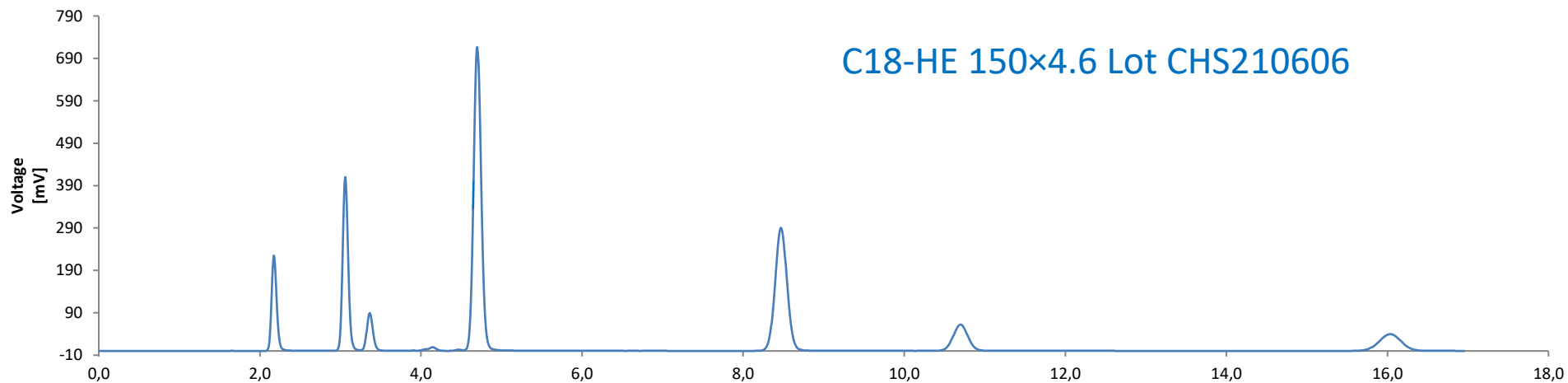


Astra[®] – volba silikagelu

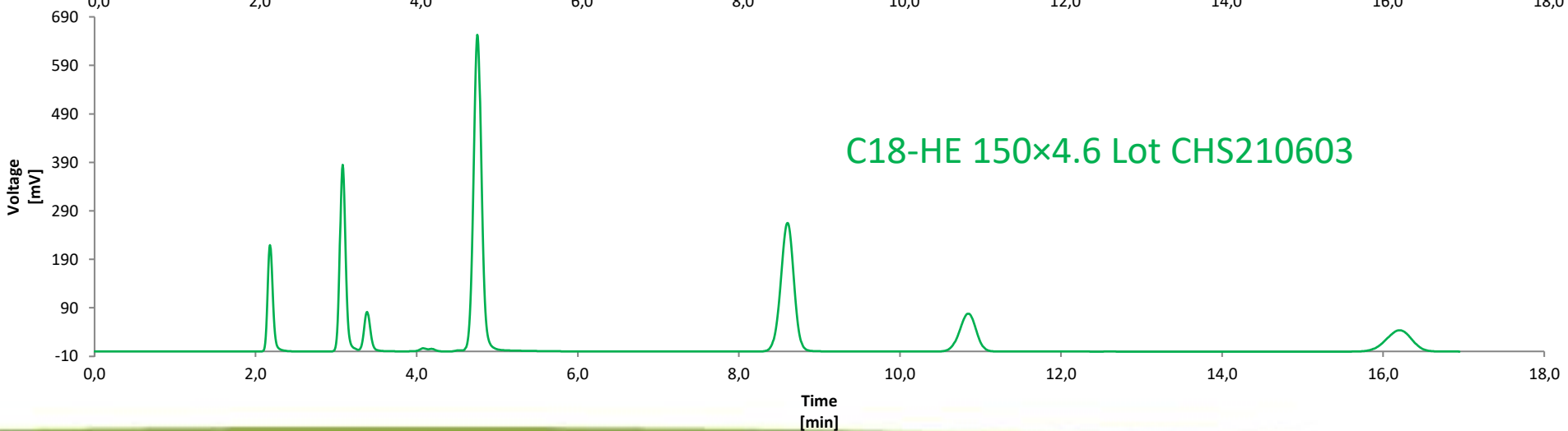


Astra[®] - kontrola šarží

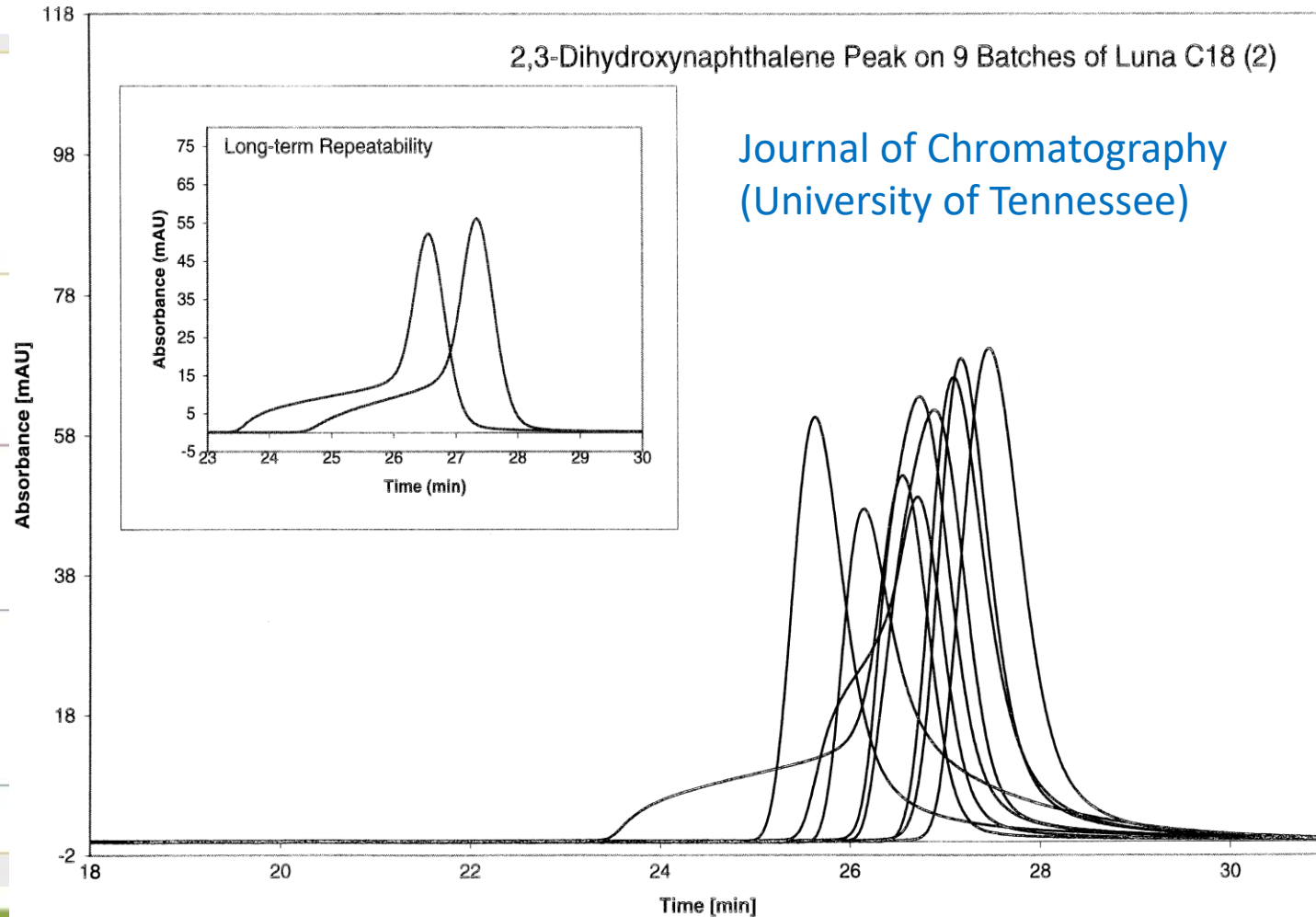
C18-HE 150×4.6 Lot CHS210606



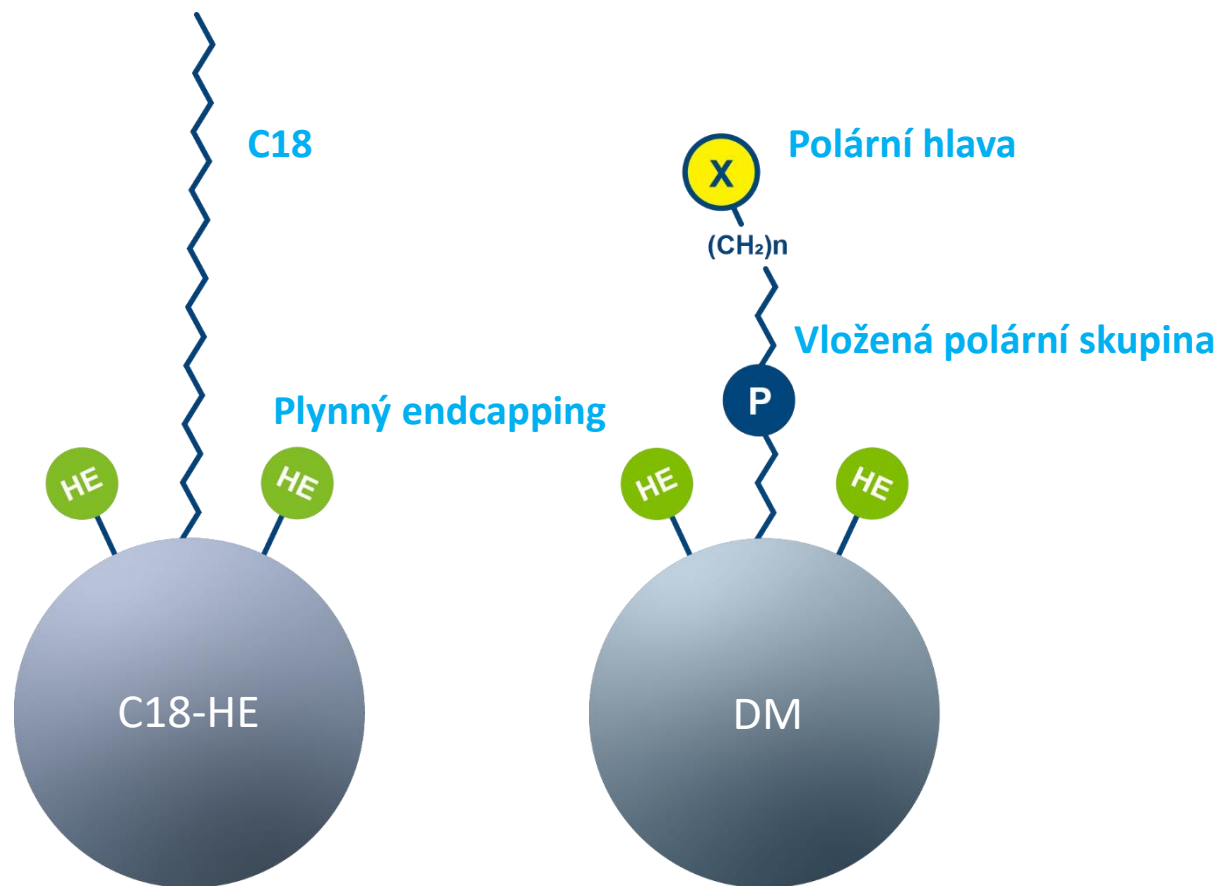
C18-HE 150×4.6 Lot CHS210603



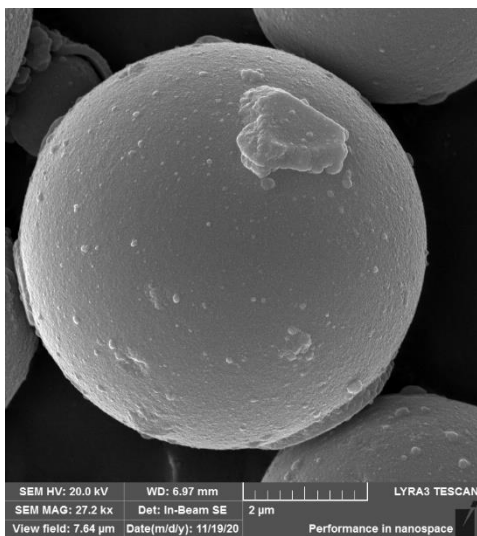
Astra[®] - kontrola šarží



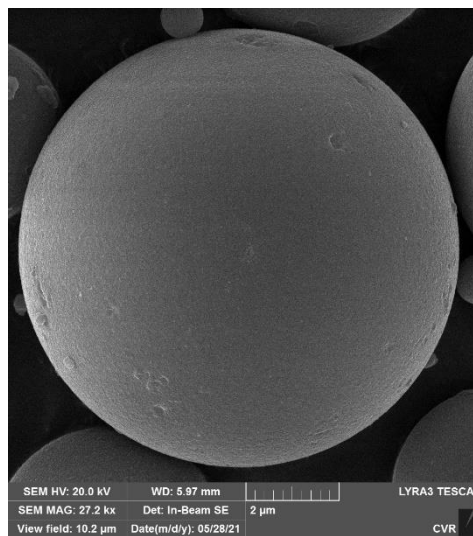
První fáze Astra[®]



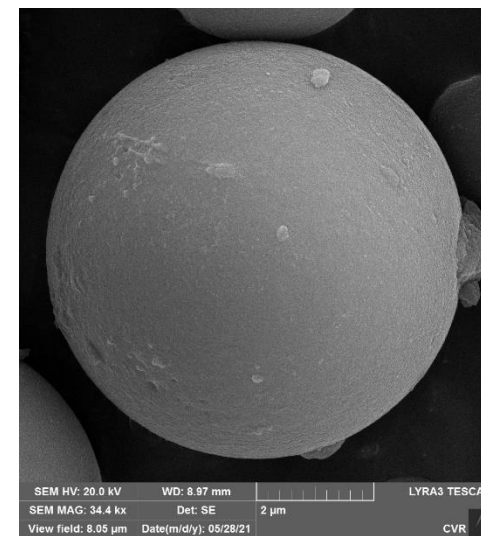
Kontrola plnění - SEM



Před plněním



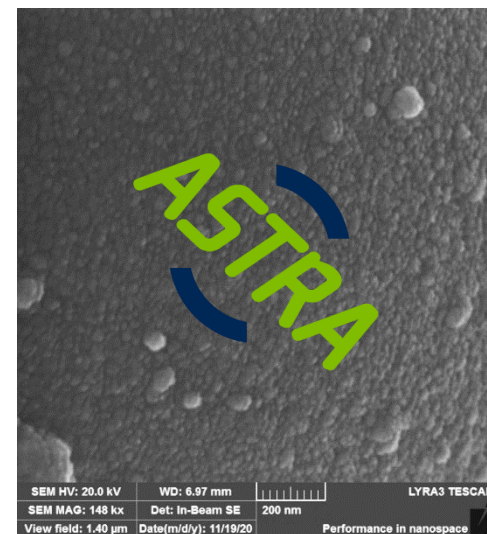
Po naplnění



Po stresování
vysokým tlakem

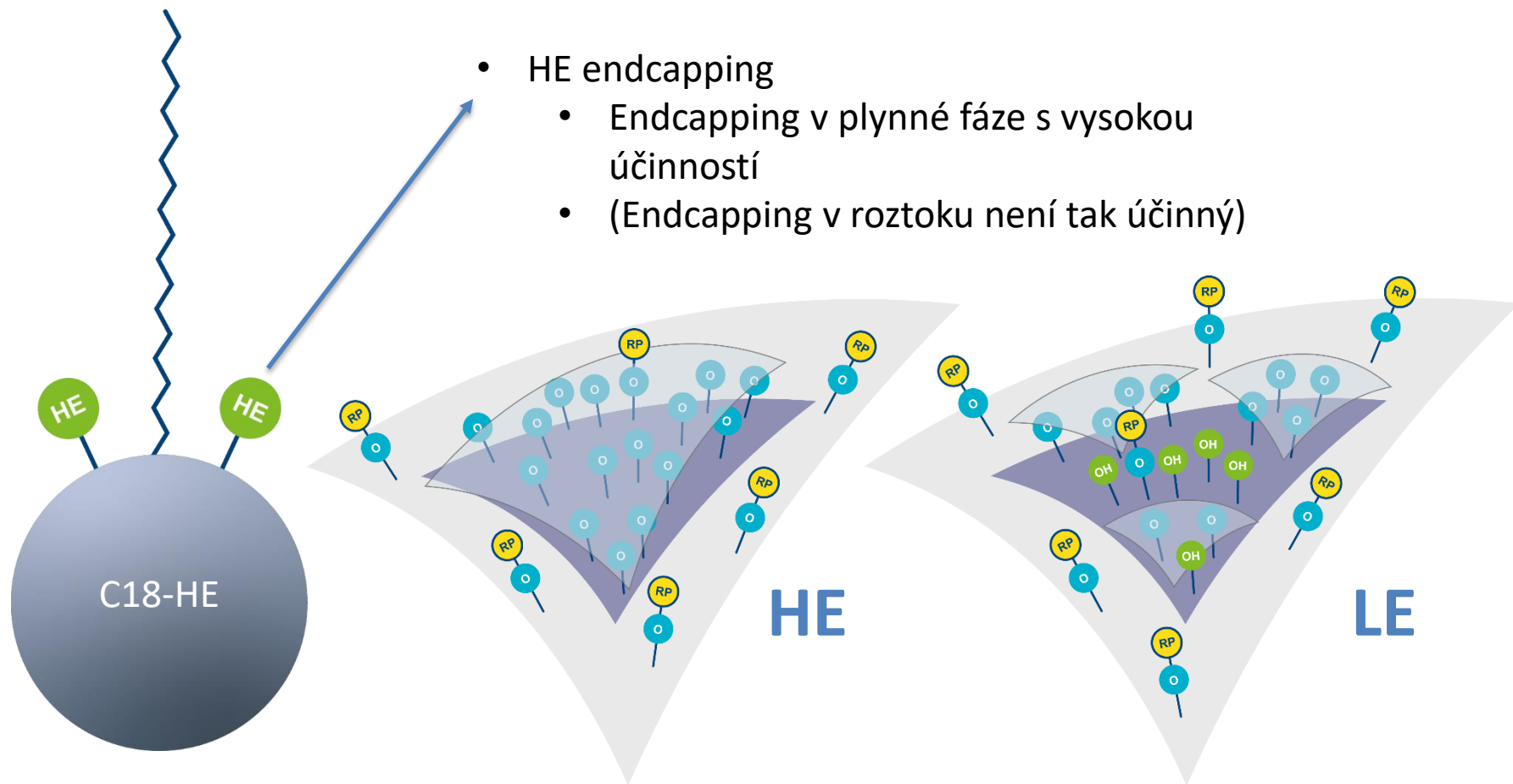
Vlastnosti částic

- Velikost částic: 3/5 μm
- Velikost pórů: 100 Å
- Obsah uhlíku:
 - 17% u fáze C18-HE
 - 12% u fáze DM
- Plocha: 330 m^2/g
- Stabilita pH: 2 až 9
 - Velmi konzervativní, testování při vyšším pH

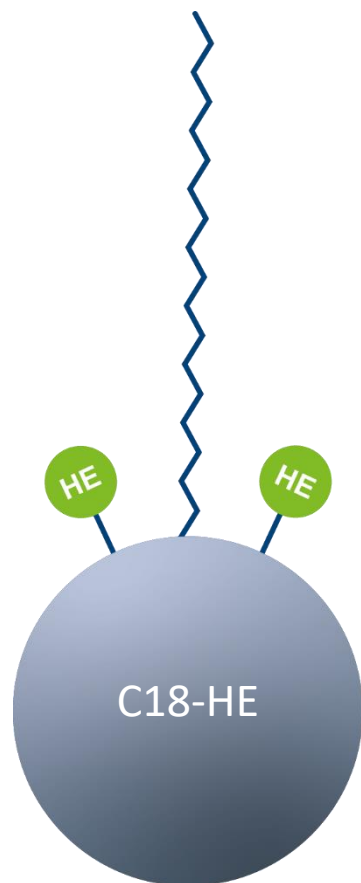


Vlastnosti ASTRA[®]

- HE endcapping
 - Endcapping v plynné fáze s vysokou účinností
 - (Endcapping v roztoku není tak účinný)

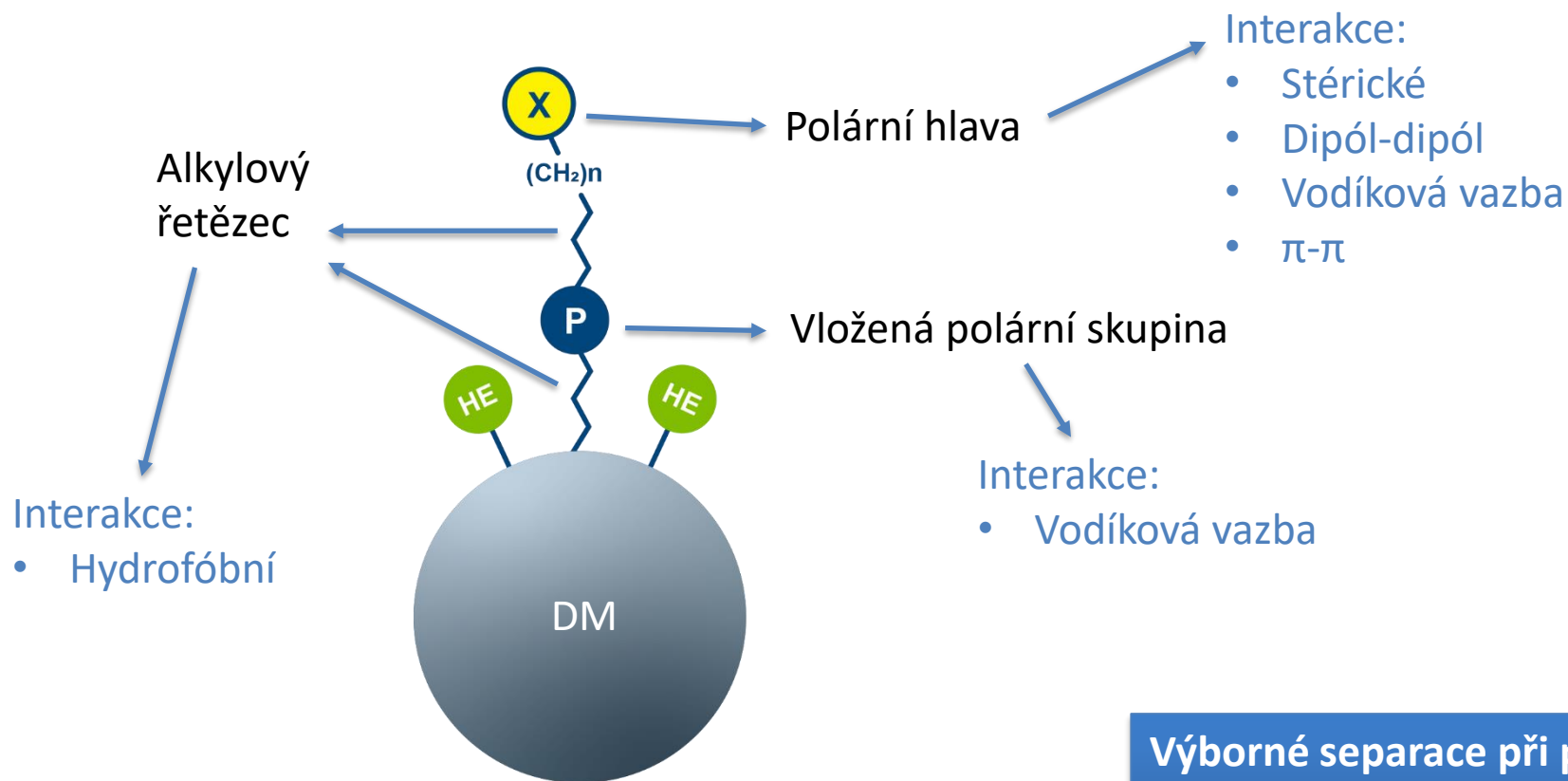


Vlastnosti ASTRA®



- Úzká kritéria pro rozdíly mezi šaržemi (LOT/BACTH)
 - QC kritéria stanovená CHS
 - Kontrola retenčních faktorů
- pH rozsah 2 až 9
 - pH stabilita je dána typem pufru MF
 - Testováno v LC/MS při vysokém pH (>10)

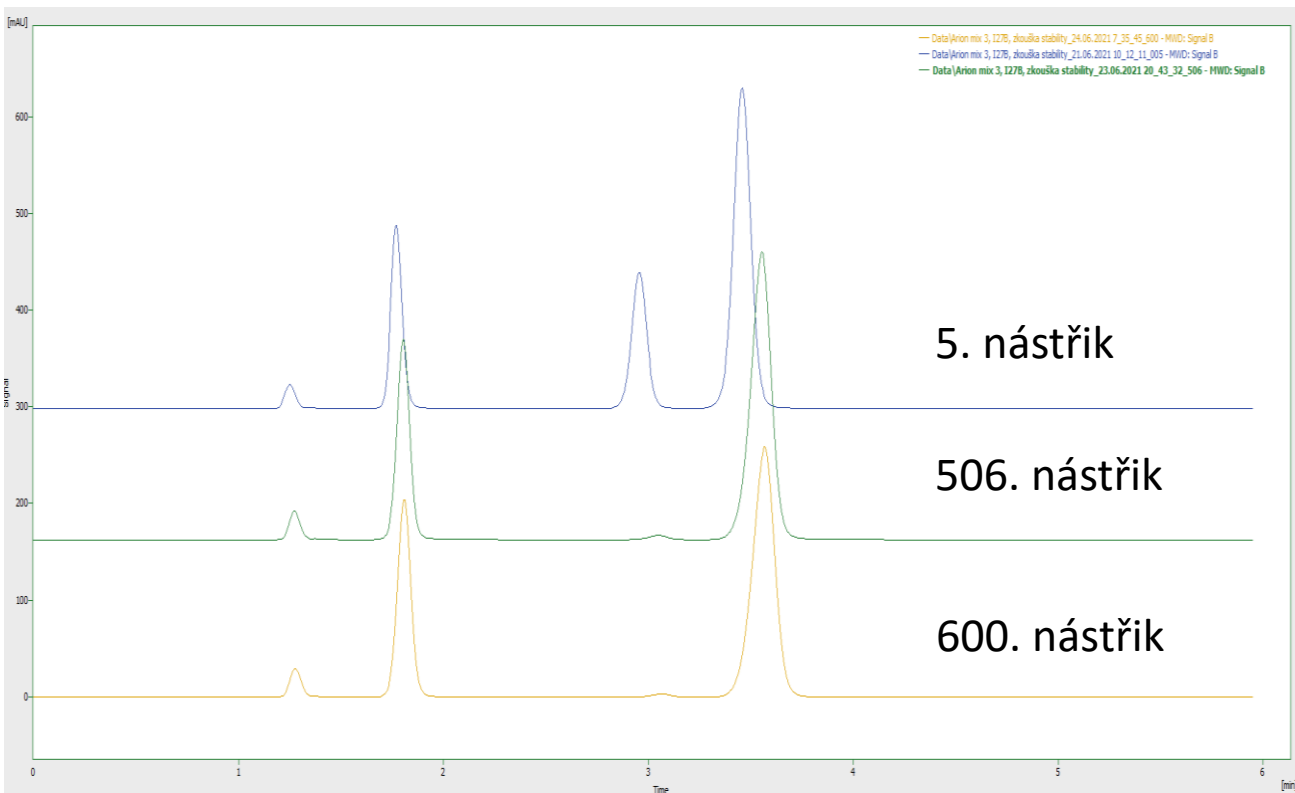
Vlastnosti ASTRA[®]



Výborné separace při pH:

- 2 až 3
- \approx 9

Stabilitní testy



5. nástřik

506. nástřik

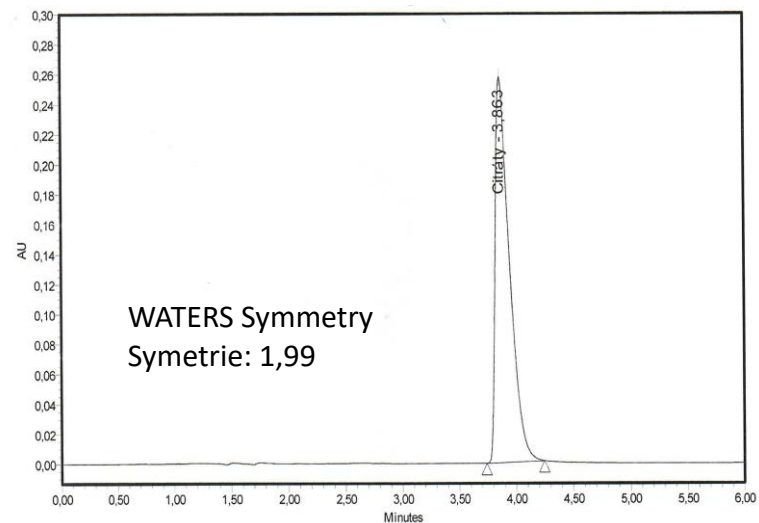
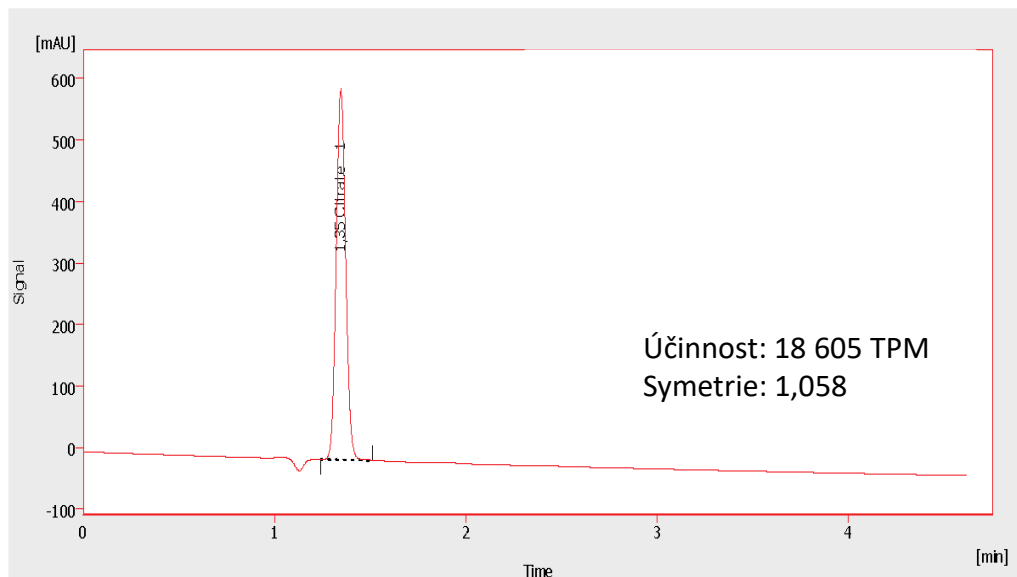
600. nástřik

Efficiency [th.pl]	Symmetry/Tailing [-]
1958	1,080
3920	1,034
6433	1,039
6632	0,977

Efficiency [th.pl]	Symmetry/Tailing [-]
2021	1,077
3363	0,971
4539	0,896
5446	0,912

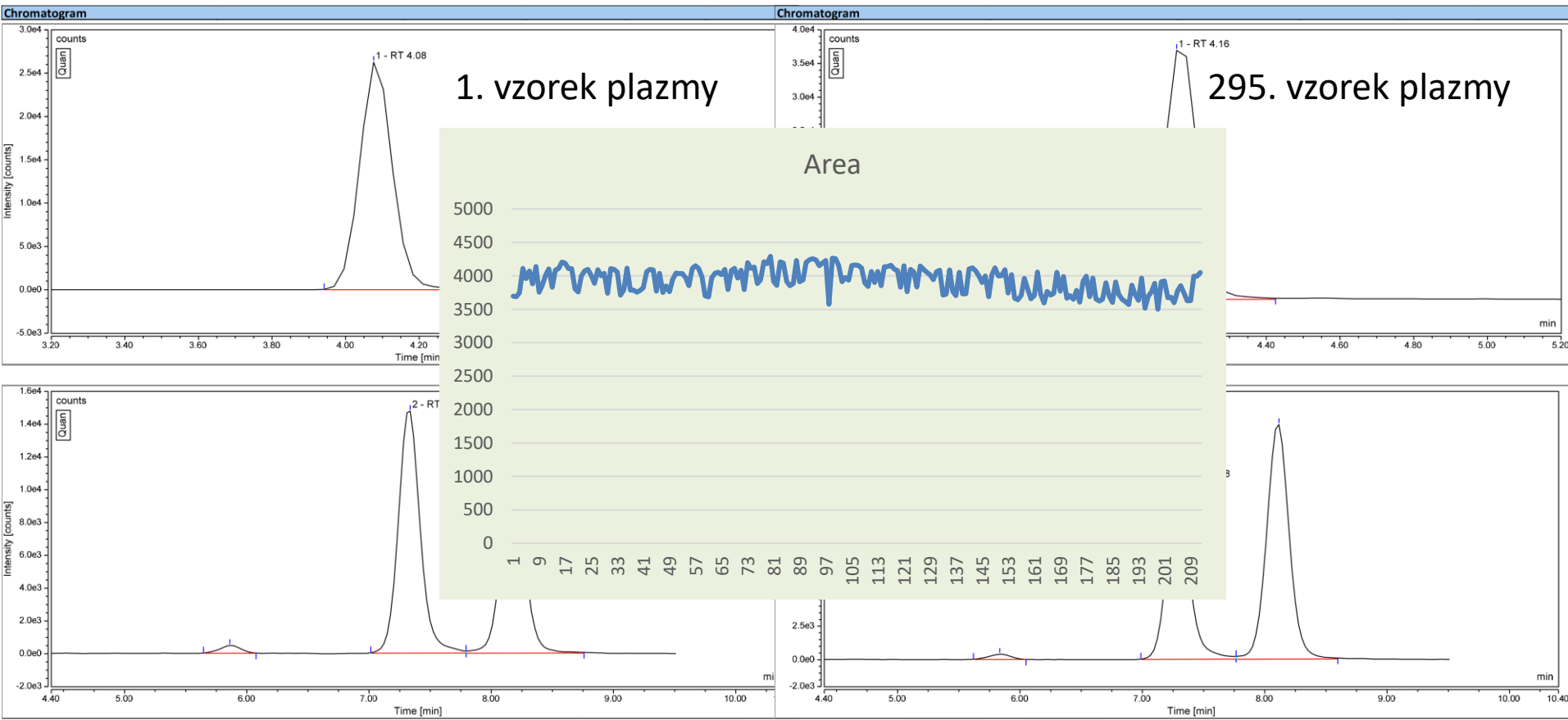
Efficiency [th.pl]	Symmetry/Tailing [-]
2042	1,064
3363	1,028
4056	0,907
4392	0,910

První aplikace APKs



Vzorek: Citráty (injekční roztok)
Kolona: Astra® DM 150×4,6mm, 5 µm
Mobilní fáze: Fosfátový pufr 20mM, pH 2,0 : ACN (90 : 10)
Průtok: 1,5 ml/min
Detekce: 210 nm
Tlak: 115 bar

Reálné vzorky (API-glukuronid –Astra® C18-HE)



Aplikační podpora

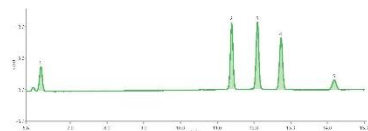
- R&D Chromservis
- Spolupráce s univerzitami a ÚJV
- Reálné aplikace od uživatelů



Vitamins A and E

For soluble vitamins are monitored not only in patients' samples, but are also the subject of quality control in various food and dietary supplements.

Substance Retinol (Vitamin A), CAS Number 69-26-8
 delta-Tocopherol (E909), CAS Number 119-13-1
 gamma-Tocopherol (E308), CAS Number 54-28-4
 alpha-Tocopherol (E307), CAS Number 75-42-9
 alpha-Tocopheryl acetate, CAS Number 58-95-7 (E88-oligonol)



Shown on ARIDON® column

This application has been developed by WESSLING Hungary Kft.

www.aridonchromatography.com

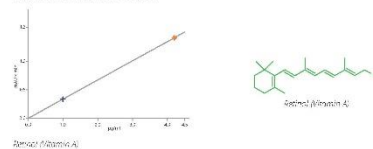
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Vitamins A and E

Column	ARIDON® Plus C18, 9 µm		
Dimensions	130 mm x 4,5 mm		
Part number	ARIDON20H45		
Mobile phase	A: Water B: Methanol		
Gradient elution	Time	A (%)	B (%)
	0	15	85
	10	5	100
	18	0	100
Flow rate	1.0 ml/min		
Temperature	40 °C		
Injection volume	5.0 µl		
Detection	UV @284 nm		
Analytes	<ol style="list-style-type: none"> 1. Retinol (Vitamin A) 2. Delta-tocopherol (D-Vitamin E) 3. Gamma-tocopherol (Vitamin E γ) 4. Alfa-tocopherol (Vitamin E α) 5. Alpha-Tocopheryl acetate (Vitamin E acetate) 		

Calibration curves of analytes



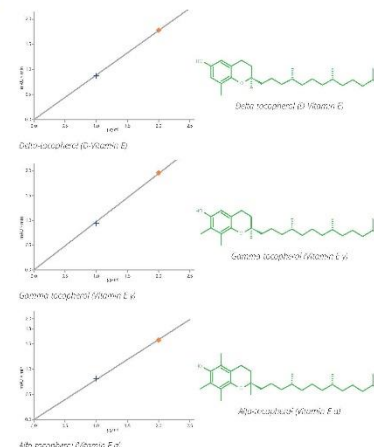
Retinol (Vitamin A)

www.aridonchromatography.com

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Vitamins A and E



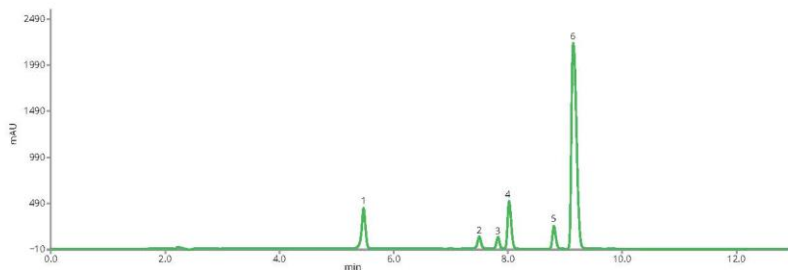
Alpha-tocopherol (Vitamin E α)

www.aridonchromatography.com

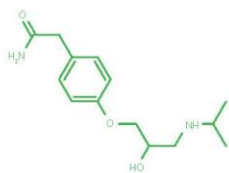
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Beta Blockers

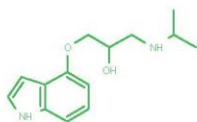
Beta Blockers are also known as beta-adrenergic blocking agents. They are used as a medication that reduces blood pressure.



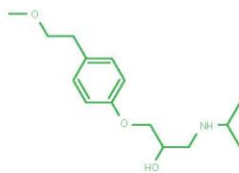
Standard mixture on ASTRA® C18-HE column



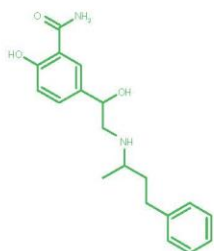
Atenolol



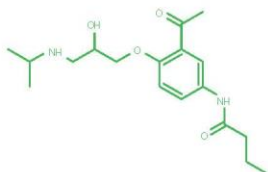
Pindolol



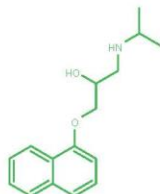
Metoprolol



Labetalol



Acebutolol



Propranolol

Beta Blockers

Column	ASTRA® C18-HE, 5 µm			
Dimensions	150 mm × 4.6 mm			
Part number	AST-5732-LK46			
Mobile phase	A: Phosphate buffer 20mM, pH 2.5 B: ACN			
Gradient elution	Time	A (%)	B (%)	Flow rate (ml/min)
	0	95	5	0.75
	3	85	15	1.00
	8	50	50	1.00
	12	95	5	1.00
	13	95	5	0.75
Flow rate	See gradient table			
Temperature	25 °C			
Injection volume	2.0 µl			
Detection	UV @250 nm			
Analytes	<ol style="list-style-type: none"> 1. Atenolol, CAS No. 29122-68-7 2. Pindolol, CAS No. 13523-86-9 3. Acebutolol, CAS No. 37517-30-9 4. Metoprolol, CAS No. 37350-58-6 5. Labetalol, CAS No. 36894-69-6 6. Propranolol, CAS No. 525-66-6 			



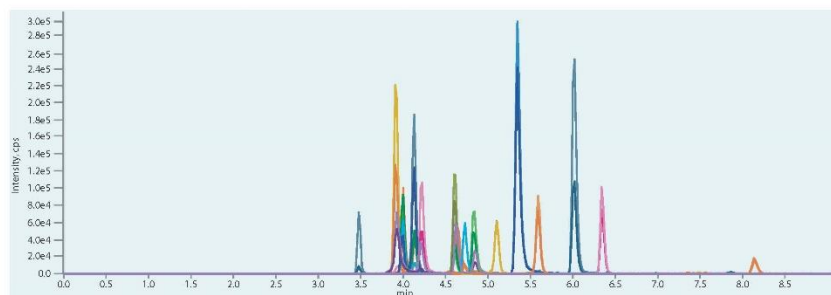
OPIOIDS AND TRAMADOL AND THEIR METABOLITES BY LC/MS

INTRODUCTION

This application shows LC/MS method for the most common opiates and their metabolites analyzed by toxicological labs.

Substance: **Codeine**,
CAS Number 76-57-3
Morphine,
CAS Number 57-27-2
6-O-Acetylmorphine,
6-Monoacetylmorphine,
CAS Number 2784-73-8
Morphine-6-glucuronide,
CAS Number 20290-10-2
Buprenorphine,
CAS Number 52485-79-7
Dihydrocodeine,
CAS Number 125-28-0
Fentanyl,
CAS Number 437-38-7
Acetylfentanyl,
CAS Number 3258-84-2
Naloxone,
CAS Number 465-65-6
Naltrexone,
CAS Number 16590-41-3

Hydromorphone,
CAS Number 466-99-9
Oxymorphone,
CAS Number 76-41-5
Hydrocodone,
CAS Number 125-29-1
Norbuprenorphine,
CAS Number 78715-23-8
Norcodeine,
CAS Number 467-15-2
Norfentanyl,
CAS Number 1609-66-1
Oxycodone,
CAS Number 76-42-6
Meperidine, Pethidine,
CAS Number 57-42-1
Tramadol,
CAS Number 27203-92-5
Methodone,
CAS Number 76-99-3
EDDP,
CAS Number 30223-73-5

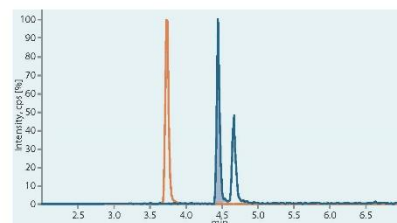


Standard mixture on ARION® column (50 mg/l)

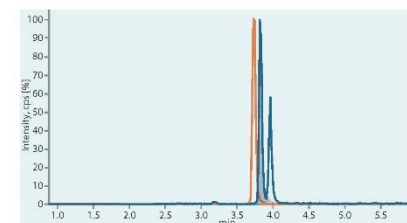


OPIOIDS AND TRAMADOL AND THEIR METABOLITES BY LC/MS

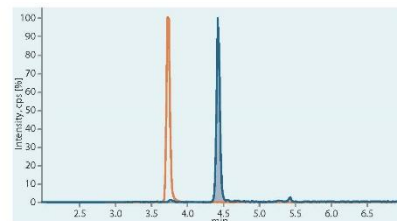
Column	ARION® Plus C18, 3 µm		
Dimensions	50 mm × 3.0 mm		
Part number	ARI-5720-IG30		
Mobile phase	A: 1% ammonium formate in water B: Methanol/1% ammonium formate in ACN 50/50 (v/v)		
Gradient elution	Time	A (%)	B (%)
	0	100	0
	1	100	0
	6	10	90
	8	10	90
	8.1	100	0
Flow rate	0.5 ml/min		
Temperature	30 °C		
Detection	MS/MS		
Analytes	See MS method		



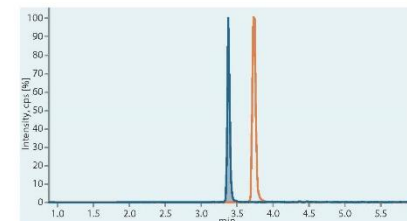
Codeine (300.1 -> 152.0)



Morphine (286.1 -> 152.0)



6-O-Acetylmorphine (328.1 -> 165.0)



Morphine-6-glucuronide (462.2 -> 286.2)

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2 značky, 2 přístupy

ARION

- Špičkový produkt s vysokou účinností
- Náročné aplikace
- Dobře konkurují i kolonám s pevným jádrem



ASTRA

- Kvalitnější náhrada všech „SIL“ HPLC kolon
- Nové unikátní fáze s moderními charakteristikami



Astra[®] - rozměry

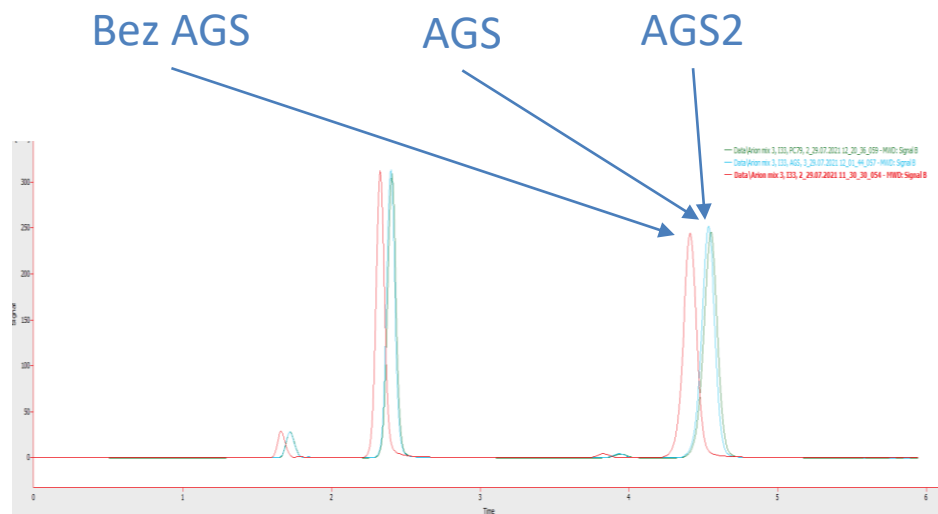
Délka (mm)	I.D. (mm)	Velikost částic (μm)	Fáze
250	4.6	3*, 5	C18-HE, DM (5 μm)
150	4.6	3*, 5	C18-HE, DM (5 μm)
100	4.6	3*, 5	C18-HE, DM (5 μm)
150	3.0	3*, 5	C18-HE, DM (5 μm)
100	3.0	3*, 5	C18-HE, DM (5 μm)
150	2.1	3	C18-HE
100	2.1	3	C18-HE
50	2.1	3	C18-HE

**Záleží na stavu vývoje a validace výroby*

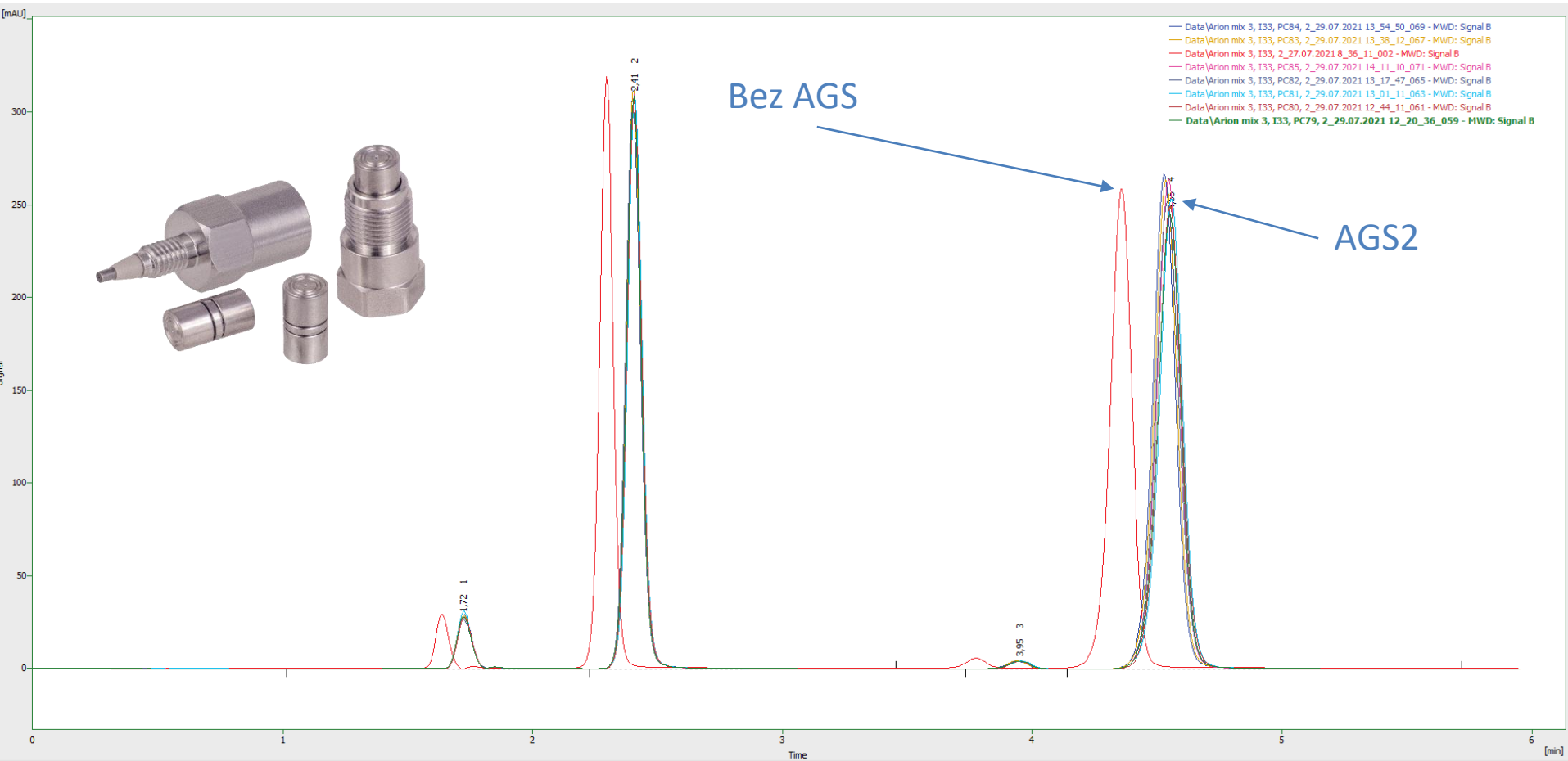
Nový ochranný systém AGS2



- Totožný HW jako pro ARION®
- Výroba v České republice
- P/N: AGS-5790-RD4



Opakovatelnost výroby AGS2



Materiály

Leták ARION®



ARION by **CHROMSERVIS**

HPLC and UPLC Multimodal Columns

SEE EVERYTHING!

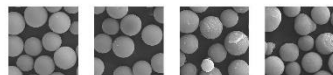
Arion columns offer a variety of particle sizes and column designs for all of your separation needs. They offer the highest possible resolution and enhanced sensitivity for faster analysis and consistent reproducibility.

Why Arion?

- One stainless steel column for multimodal separations
- Superior Arion ultrapure silica gel particles
- Every column is rigorously tested and certified for quality
- Temperature stability up to 100 °C
- pH stability from 1 to 10
- Perfect for amino acids, nucleic acids, proteins, hydrocarbons, pesticides, carbohydrates, antibiotics, steroids

Arion Ultrapure Silica Gel Particles

- Fully porous silica gel particles
- The highest proximity to the circle
- Unique surface smoothness
- Tight particle size distribution
- No broken, cratered, or clustered particles



ARION® Comcofilter B Comcofilter C Comcofilter D
SEM HV analysis 20.0 kV, view field 30 µm, independently tested

GOT A SEPARATION CHALLENGE?
Leverage our 30+ years of experience for a solution to your solution!

Chromservis is proudly founded in the Czech Republic and continues the work of famed Czech chemists Jaroslav Heyrovsk (Nobel Prize in Chemistry 1959) and Otto Wichterle, and maintains ongoing research and development relations with the Czech Technical University. Made in the EU.

Skládaná brožura ASTRA®



ASTRA by **CHROMSERVIS**

ASTRA® HPLC columns extend our ARION® and CHROMSHELL® product lines.

The ASTRA® has been developed in the Czech Republic to offer an alternative to a broad range of general HPLC columns.

FAQs

- Proč bych si měl pořídit HPLC kolonu Astra®?
- Rychlé dodávky
 - Skladujeme HW a silikagel
 - Rychlá výroba umožňuje dodání další den
 - Redundantní systém výroby



FAQs

- Co je polární hlava a vložená polární skupina?

Detailní informace jsou důvěrné.

- Unikátní fáze
- Plánujeme Tanaka diagramy k charakterizaci fází - probíhá

FAQs

- Máte patent unikátní fáze?

Ne, nemáme.

- Každý patent lze obejít
- Nemít patent znamená jistotu, že ho nikdo nevyužije

FAQs

- Co znamená „DM“?

Jedná se o zkratku:

- **Dual Modification**
- Další informace jsou důvěrné

Spolupráce s českými vědci



VYSOKÁ ŠKOLA
CHEMICKO-TECHNOLOGICKÁ
V PRAZE



Děkuji za pozornost



ARION

ASTRA

CHROM
SHELL