SHAPING THE FUTURE OF CHEMISTRY

Galochrom

NEXT-GEN HPLC TECHNOLOGY

a spin-off company by

UNIVERSITY OF CHEMISTRY AND TECHNOLOGY PRAGUE



HISTORY: From science to applied technology

Smart Organic Materials



Kohout Kozmik Svoboda

UNIVERSITY OF CHEMISTRY AND TECHNOLOGY PRAGUE

Founded in 2013

50+ original papers in HPLC research

2023

GALOCHROM

SIC

CZECHINVEST
Investment and Business Development Agency

T A
Č R

eit Manufacturing
Co-funded by the European Union

Technology Incubation
#demoday
2025

A BRIEF STORY OF GALOCHROM

eit Manufacturing

Co-funded by the European Union



November 2023, Athens



Co-Founder Spin-off (CZ)

SIC



SIC Accelerator finalist

THE TEAM: Harmony of science & business



Martin Král
CEO

Lindab · LEGO

20+ years of executive & technology management.



Prof. Michal Kohout
CTO & Founder

UCT PRAGUE · universität wien

20+ years in HPLC column development.



Dr. Jiří Tůma
COO & Co-Founder

UCT PRAGUE · CHIRON (Your quality is our business)

15+ years as a synthetic chemist.

SALES & ADVISORY



Marian Moravcik
CBO & Co-Founder

UCT PRAGUE



Radek Votruba
CSO

Raiffeisen Bank · GENERALI



Denise Wohlrab
Advisor

universität wien

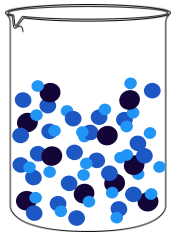


Peter Fruhauf
Advisor

universität wien

THE PROBLEM: HPLC columns are OUTDATED

Mixture
of chemicals

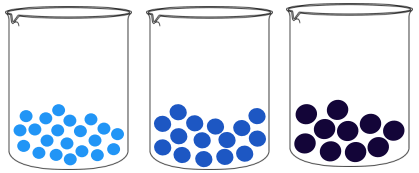


HPLC column



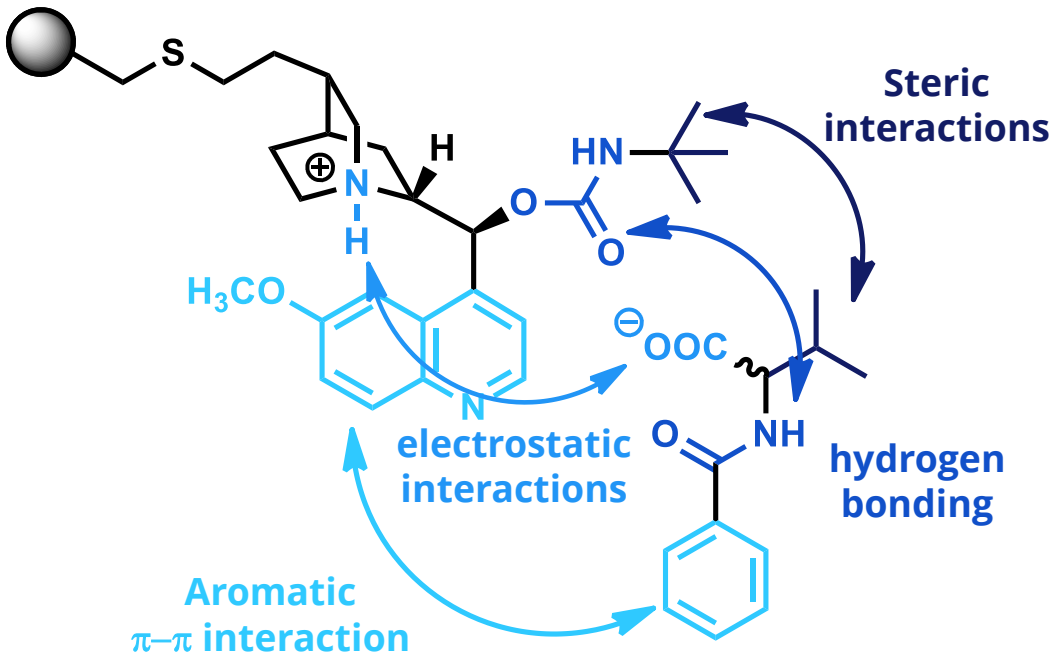
- ✗ Lack of innovation
- ✗ Conservative market
- ✗ Products don't meet contemporary demands

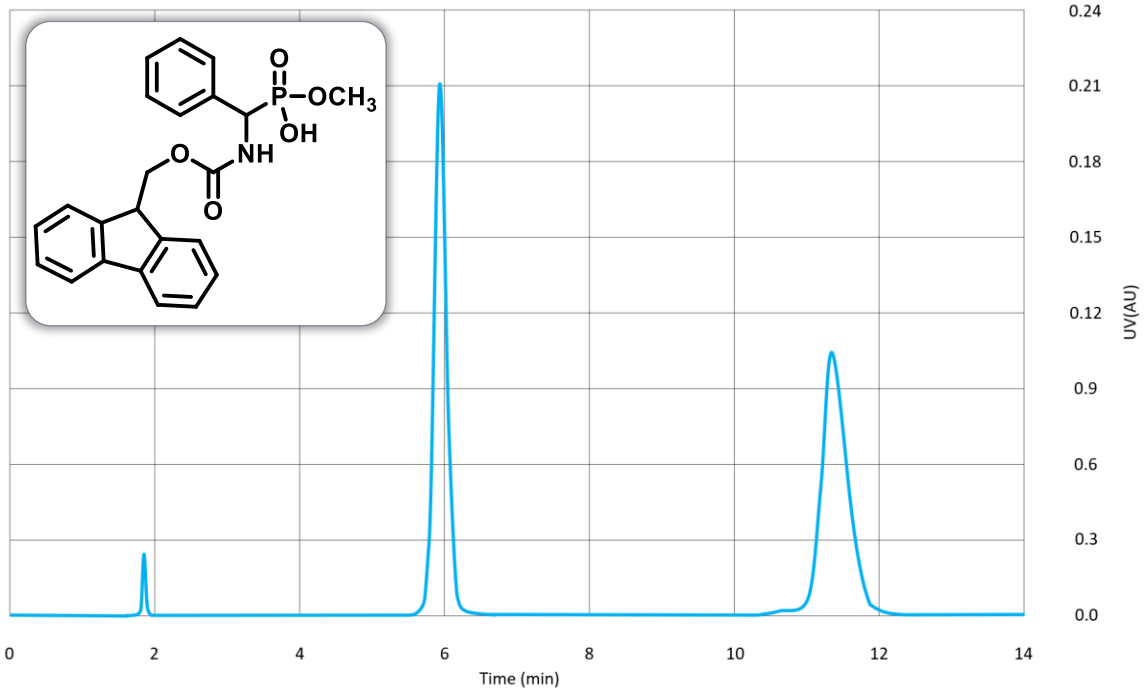
Isolated
chemical species



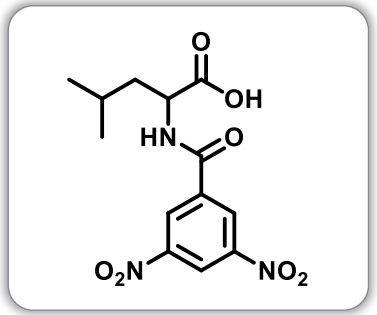
- Pharmaceutic industry
- Chemical manufacturing
- Clinical studies
- Food processing
- Biotechnologies
- Forensic science

ENTRY PRODUCT: Chiral ION-QN & Chiral ION-QD



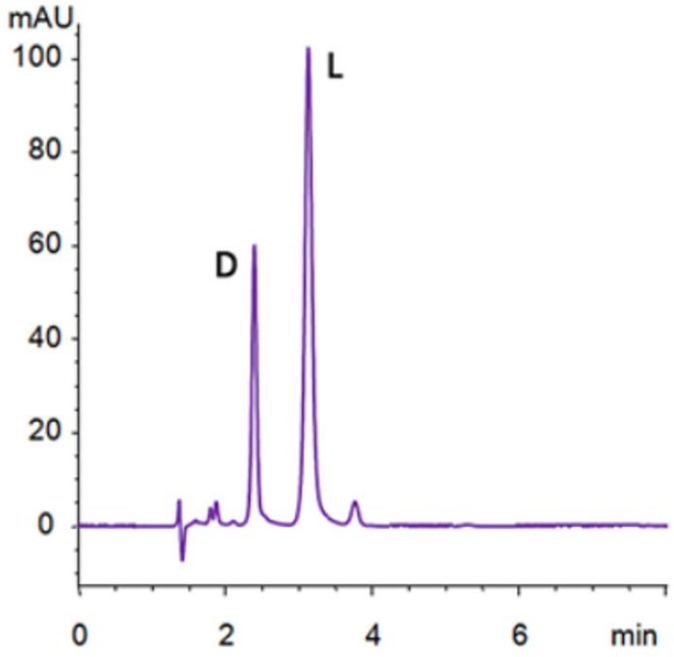


ENTRY PRODUCT: Chiral ION-QN & Chiral ION-QD



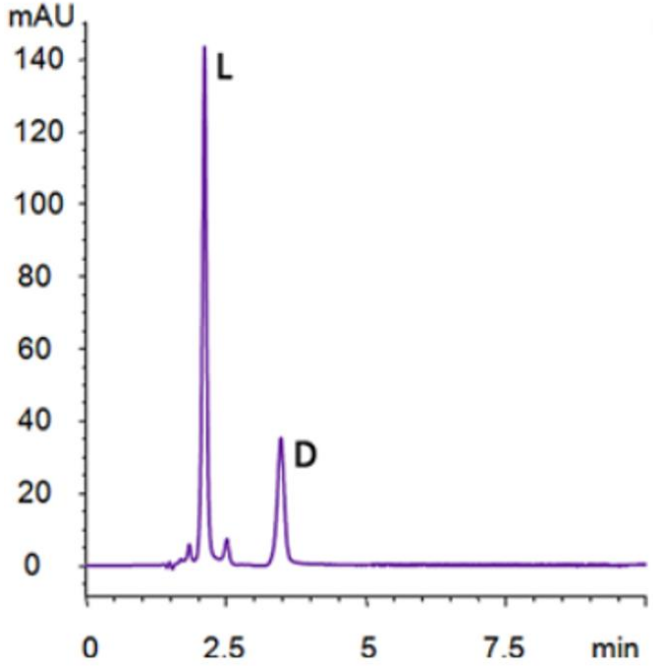
CHIRAL ION-QN

D-enantiomers elute first



CHIRAL ION-QD

L-enantiomers elute first



Reversal of elution order of enantiomers

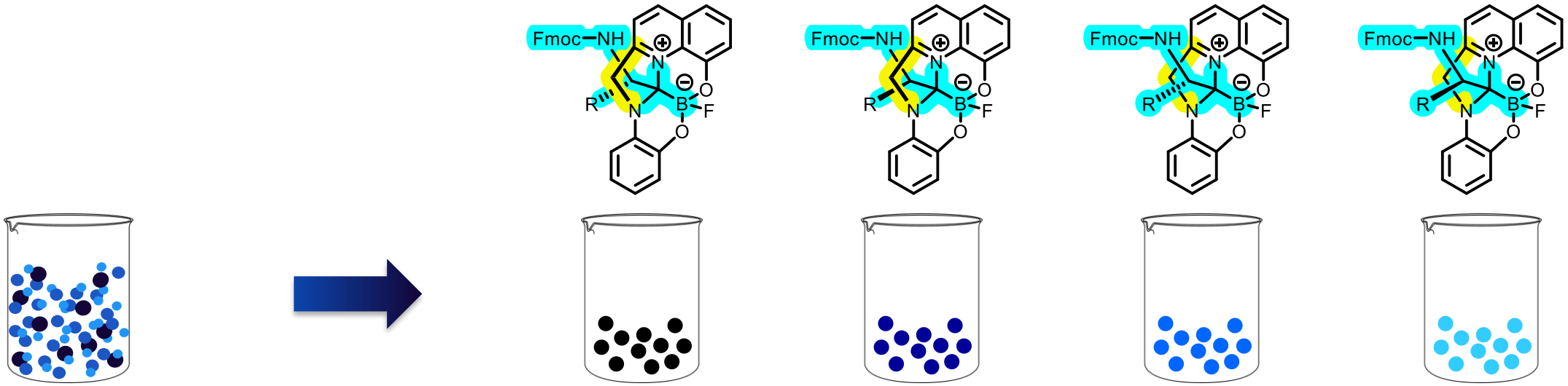
Important factor for enantiomeric purity analysis

Useful feature for preparative purifications

SCAN ME FOR MORE INFO ON THE PRODUCT!

CASE STUDY: from hours to minutes

TASK: Isolation of four potentialy therapeutic compounds from chemical mixture

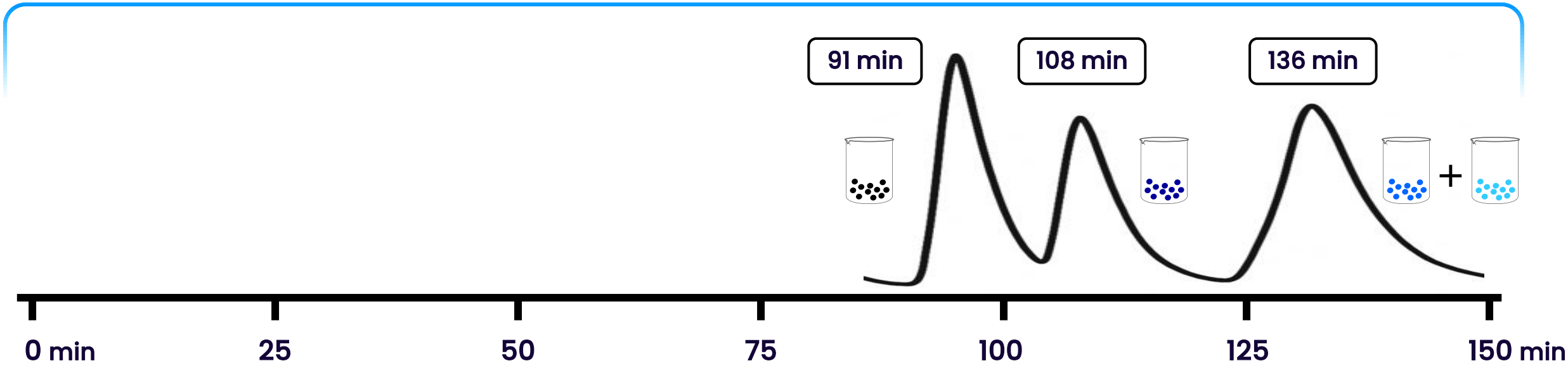


CASE STUDY: from hours to minutes

TASK: Isolation of four potentialy therapeutic compounds from chemical mixture



Separation Timeline



Customer's best results on commercial columns

150 min

Separation time

Partial separation

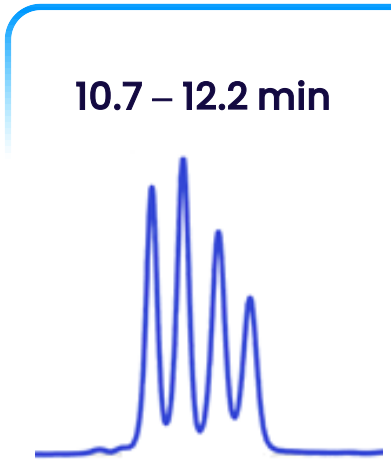
Result

CASE STUDY: from hours to minutes

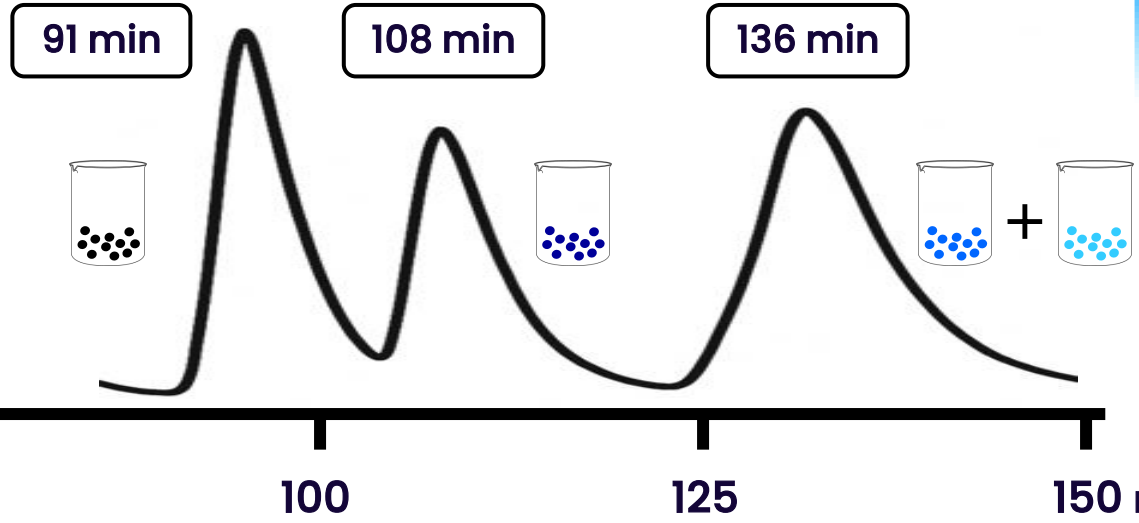
TASK: Isolation of four potentialy therapeutic compounds from chemical mixture



Separation Timeline



READ PAPER HERE!



0 min | 25 | 50 | 75 | 100 | 125 | 150 min

Optimized method by Galochrom

13 min
Separation time
(10x faster)

Full separation
Result

Customer's best results on commercial columns

150 min
Separation time

Partial separation
Result

Next-gen MULTIMODAL columns

GALOCHROM



PATENTED

✓ MULTIMODAL HPLC COLUMN TYR-X®

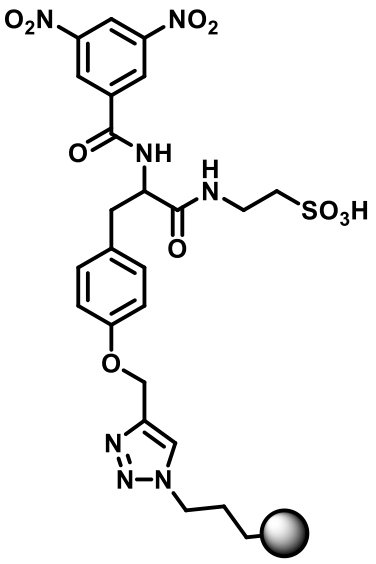
normal phase/polar organic phase/HILIC/RP

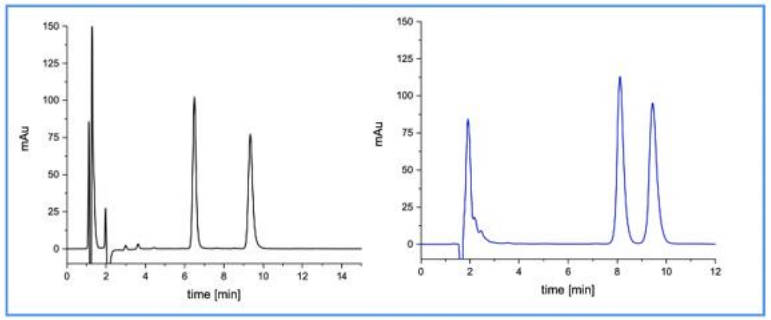


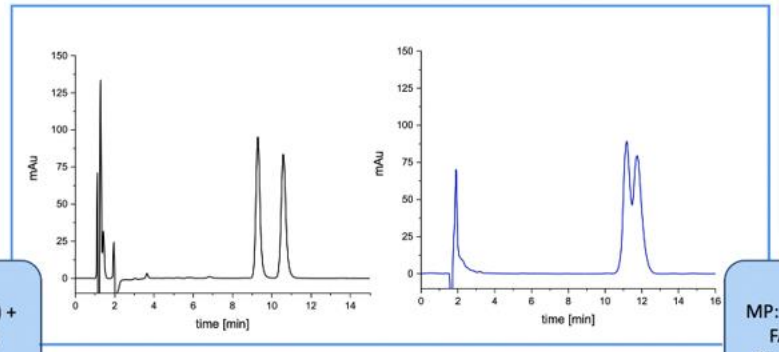
FOUR COLUMNS IN ONE

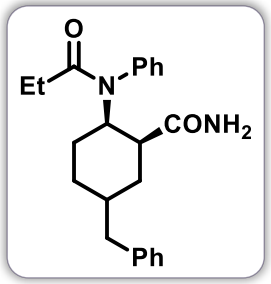
Tyr-X®: flagship of multimodal HPLC

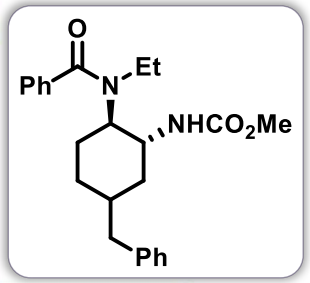
Phenthanyl derivatives: polar organic mode

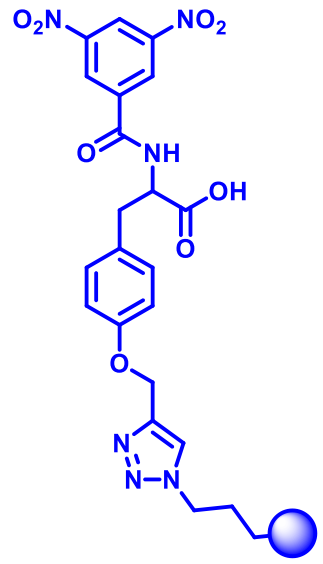










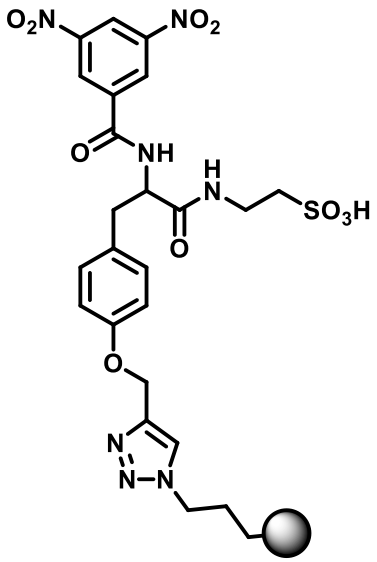


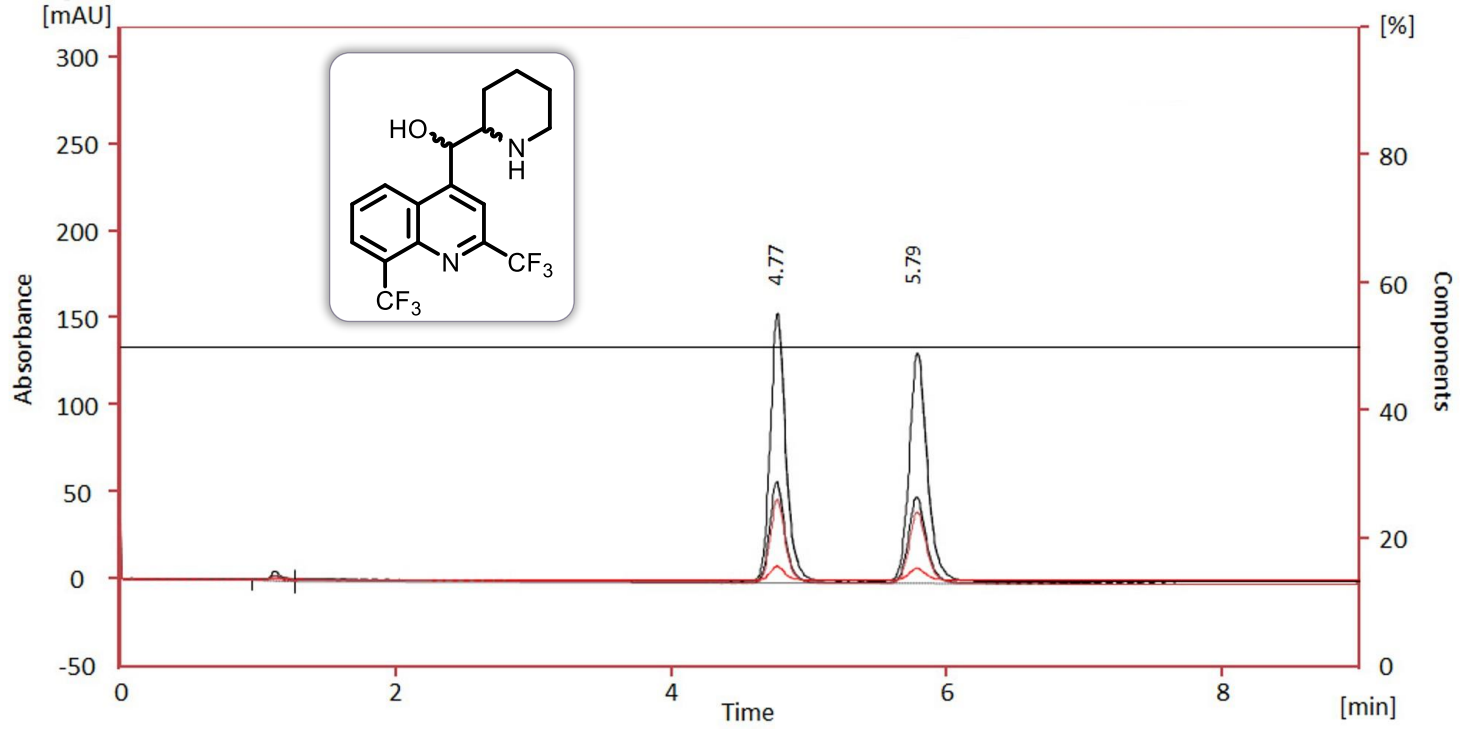
conditions
MP: MeCN/MeOH (9/1) + TFA/TEA (50/25 mM)
flow rate: 0.75 mL/min

conditions
MP: MeCN/MeOH (9/1) + FA/TEA (50/25 mM)
flow rate: 0.75 mL/min

Tyr-X®: flagship of multimodal HPLC

Alkaloids:
HILIC separation



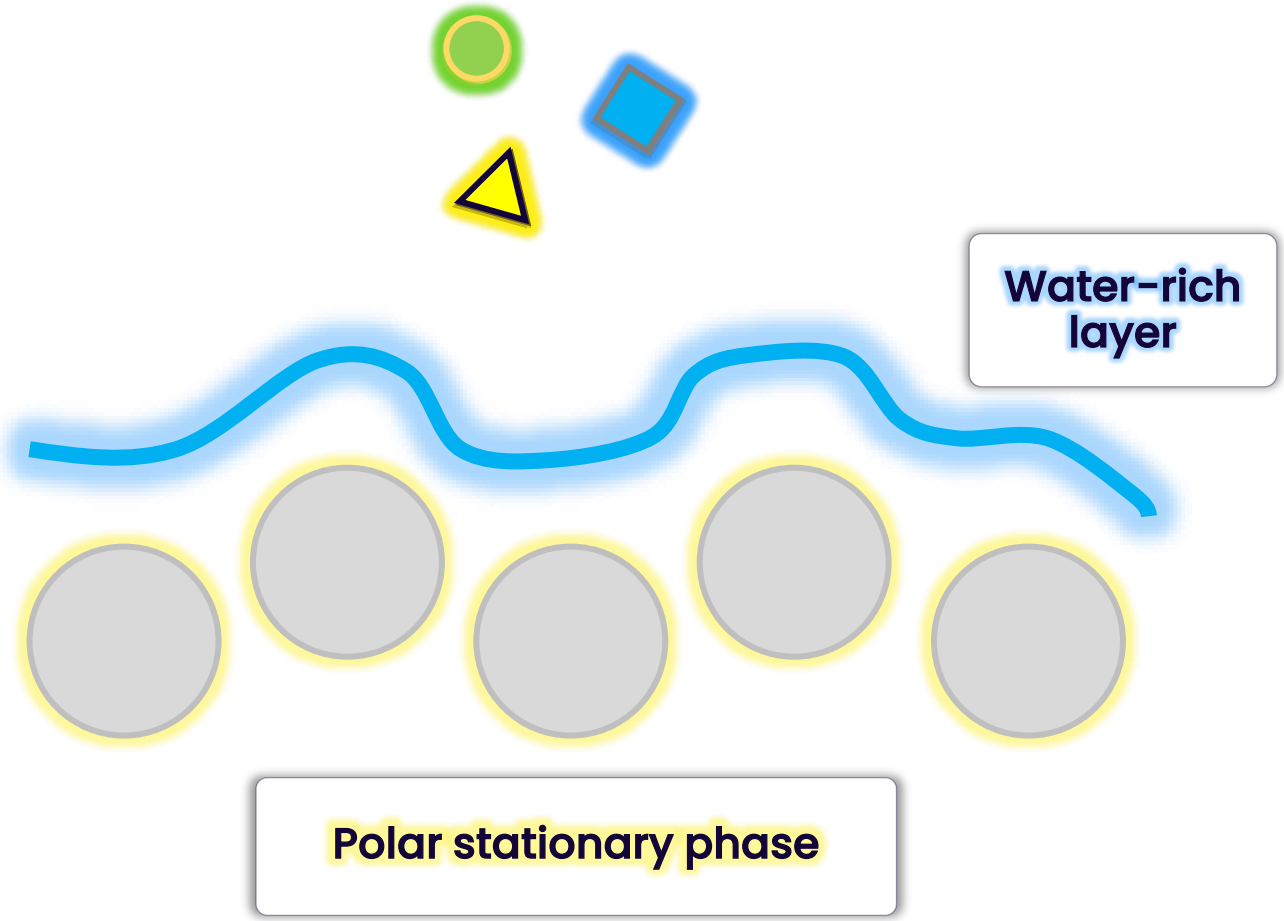


READ PAPER HERE!

mobile phase: acetonitrile/water (9/1, v/v), 50 mM formic acid, 25 mM triethylamine as buffer

WHAT IS HILIC?

HYDROPHILIC INTERACTION LIQUID CHROMATOGRAPHY



Low-polar compounds

- Do not interact
- Eluted without retention

Mid-polar compounds

- Reach into the water-rich layer
- Partly retained

High-polar compounds

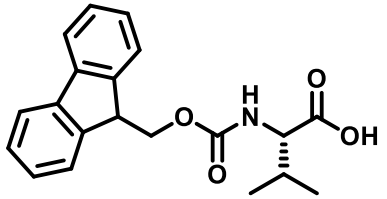
- Reach to the polar stationary phase
- Strongly retained

WHY CHOOSE HILIC ION-ZW? *...because it works!*

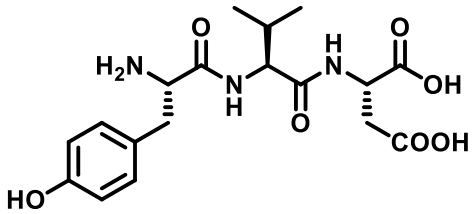
HILIC ION-ZW DELIVERS WHERE RP HPLC FAILS!

- Higher retention of polar analytes
- Enhanced MS sensitivity
- Lower system backpressure
- Higher flow rates and faster speeds
- Direct compatibility with organic extracts

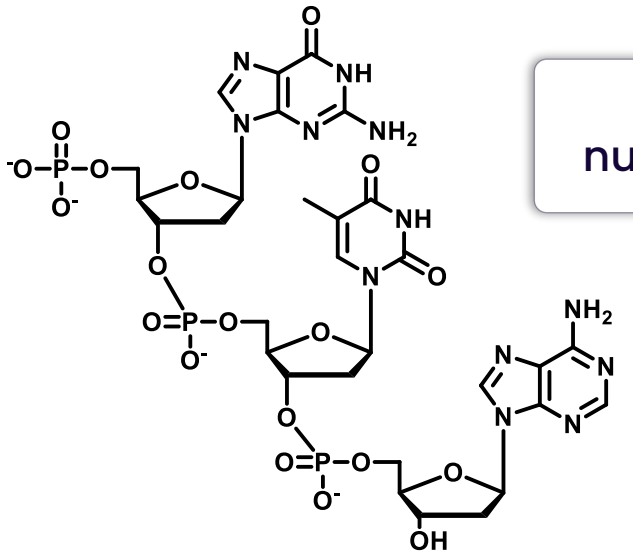
CHALLENGING ANALYTES:



Amino acid derivatives ✓



Oligo-peptides ✓

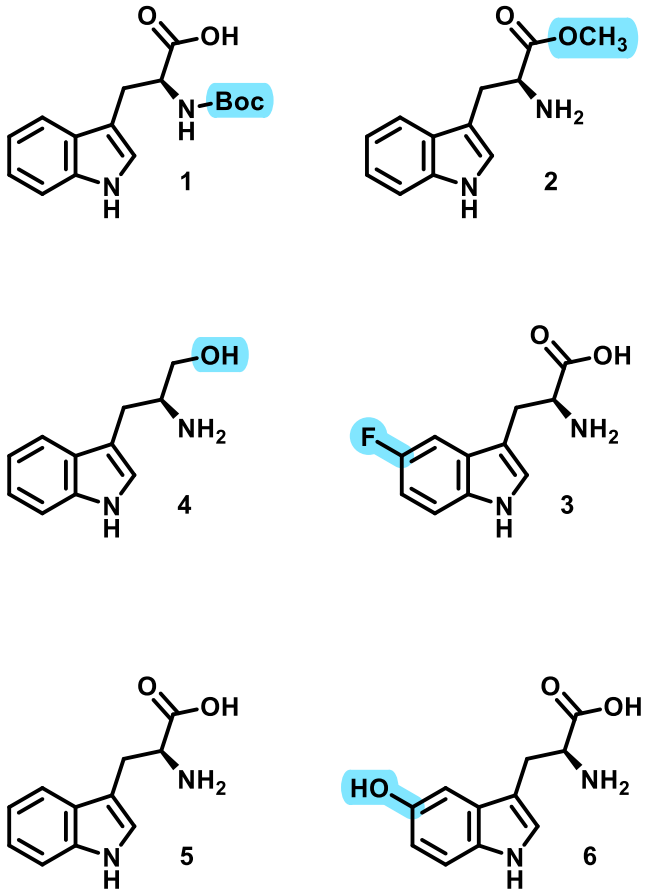


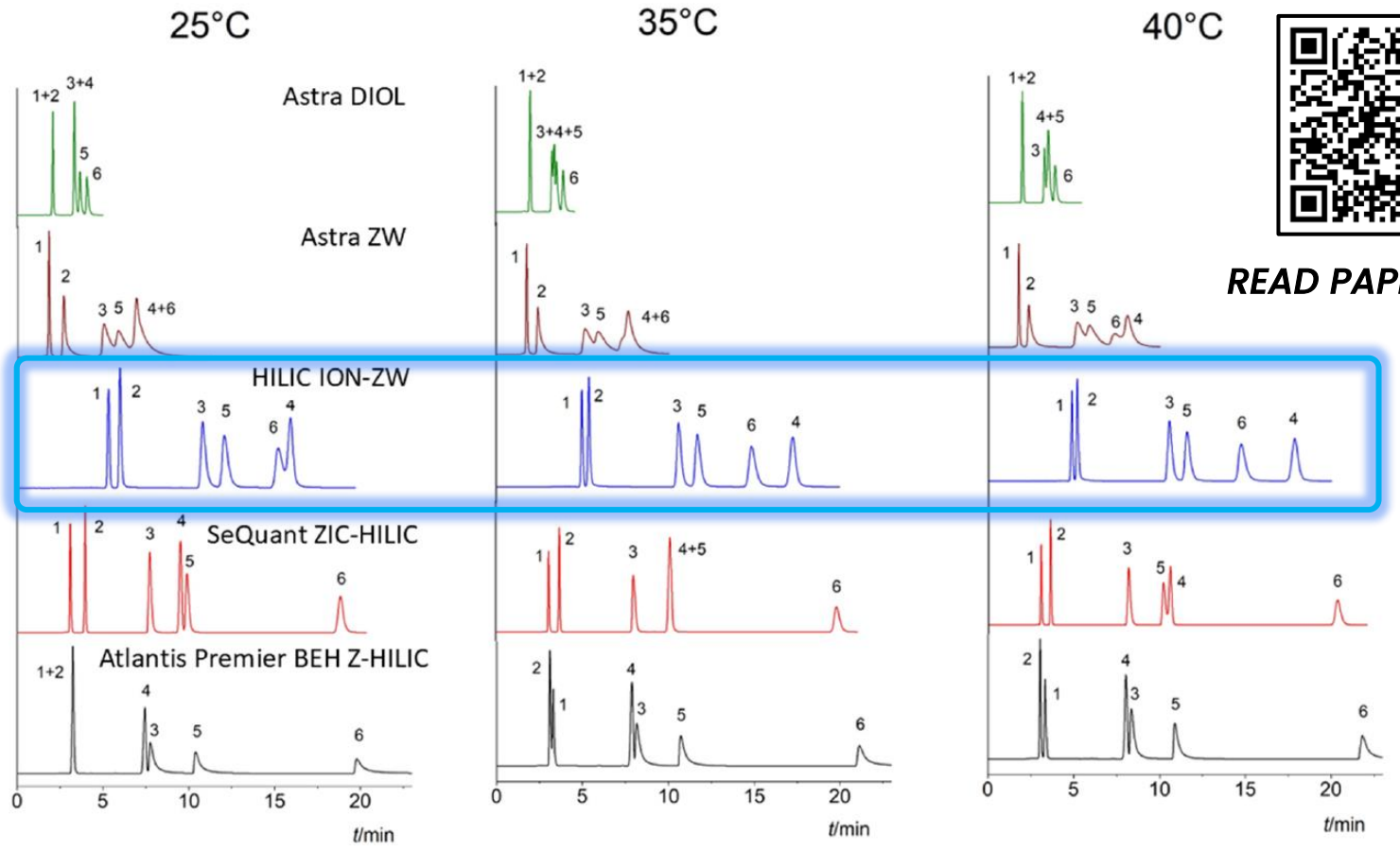
Oligo-nucleotides ✓

TACKLING POLAR COMPOUNDS WITH HILIC ION-ZW

SEPARATION OF TRYPTOPHAN DERIVATIVES – COMPARATIVE STUDY BY

Faculty of Science
Charles University

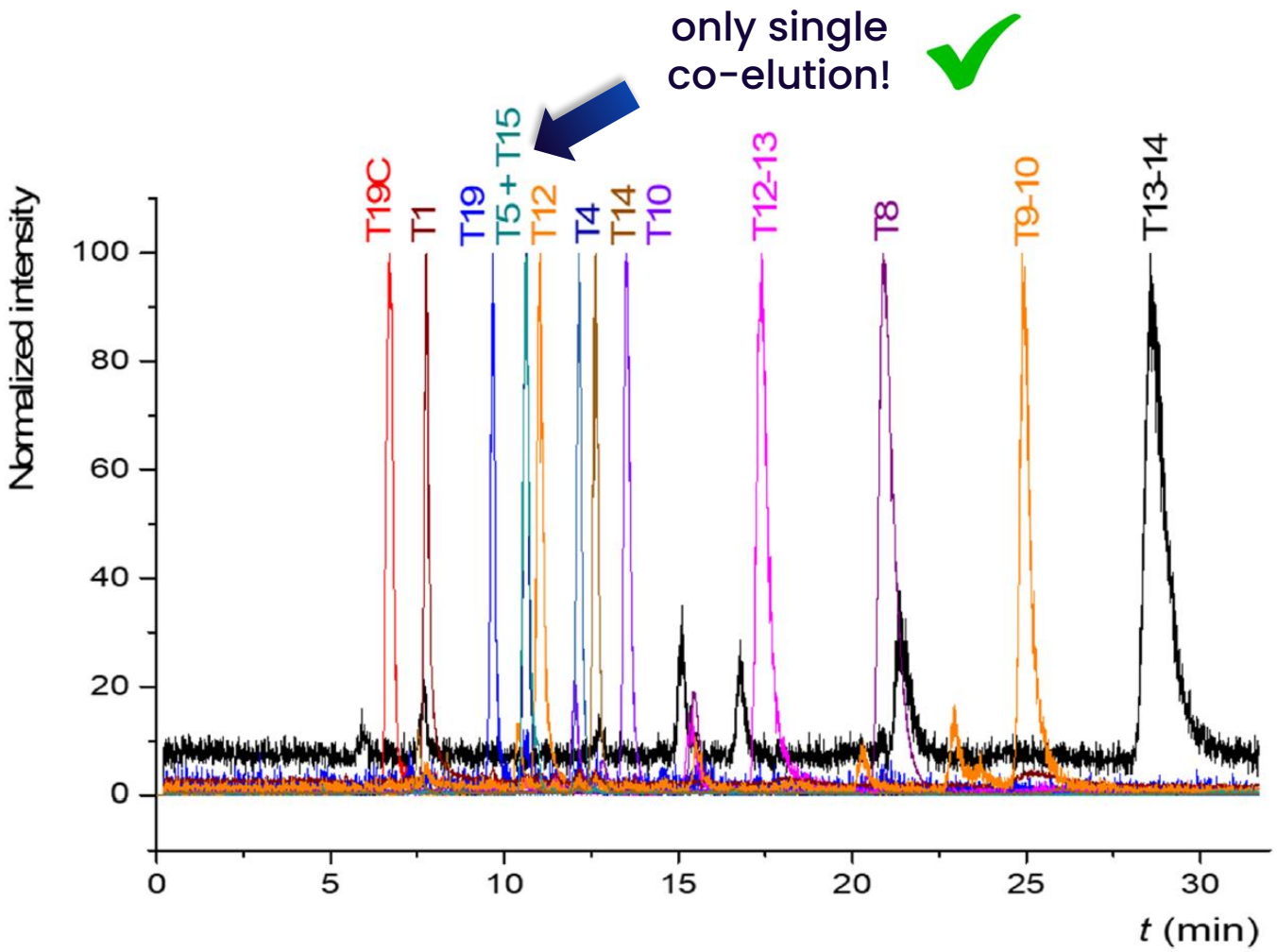




READ PAPER HERE!

TACKLING POLAR COMPOUNDS WITH HILIC ION-ZW

SEPARATION OF CYTOCHROME C TRYPTIC DIGESTS

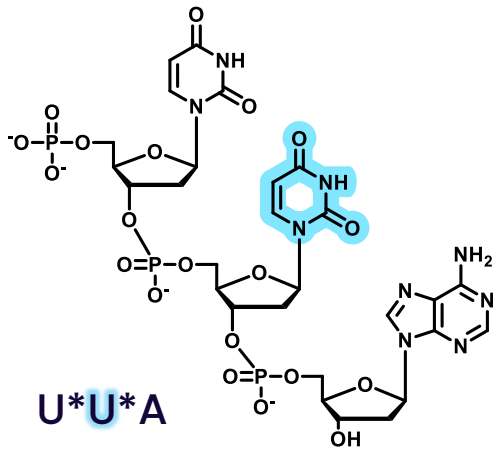


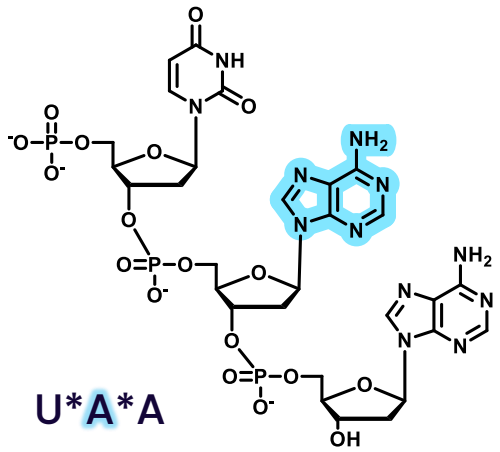
FRAGMENT NAME	AMINO ACID SEQUENCE
T1	GDVEK
T4	IFVQK
T5	CAQCHTVEK +hem
T8	TGPNLHGLFGR
T9-10	KTGQAPGFSYTDANK
T10	TGQAPGFSYTDANK
T12	GITWGEETLMEYLENPK
T12-13	GITWGEETLMEYLENPKK
T13-14	KYIPGTK
T14	YIPGTK
T15	MIFAGIK
T19	EDLIAYLK
T19C	EDLIAY

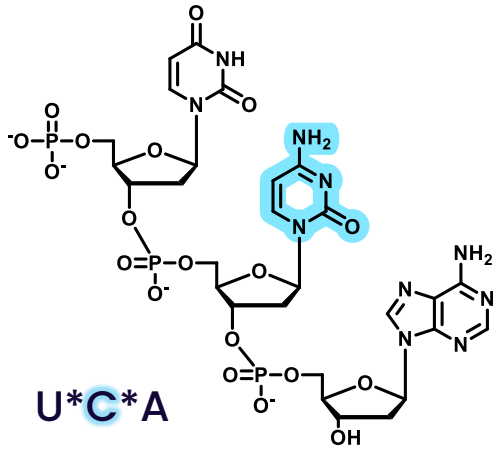
TACKLING POLAR COMPOUNDS WITH HILIC ION-ZW

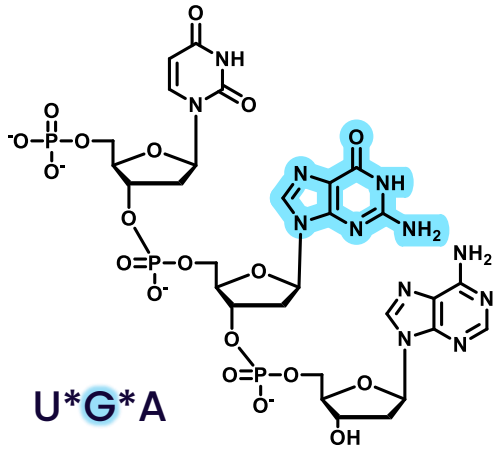
SEPARATION OF OLIGONUCLEOTIDES – COMPARATIVE STUDY BY

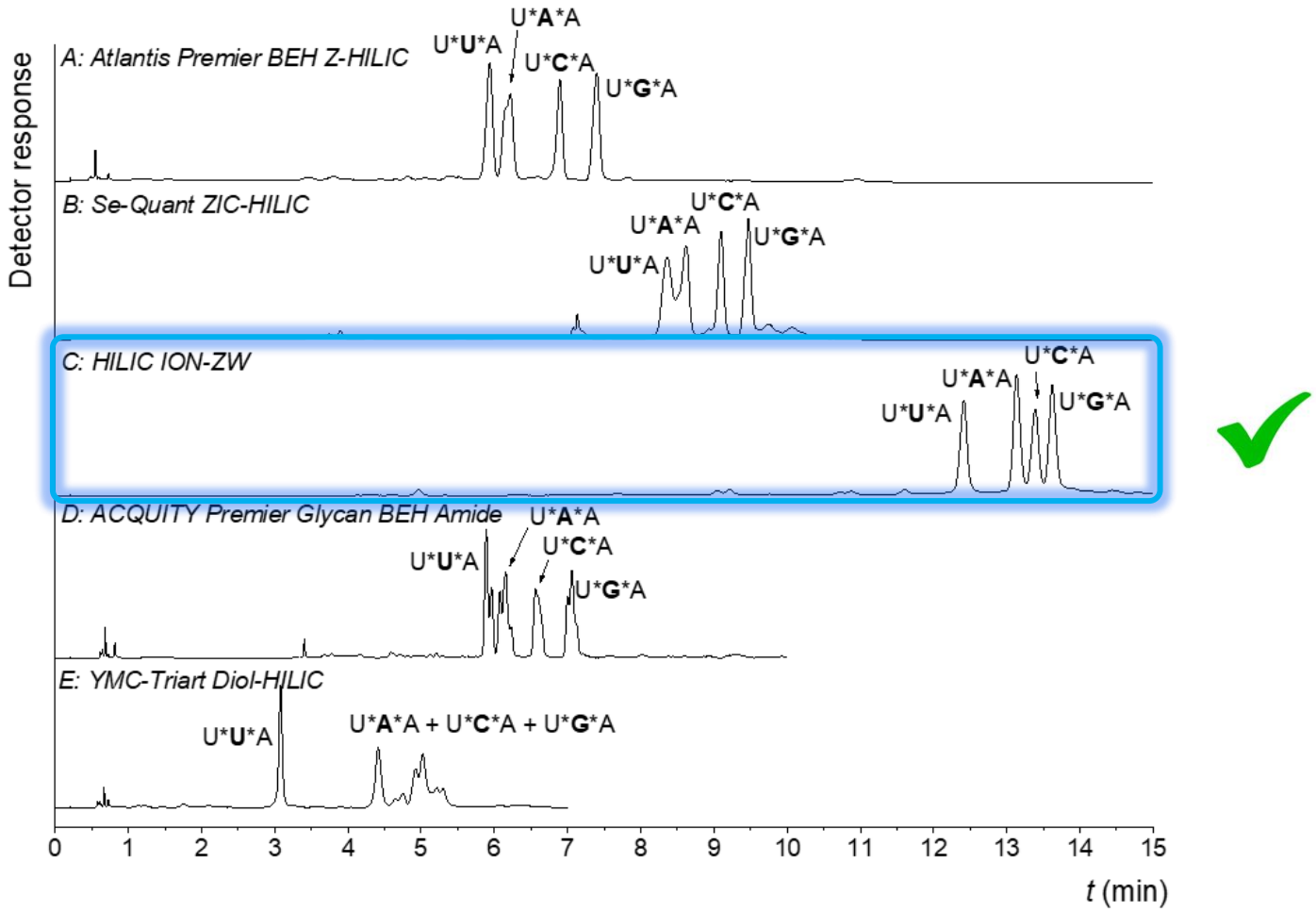
Faculty of Science
Charles University











ACHIEVED MILESTONES: raising awareness



Raised support

165 000 €

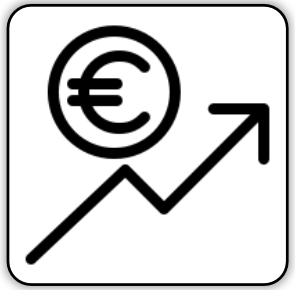


Partnership with academia



EIT Jumpstarter 2023
2nd place

TI Demoday 2025
3rd place



pilot sales



Distribution network

(USA, HUN, CZE)



Additional revenue stream: consulting

www.galochrom.com

GALOCHROM

NEXT-GEN HPLC TECHNOLOGY

LinkedIn

eit Manufacturing

Co-funded by the European Union

SIC

dekonta IC

DataApex

CHROMSERVIS

ECOM HPLC FROM PRAGUE

TAČR Technologická agentura České republiky

UNIVERSITY OF CHEMISTRY AND TECHNOLOGY PRAGUE

universität wien

UNIVERSITÀ DEGLI STUDI DI PERUGIA

UTA THE UNIVERSITY OF TEXAS AT ARLINGTON

CHARLES UNIVERSITY IN PRAGUE