

Sepax Monomix dT20 Affinity Resin



283030950-0000: 1 mL, 5 mL resin

283030950-70025: 1 mL cartridge

283030950P-2105: 2.1 x 50 mm PEEK

283030950P-4605: 4.6 x 50 mm PEEK

Shipping and Storage Solvent: 20% Ethanol with Water
Shipping Condition: Wet Ice



General Description

- Sepax Monomix dT20 Affinity Resin: **30 μm** narrowly dispersed polymethacrylate rigid base bead is **functionalized** with a **polyhydroxylated** surface coating layer that provides a bio-inert surface and shows low non-specific binding. Oligo dT20-mer is then conjugated to bead surface through a proprietary method. The resulting affinity resin is specially designed and highly optimized for **the isolation of messenger RNA (mRNA)**. Most mRNA molecules contain a tail of poly(adenylic acid) (polyA tail), up to 250 bases in length. The Monomix dT20 Affinity Resin surface allows **capture of mRNA through base pairing between** oligo dT20-mer and **the mRNA polyA tail using a simple and convenient** chromatography procedure.



Characteristics

- Provides efficient capture and release under standard mRNA purification conditions, simplify subsequent purification steps and maximize overall production efficiency.
- Decreases process development time and enhances productivity.
- Allows reduction in plasmid DNA and other transcription mix components.
- Stable at elevated temperatures for the breakdown of undesired higher order structures, if needed.
- Excellent scalability. Provide prepacked columns, semi-prep columns, prep columns and bulk resin.
- Non-animal derived
- Resin customization. Polymethacrylate bead size is available at 10, 15, 30 and 60 μ m.



Technical Specifications

- Support Matrix: Monomix 1000 Å
- Average Particle Size: 30 µm
- Surface Functionality/Ligand: Oligo dT20
- Binding Capacity: >2.0 mg mRNA per mL of resin
- pH Range: 2-12
- Operating Backpressure/Mechanical Stability: 100 Bar (10 MPa)
- Operating Temperature/Thermal Stability: 4-65° C
- Shipping and Storage Solvent: 20% Ethanol/Water
- Shipping Condition: Wet Ice



Technical Specifications

Resin Type	Monomix dT(20)
Base Matrix	Hydrophilic polymethacrylate
Particle Size D50 (µm)	30
Average Pore Size (Å)	1000
Functional Group	Oligo dT20-mer
Ligand density	≥2.1 mg dT20 / mL of resin
mRNA Binding Capacity (mg/ml resin)	≥2.0 mg (TBD)
Max Linear Flow Rate (cm/hr)	1000
Operating Temperature (°C)	4-65
pH Stability	2-12
Operating Pressure	≤10 bar (1 MPa)
Mobile Phase Compatibility	Compatible with common salt buffers, organic/aqueous solutions (acetonitrile, ethanol, etc.), and common additives for mRNA purification
Long-term Storage	Store in 20% ethanol aqueous solution, 2-25°C. Do not freeze resin or column.
CIP	0.1-0.5M NaOH. Recommend to start with 0.1M NaOH to prolong resin life



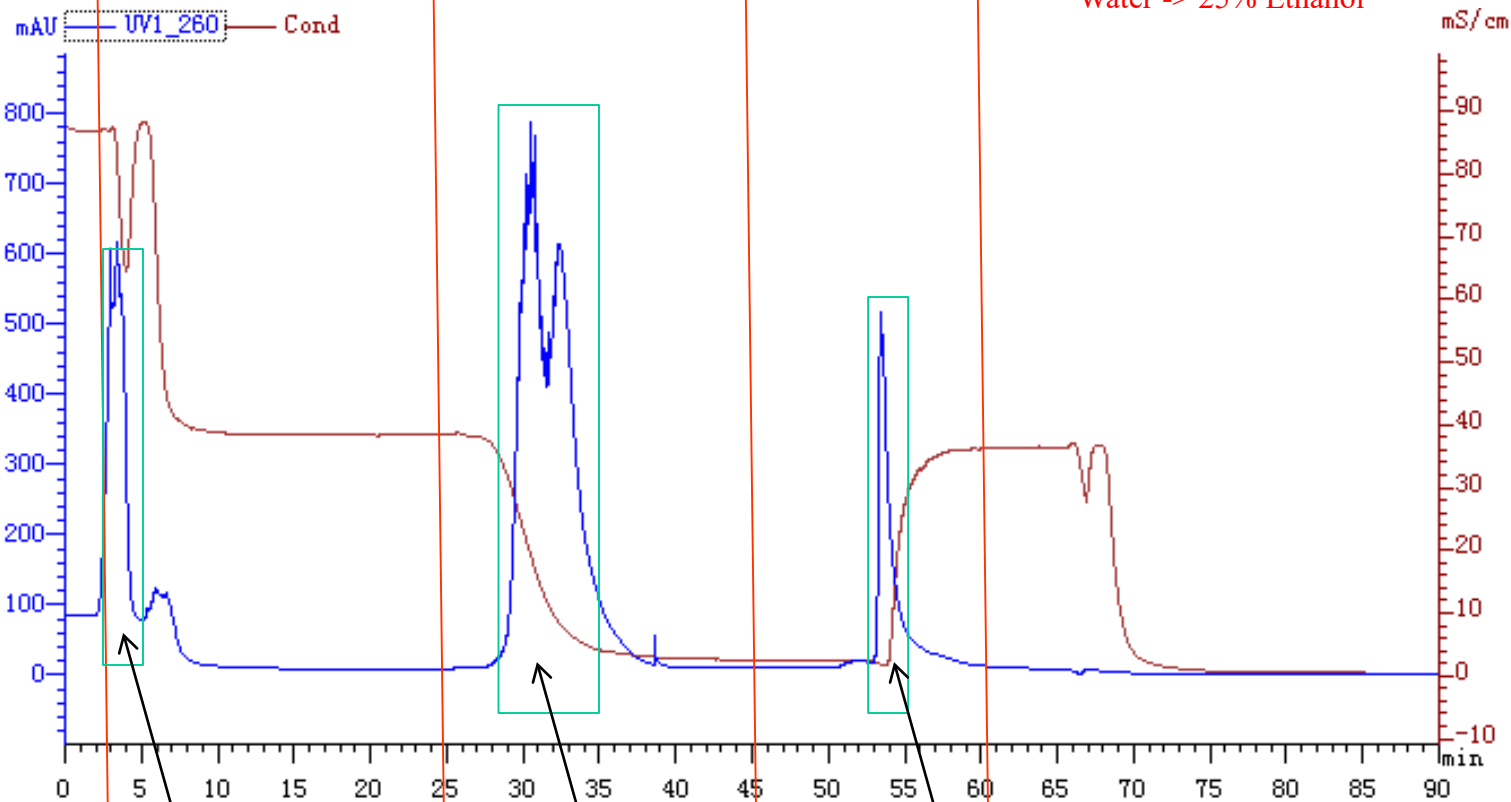
1. Bind

2. Wash

3. Elute

4. CIP

5. Wash to storage
Water -> 25% Ethanol



Flow-through
Collect

Elute
Collect 1 and 2

CIP
Collect



mRNA Sample Analysis on SEC-1000

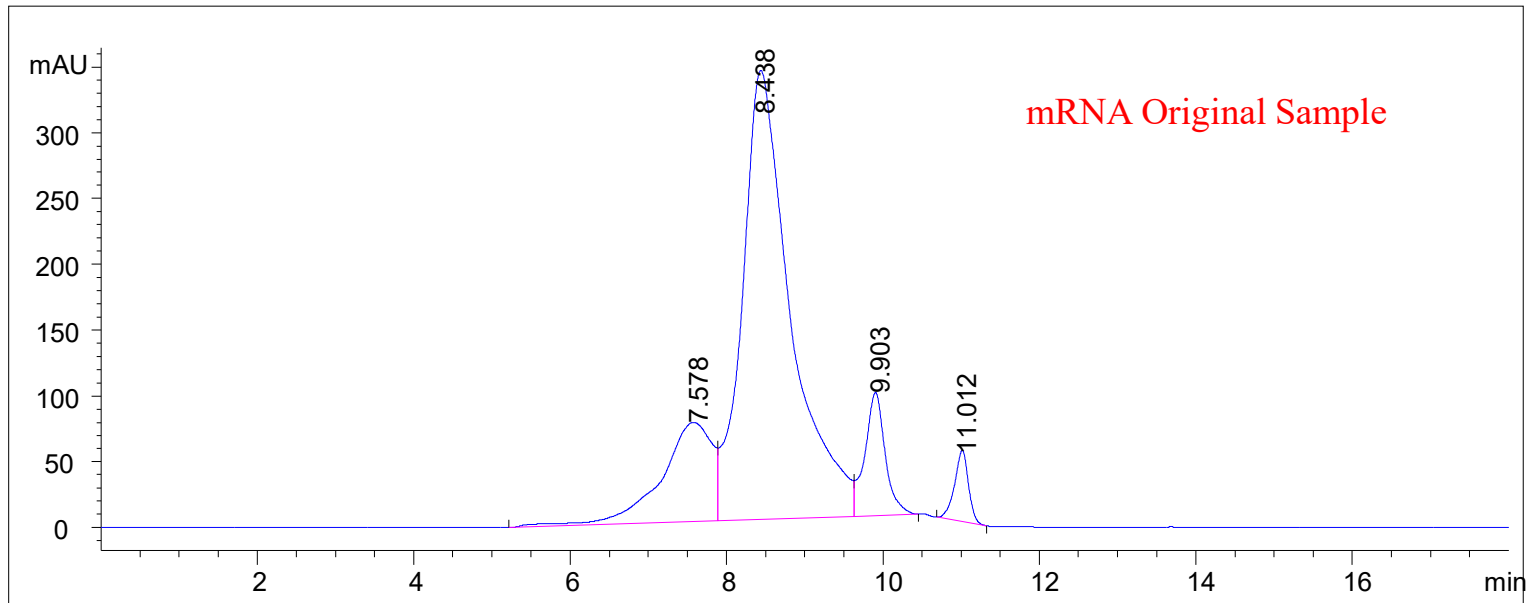
Column: SRT SEC-1000 5 μ m, 7.8x300mm (PN: 215950-7830)

Mobile phase: 150mM PB pH7.0

Flow rate: 1 mL/min, Detector: UV 260 nm, Column temperature: RT

Injection volume: 5 μ l Sample: mRNA original sample (1mg/L)

Pressure: 61bar, Instrument: HPLC



#	RT	Area	Height	Width	Tailing	Area%
1	7.578	3442.2	75.4	0.6659	1.965	16.826
2	8.438	14639.9	341.2	0.6416	0.579	71.562
3	9.903	1708	93.6	0.2658	1.034	8.349
4	11.012	667.6	54.2	0.1827	1.185	3.263



Sample + Buffer on SEC-1000

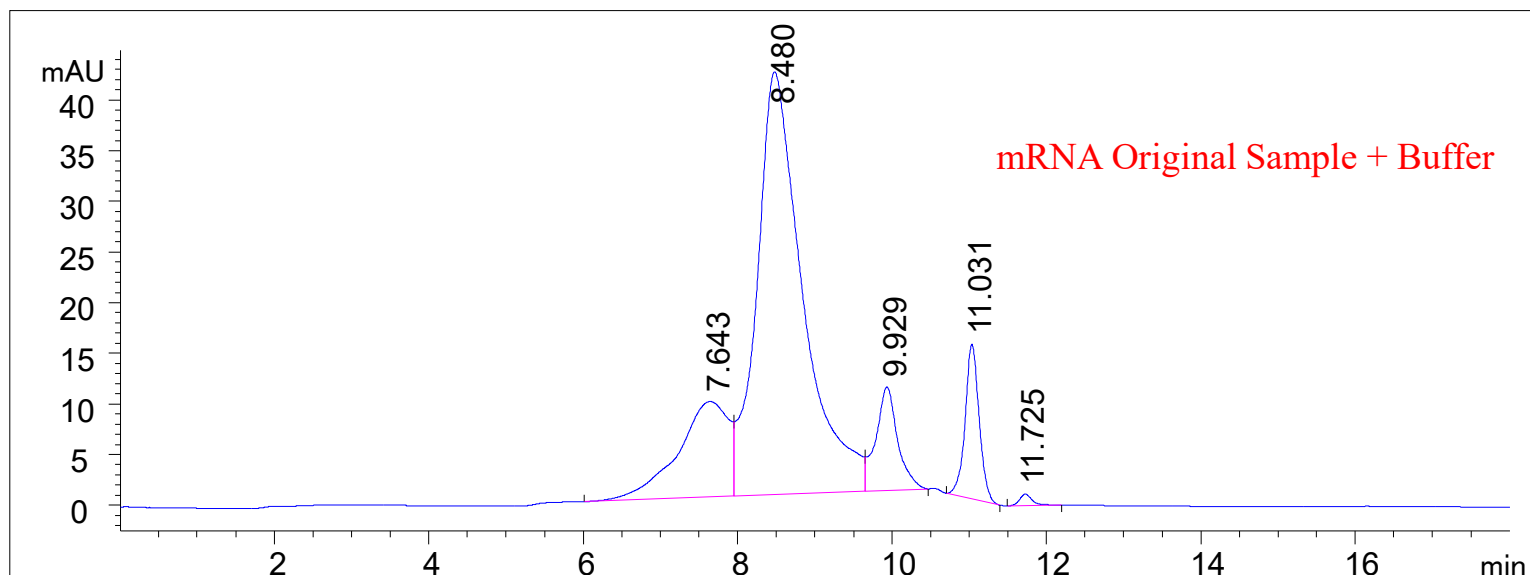
Column: SRT SEC-1000 5 μ m, 7.8x300mm (PN: 215950-7830)

Mobile phase: 150mM PB pH7.0

Flow rate: 1 mL/min, Detector: UV 260 nm, Column temperature: RT

Injection volume: 5 μ l Sample: mRNA Original + Buffer (380ul dilute to 1ml)

Pressure: 61bar, Instrument: Sepax 81



#	RT	Area	Height	Width	Tailing	Area%
1	7.643	427.5	9.4	0.6492	1.902	16.803
2	8.48	1723	41.7	0.5811	0.611	67.726
3	9.929	200.2	10.2	0.281	0.983	7.870
4	11.031	193.4	15.3	0.1899	0.902	7.601



Collected Fractions Analysis on SEC-1000

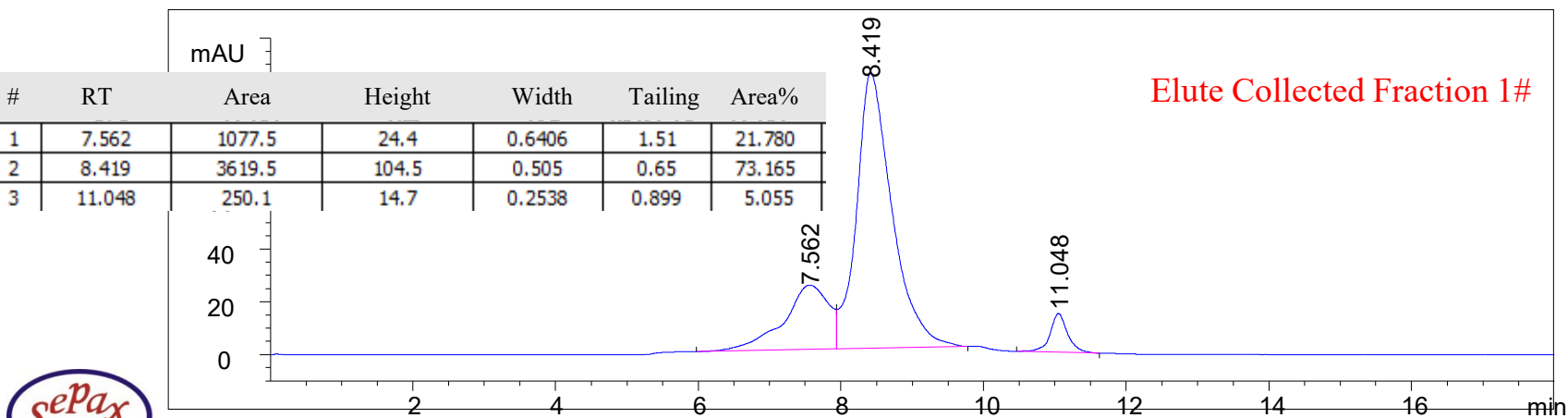
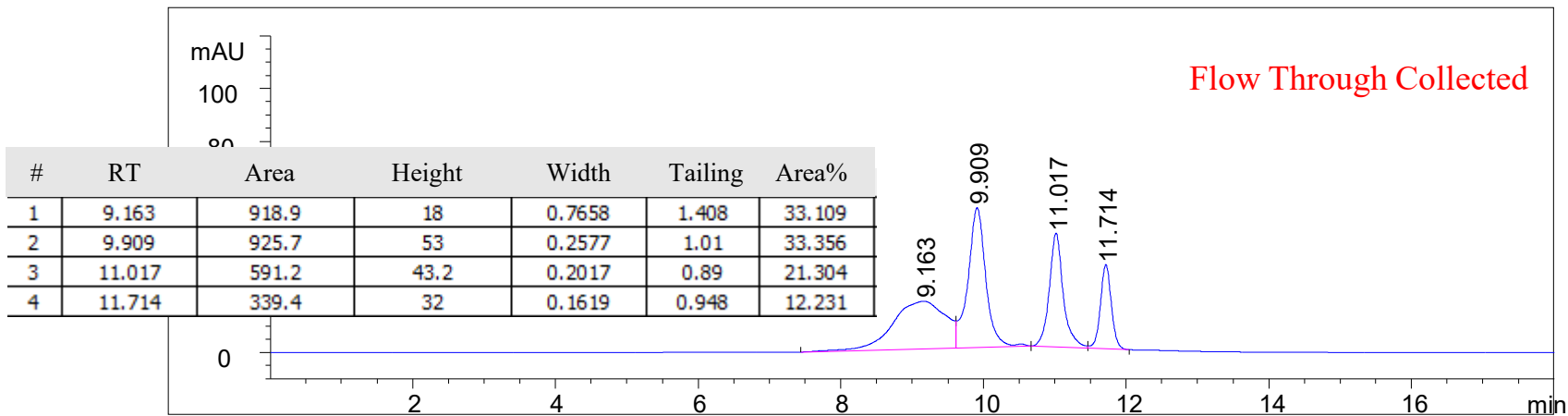
Column: SRT SEC-1000 5 μ m, 7.8x300mm (PN: 215950-7830)

Mobile phase: 150mM PB pH7.0

Flow rate: 1 mL/min, Detector: UV 260 nm, Column temperature: RT

Injection volume: 20 μ l Sample: Collected Fractions

Pressure: 61bar, Instrument: Sepax 81



Collected Fractions Analysis on SEC-1000

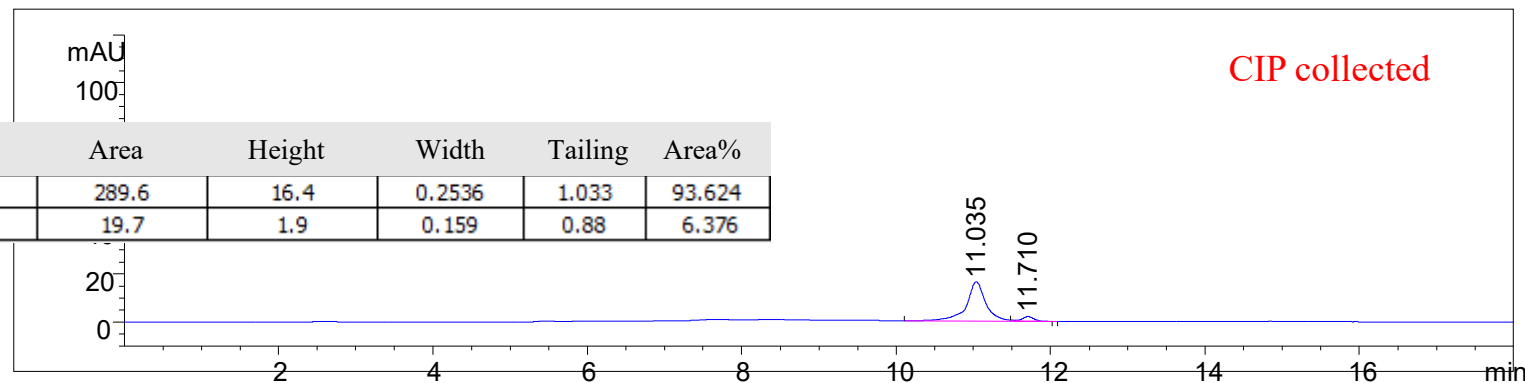
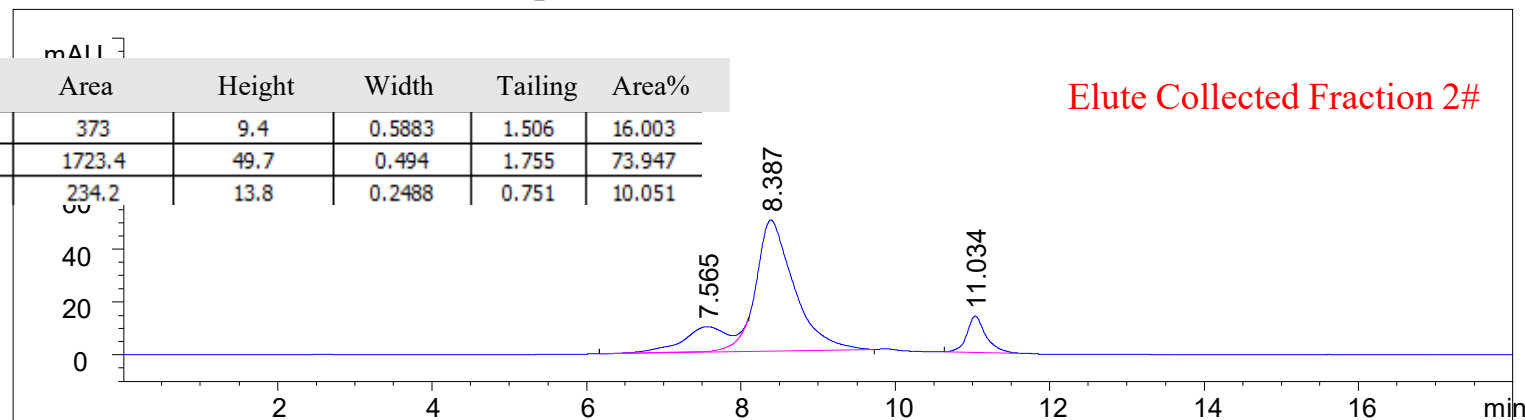
Column: SRT SEC-1000 5 μ m, 7.8x300mm (PN: 215950-7830)

Mobile phase: 150mM PB pH7.0

Flow rate: 1 mL/min, Detector: UV 260 nm, Column temperature: RT

Injection volume: 20 μ l Sample: Collected Fractions

Pressure: 61bar, Instrument: Sepax 81



Collected Fractions Analysis on SEC-1000

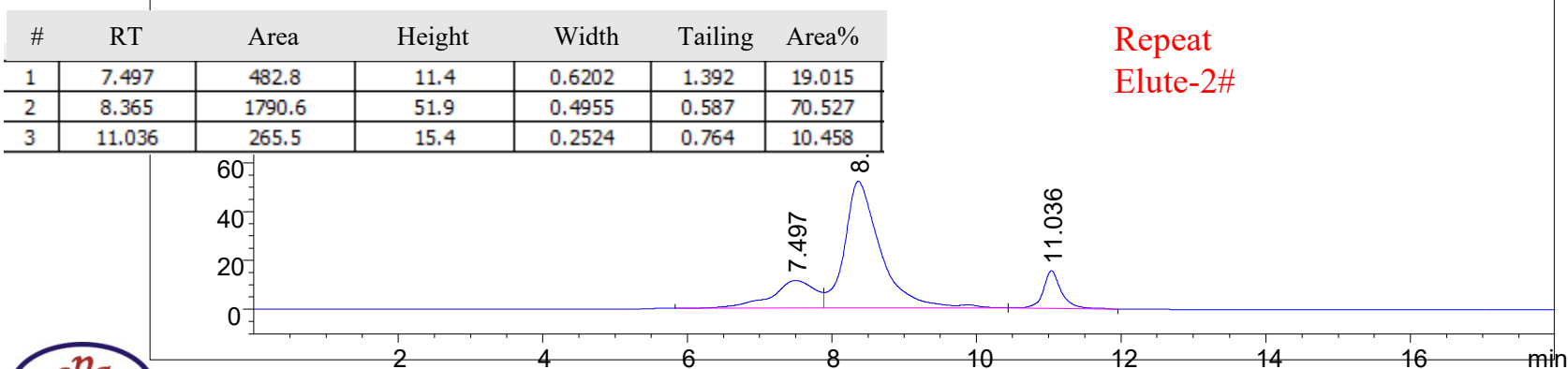
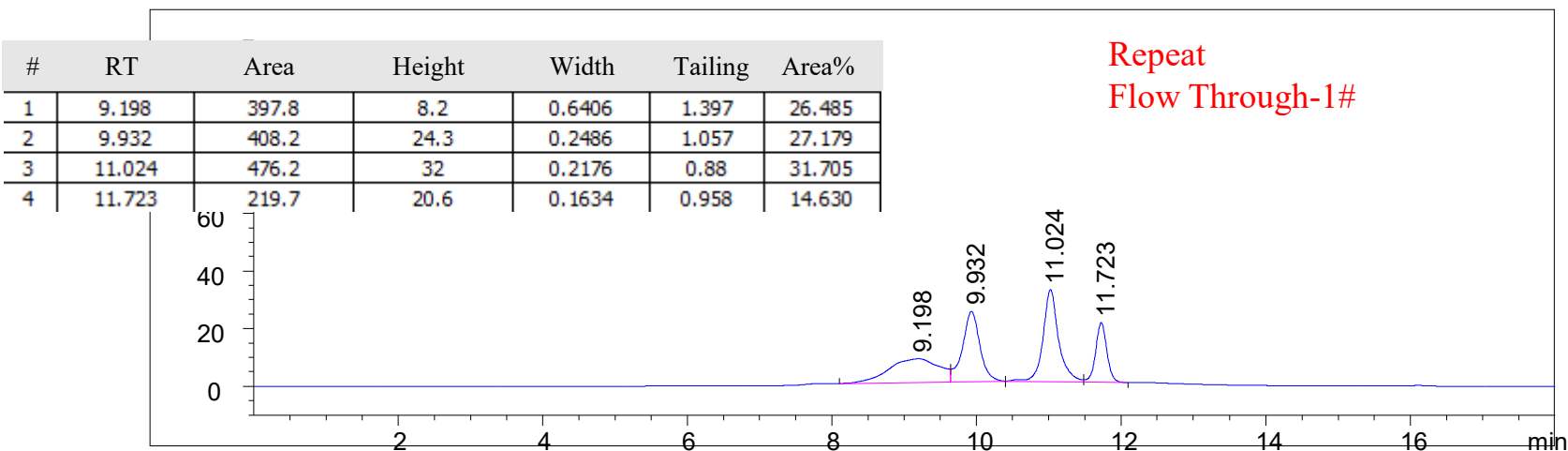
Column: SRT SEC-1000 5 μ m, 7.8x300mm (PN: 215950-7830)

Mobile phase: 150mM PB pH7.0

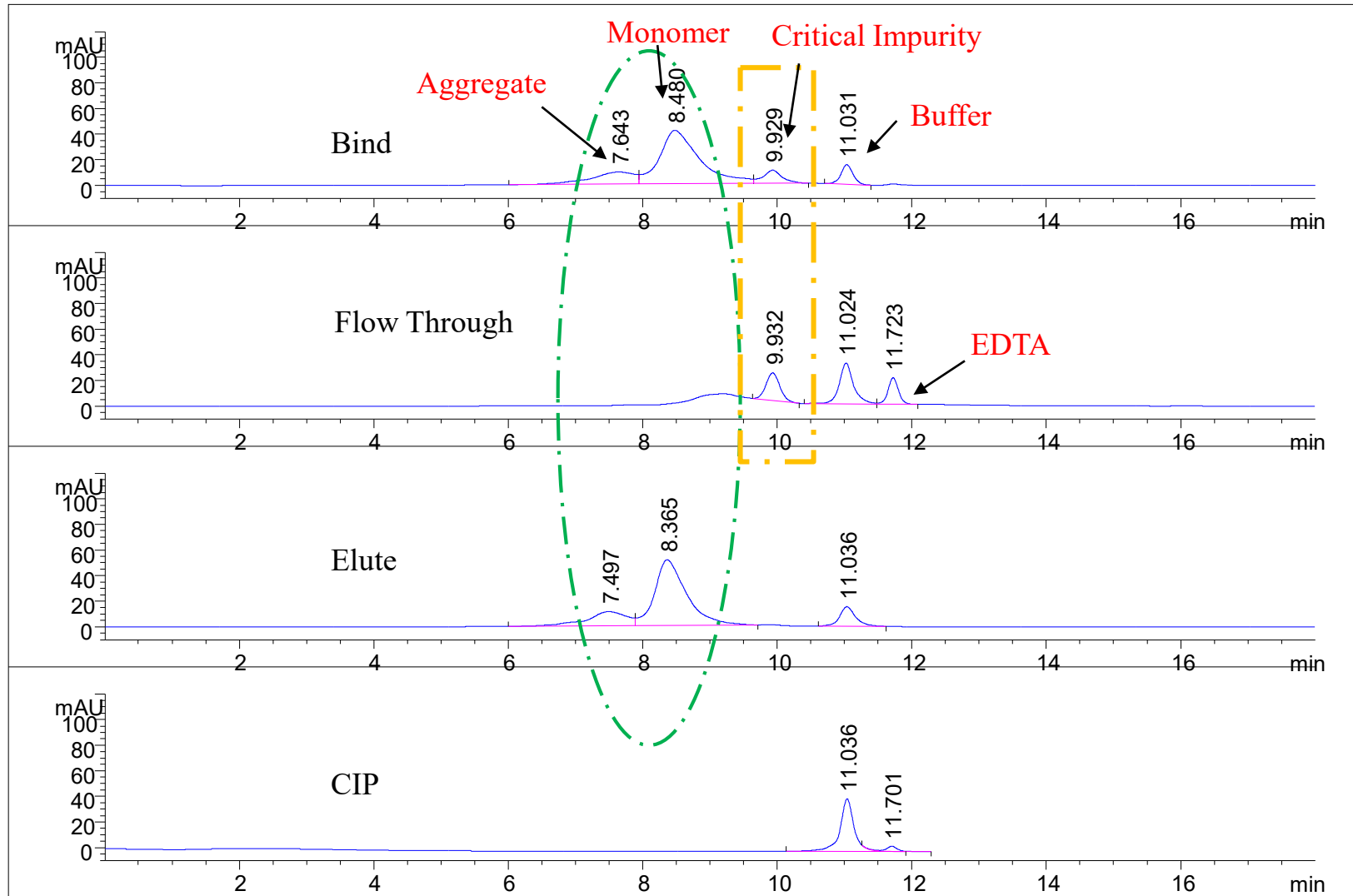
Flow rate: 1 mL/min, Detector: UV 260 nm, Column temperature: RT

Injection volume: 20 μ l Sample: Collected Fractions

Pressure: 61bar, Instrument: Sepax 81



Fractions Overlays



Buffer Overlays

Column: SRT SEC-1000 5 μ m, 7.8x300mm (PN: 215950-7830)

Mobile phase: 150mM PB pH7.0

Flow rate: 1 mL/min, Detector: UV 260 nm, Column temperature: RT

Injection volume: 20 μ l Sample: Blank

Pressure: 61bar, Instrument: Sepax 81

