

EVALUATION GUIDE

How to evaluate a lower-pressure HDX column in your HDX workflow

Purpose of this guide

This guide is intended to help you evaluate the CHRONECT HDX LC Column in your existing HDX-MS workflow.

The goal is to make it easy to assess whether the column delivers meaningful value in your environment by answering five practical questions:

- Is pressure lower?
- Is chromatography acceptable?
- Is runtime shorter?
- Can you run more samples or replicates?
- Are there fewer disruptions?

This guide is designed to support a structured trial and help you document your observations clearly.

What success looks like

A successful evaluation does not require a full workflow redesign on day one.

In most cases, the first goal is to confirm:

- lower operating pressure under chilled HDX conditions
- acceptable chromatography relative to your current method
- the potential for runtime reduction after optimization
- improved practical workflow capacity
- improved day-to-day robustness

Before you begin

Before testing the CHRONECT HDX LC Column, record your current baseline method and operating conditions.

Baseline information to capture

- current analytical column format
- system platform
- operating temperature
- standard LC runtime
- pressure profile
- gradient conditions
- samples per day
- typical replicates per condition
- current service or interruption issues, if any
- average peak width and scan rate of the instrument
- chromatographic performance, such as peak capacity or mean peak width

Suggested starting point

For the initial trial, use the new column as a like-for-like replacement where possible.

Start with your current method structure before making optimization changes.

Step 1 — Is pressure lower?

What to evaluate

Compare operating pressure using the CHRONECT HDX LC Column versus your current analytical column under the same general method conditions.

Questions to ask

- Is the overall pressure lower?
- Are pressure spikes reduced?
- Does the system operate with more margin below the pressure limit?
- Does the LC appear to be more stable under chilled conditions?

What success may look like

- materially lower operating pressure
- more room for flow-rate changes
- less concern about pressure-related stress

Record your result

- Observed pressure change:

- Comments:

Step 2 — Is chromatography acceptable?

What to evaluate

Compare chromatographic performance relative to your current method.

Questions to ask

- Are peaks acceptable for your workflow?
- Is retention behavior acceptable?
- Is peptide separation fit for purpose?
- Is data quality acceptable for routine use?

What success may look like

- similar or acceptable chromatographic performance
- no major disruption to analytical interpretation
- suitable for your current workflow goals

Record your result

- Chromatography acceptable? ☐ Yes ☐ No

- Comments:

Step 3 — Obtaining a shorter runtime

What to evaluate

First, confirm performance with your current method. Then, if appropriate, test whether cleanup, re-equilibration, or elution flow can be increased to reduce total runtime.

Suggested optimization path

- Direct replacement
- Optimize cleanup and re-equilibration
- Optimize elution (only if appropriate)

Questions to ask

- Can cleanup and re-equilibration be shortened?
- Can total LC runtime be reduced?
- Is there still acceptable chromatography after optimization?

What success may look like

- shorter total LC runtime
- improved cycle time
- more flexibility in method design

Record your result

- Baseline runtime:
- Trial runtime:
- Comments:

Step 4 — Can you run more samples or replicates?

What to evaluate

Consider how the runtime and pressure improvements affect real workflow capacity.

Questions to ask

- Can you fit more samples into the same run window?
- Can you add more replicates for confidence?
- Can you run more conditions in the same day?
- Does the method create more usable capacity for your team?

What success may look like

- more samples per day
- more replicates per condition
- better use of 20–24 hour operating windows
- better use of existing instrument capacity

Record your result

- Potential added samples/day:
- Potential added replicates/conditions:
- Comments:

Step 5 — Are there fewer disruptions?

What to evaluate

Assess whether lower pressure improves workflow continuity.

Questions to ask

- Are there fewer leaks or pressure-related interruptions?
- Does the workflow feel more stable?
- Is there less concern about system stress?
- Would this reduce service burden over time?

What success may look like

- fewer interruptions
- more robust chilled operation
- lower perceived risk during extended sequences
- greater confidence in day-to-day operation

Record your result

- Fewer disruptions observed? ☐ Yes ☐ No
- Comments:

Optional: Workflow context

If you use **CHRONOS**, shorter LC runtime may improve scheduling efficiency by making overlap more effective.

If you use **HDEaminer PRO**, faster front-end chromatography may help improve total workflow productivity by reducing the time required to generate data before downstream analysis and interpretation.

This means the value of the column may go beyond the column itself and support a more efficient end-to-end HDX workflow.

Trial summary

At the end of the evaluation, summarize your overall outcome.

Overall evaluation

Question	Result
Is pressure lower?	☐ Yes ☐ No ☐ Partially
Is chromatography acceptable?	☐ Yes ☐ No ☐ Partially
Is runtime shorter?	☐ Yes ☐ No ☐ Partially
Can you run more samples or replicates?	☐ Yes ☐ No ☐ Partially
Are there fewer disruptions?	☐ Yes ☐ No ☐ Partially

Overall trial outcome

- ☐ Strong fit for workflow
- ☐ Promising, needs optimization
- ☐ Not suitable for current method
- ☐ Need support from Trajan / CHRONECT team

Final comments

Need support?

If you would like help interpreting the results of your trial, optimizing your method, or discussing next steps, please contact your Trajan representative.

Contact:

Visit chronect.trajanscimed.com or contact chronect.support@trajanscimed.com