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Cleaning SOP for Cogent Diamond Hydride When Using Blood Samples - Tips and Suggestions

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Biofluid analyses—especially whole blood or blood-derived matrices —leave behind proteins, lipids, salts, and other matrix components that can adsorb strongly to the stationary phase or accumulate on the inlet frit.

Without proactive cleaning, this build-up leads to rising backpressure , ghost peaks , retention drift , and shortened column life. The guidance below shows how to bake in column cleaning to your sequence or incorporate it directly into each gradient when using a Cogent Diamond Hydride™ (TYPE-C Silica) column.

Option A — Scheduled "Solvent-Wash" Injections in the Sequence

Add a dedicated wash method into your batch list at regular intervals (e.g., every ~10 injections):

- Use 50:50 DI water/methanol *or* 50:50 DI water/isopropanol (IPA) as the wash solvent.
- Run the wash step long enough to elute strongly adsorbed matrix components.
- Resume the normal sample sequence afterward.

This approach maintains performance between samples while minimizing manual intervention.

Option B — Build the Wash into Every Gradient (Continuous Cleaning)

Embed the cleaning step inside your analytical method:

- Set Solvent A = 50:50 DI water/methanol *or* 50:50 DI water/IPA.
- After the analytical gradient finishes, program a ramp to 100% A and hold to purge retained matrix.
- Re-equilibrate to starting conditions before the next injection.

This creates automatic, run-by-run cleanup, which is particularly helpful for high-throughput or dirty matrices. If your current method uses 100% aqueous A, try substituting 50% MeOH or 50% IPA in A; you should see at most a slight retention shift with no drastic loss in chromatographic behavior.

Practical Tips for Blood Matrices (Diamond Hydride™ / ANP)

- Guard column: Use one for heavy bio-matrices to protect the analytical bed and simplify maintenance (replace the guard more often than the main column).
- Injection solvent: In ANP, keep the diluent high in ACN with a modest water fraction to avoid band distortion, but ensure it doesn't counteract the cleanup you've built into the gradient.
- Post-sequence flush: After large batches, finish with a 5–10 min wash of 50:50 DI water/MeOH or DI water/IPA, followed by re-equilibration in your method's starting conditions.

- Monitor system pressure & baseline: Rising backpressure or new ghost peaks are cues to lengthen the wash hold or increase wash frequency.

All of the above align with the recommended solvents and workflow adjustments documented for blood-sample workflows on Diamond Hydride™.

Summary

To keep a Cogent Diamond Hydride™ column clean when analyzing blood, either:

- Insert a solvent-wash method (50:50 DI water/MeOH or DI water/IPA) into the sequence periodically, or
- Embed a 100% A (50% MeOH or 50% IPA in A) hold at the end of each gradient for continuous, run-to-run cleanup.

Both strategies remove strongly retained matrix materials, stabilize retention and peak shape, and extend column lifetime with minimal impact on your chromatography (only small RT shifts may occur).
Click *HERE* for Cogent Diamond Hydride HPLC column ordering information.

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