Troubleshooting Guide for Performa® Spin Columns

PROBLEM	POSSIBLE CAUSE	SUGGESTED SOLUTIONS
Recovery volume larger or smaller than expected	Centrifuge conditions were not optimal	Recalculate the rpm for your centrifuge conditions
	Cartridges have not been stored correctly	• Store cartridges at 4°C • Do not allow cartridges to freeze • Unopened cartridges in a sealed bag can be left at room temperature for several days
	Cartridge was not processed immediately after loading sample	Perform pre-spin immediately before loading sample and spin sample promptly after loading
	PEG or some other "volume excluding" compound was included in the sample	Inclusion of highly hydrophilic molecules will alter the function of the cartridge causing inefficient size separation and large volume increases
DNA Recovery lower than expected	Less than 50 ng of DNA loaded	Increase quantity of DNA in the sample
	Centrifuge conditions were not optimal	Increase volume loaded per cartridge Change spin protocol to 3 min at 750 pre-spin and 2 min at 750 sample spin
	Oligo is too small for highly efficient recovery	50% of a 20 base oligo will be recovered from a 20 µl load. Increasing load volume will increase recovery
	Sample is degraded	Avoid nuclease contamination of reaction and purified sample. Adjust the pH of recovered DNA and add EDTA before storage - suggested concentration 10 mM Tris (pH 7.5-8), 0.1 mM EDTA. The adjustment can be done easily by preparing a 10X TE solution and adding 1/10 volume to the sample

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PROBLEM	POSSIBLE CAUSE	SUGGESTED SOLUTIONS
DNA Recovery lower than expected *cont…*	Sample is denatured	Very short DNAs require minimum salt concentrations to remain double stranded. Adjust pH and salt concentration of recovered DNA before storage - suggested concentration 10 mM Tris (pH 7.5-8), 5 mM NaCl, 0.1 mM EDTA. The adjustment can be done easily by preparing a 10X TNE solution and adding 1/10 volume to the sample. Avoid heating recovered DNA without adjusting salt concentration
DNA not functional in downstream applications	Too large a volume was loaded on the cartridge to remove contaminants	• Decrease volume loaded per cartridge. Split sample and run on more than one cartridge to increase purity • Change spin protocol to 3 min at 750 pre-spin and 2 min at 750 sample spin
	Centrifuge conditions were not optimal	• Change spin protocol to 3 min at 750 pre-spin and 2 min at 750 sample spin • Recalculate g force for your centrifuge conditions • Measure the actual rpm in the centrifuge at the setting used
	Cartridge was not processed immediately after loading sample	Perform pre-spin immediately before loading sample and spin sample promptly after loading
	Sample was not loaded properly	Load the sample slowly, drop-wise to the center of the gel column
	Protein is purifying with the DNA	Cartridge cannot remove protein. Consider phenol extraction of sample to remove protein. Run the aqueous phase of the sample on a DNA cartridge to remove trace phenol, salts and small molecules

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PROBLEM	POSSIBLE CAUSE	SUGGESTED SOLUTIONS
DNA not functional in downstream applications ***cont…***	Sample is degraded	Avoid nuclease contamination of reaction and purified sample. Adjust the pH of recovered DNA and add EDTA before storage - suggested concentration 10 mM Tris (pH 7.5-8), 0.1 mM EDTA. The adjustment can be done easily by preparing a 10X TE solution and adding 1/10 volume to the sample
	Sample is denatured	• Very short DNAs require minimum salt concentrations to remain double stranded. Adjust pH and salt concentration of recovered DNA before storage - suggested concentration 10 mM Tris (pH 7.5-8), 5 mM NaCl, 0.1 mM EDTA. The adjustment can be done easily by preparing a 10X TNE solution and adding 1/10 volume to the sample • Avoid heating recovered DNA without adjusting salt concentration
	Application is not suitable for DNA Cartridge purification	• DNA cartridges cannot efficiently remove oligos larger than 10 bases and will not remove most proteins and some detergents • For protein contamination: consider phenol extraction of sample to remove protein, run the aqueous phase of the sample on a DNA cartridge to remove trace phenol, salts and small molecules

For additional troubleshooting assistance, please contact Edge BioSystems at:

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