Purilogics™
By Donaldson

Purexa™ NAEX Prep Research Grade

Membrane Chromatography

INTRODUCTION

The Purexa™ NAEX Prep Research Grade utilizes an anion-exchange membrane for small-scale purification of plasmid DNA (pDNA). The proprietary tertiary amine ligand functionalization of the membrane coupled with 3 µm pore size enables the selective purification of a wide range of plasmid DNA constructs. End users may vary buffer conditions (e.g. conductivity, pH, or buffer/salt types) to achieve high purity and recovery. The membrane is intended for research purposes only and is NOT intended for use in clinical or diagnostic applications.

PRODUCT CHARACTERISTICS

Description	Characteristic
Nominal Membrane Pore Size	3.0 µm
Membrane Base	Cellulose
Membrane Ligand	Tertiary Amine
Typical Membrane Thickness	105 µm
Membrane Area	28.4 cm^2
Approximate Membrane Bed Volume	0.30 mL
Housing Material	Polypropylene
Connections	Inlet: Female Luer Lock Outlet: Male Luer Lock
Maximum System Pressure	0.4 MPa
Flow Rate Range	0.5 – 10 mL/min
Storage upon Receipt	Ambient Conditions

AN EXAMPLE OF A PLASMID DNA BIND-AND-ELUTE PROCESS

Optimal conditions will be target specific and will also be contingent on the level and type of impurities present in the starting material. If initial conditions provide low yields it is recommended to adjust loading buffer and/or elution buffer conditions. If there is an undesirable level of impurities, a gradient elution protocol is recommended to improve effectiveness. The recommended starting flowrate is 5 mL/min, but this may be adjusted within the range of 0.5 – 10 mL/min according to the purification requirements.

- ***Product Handling:*** Remove column from packaging. Take care to ensure the column is not damaged during removal.

- ***Product Priming:*** Flow an equilibration buffer through the device at around 5 mL/min with outlet open to air. Lightly tap the column during flushing to remove trapped air bubbles. Install

outlet line connection and continue to flow buffer for a minimum of 30 seconds or until UV signal has stabilized. (*Example Buffer: 1 M Potassium Acetate pH 5.5, adjusted with Acetic Acid*)

- ***Sample Adjustment:*** After lysate clarification, adjust the lysate to reach a conductivity of 70-90 mS/cm depending on your sample's purity. *(Example Buffer: 3 M Potassium Chloride)*

- ***CIP:*** Perform a cleaning in place of the membrane for at least 10 mL at no more than 5 mL/min prior to use. (*Example Buffer: 0.1 M Sodium Hydroxide and 2 M Sodium Chloride)*

- ***Membrane Equilibration:*** Equilibrate the membrane with equilibration buffer for at least 10 mL and ensure the pH and conductivity have stabilized. (*Example Buffer: 1 M Potassium Acetate pH 5.5*)

- ***Sample Loading***: Inject the conductivity adjusted lysate.

- ***Membrane Chasing/Washing:*** Chase the membrane with equilibration buffer until the pH and conductivity have stabilized. Additional washing steps may be necessary to enhance purity. *(Example Chasing Buffer: 1 M Potassium Acetate pH 5.5)*

- ***Elution:*** Elute the pDNA with elution buffer. Increasing the salt concentration or performing a gradient elution may help to improve recovery and purity. *(Example Buffer: 1.5M Sodium Chloride, 15 mM Tris, and 1.5 mM EDTA pH 7.4)*

- ***Disposal****:* After use, dispose of biohazard and chemical waste responsibly, confirming local regulations as needed.