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Optimization of downstream processing for plasmid DNA using ion-exchange chromatography CAMILLE BAIRD, Brigham Young University - Provo, STACEY FLOYD, Morgan High School - Morgan, UT, ROBERT DAVIS, KENNETH CHRISTENSEN, JORDAN FINNELL, TSZ TSANG, Brigham Young University - Provo — Increasing interest in gene therapy and DNA vaccines has sparked an industry-wide focus on producing large quantities of plasmid DNA, while still maintaining quality requirements from regulatory agencies. Optimization of the downstream processing of pDNA has shown promising results for high quality, high quantity batches of plasmids. A protocol was developed and optimized for ion-exchange capture and purification of 5kpb pDNA extracted from E. Coli lysate using commercial borosilicate membrane filters. When compared to similar published processes using varying mediums, our protocol was as effective or more effective in maintaining quality, purity and yield. Principles and procedures developed in this protocol will help aid further research in adapting this process to a newly developed filter medium that offers extremely high surface area for increased binding capacity.

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