

Abstract Submitted
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Surface Electrophoresis of DNA on Microporous Materials ELI HOORY, Stony Brook University, ANDREW DUBITSKY, JOHN FRENNA, Pall Corporation, MICHAEL DING, Glen Cove High School, JONATHAN SOKOLOV, MIRIAM RAFAILOVICH, Stony Brook University, PALL CORPORATION COLLABORATION, STONY BROOK UNIVERSITY TEAM — Separation of single strand DNA molecules on solid surfaces can potentially be used for genomic research and diagnostic applications. Feasibility of DNA electrophoresis on solid surfaces has been demonstrated using insulating and semi-conducting substrates. Microporous membranes can offer advantages in separation because of the variety of surface-DNA interactions and surface morphologies. Droplets of Lambda Hind III DNA were applied to surfaces containing 0.2 to 2ng DNA. Results showed that variations in the electric field and Tris Borate EDTA buffer concentration both affected efficiency of separation. Significant differences in separation were found between different membrane types, including polyethersulfone and polyvinylidene fluoride. Better separation was obtained on low binding, small pore size membranes which could retain the DNA molecules on the surface. Further work includes sputter coating and other surface modifications of best candidate membranes to optimize efficiency of separation.

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