Electro-Sep for the the isolation and recovery of size-selected DNA fragments

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ABSTRACT

Background: The isolation and purification of specific DNA fragment sizes remains a technical and logistical hurdle in standard laboratory workflows, but is essential for multiple downstream applications related to Sanger and next-generation sequencing of DNA fragments and libraries. Hence, new technical solutions to solve this bottleneck are required to improve the processing of DNA fragments of specific sizes. Here we describe Electro-Sep, a method and laboratory tool that addresses the technical problem of isolating and purifying DNA fragments of specific size.

ELECTRO-SEP DNA ISOLATION WORKFLOW

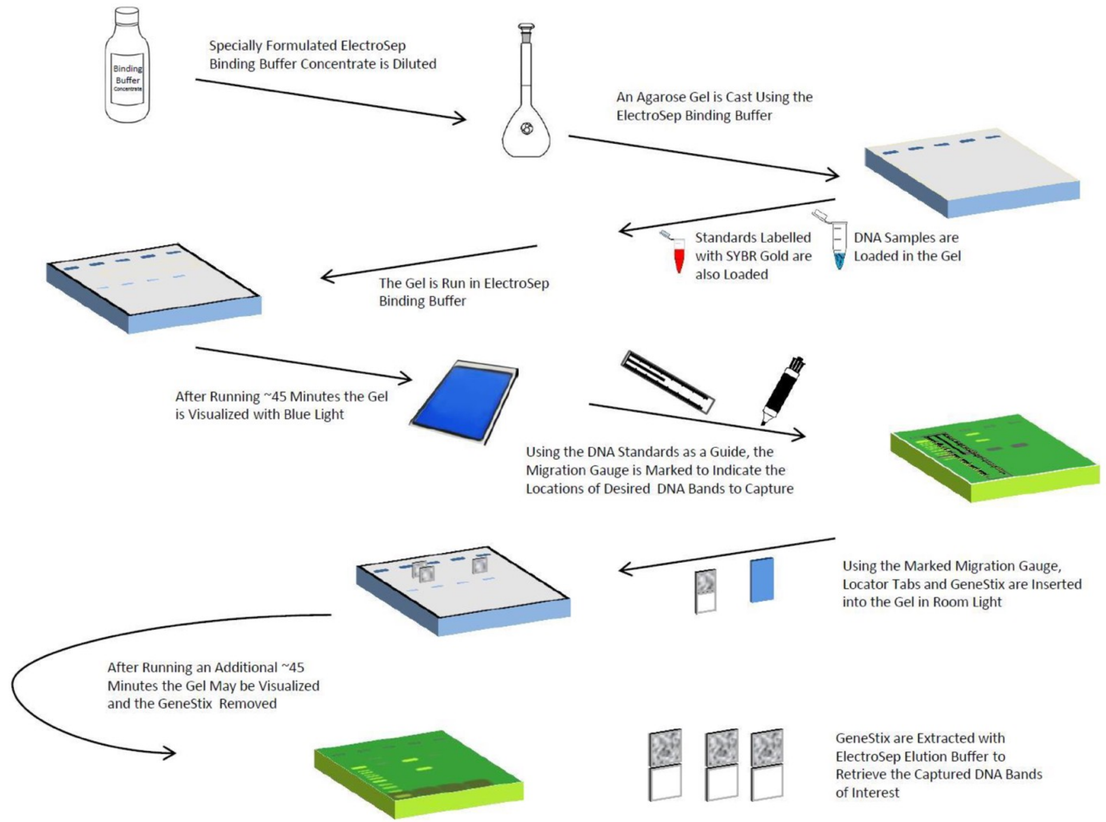

Figure 1. Electro-Sep products are designed to recover size-selected DNA from agarose gel. DNA is first electrophoretically separated by size in an agarose gel made with a special binding buffer, then the size selected DNA is bound to a Gene Stix membrane in the gel. Gene Stix are removed from the gel and the DNA is eluted off into a collection tube using elution buffer.

ELECTRO-SEP ISOLATION AND RECOVERY OF SIZE-SELECTED DNA FRAGMENTS

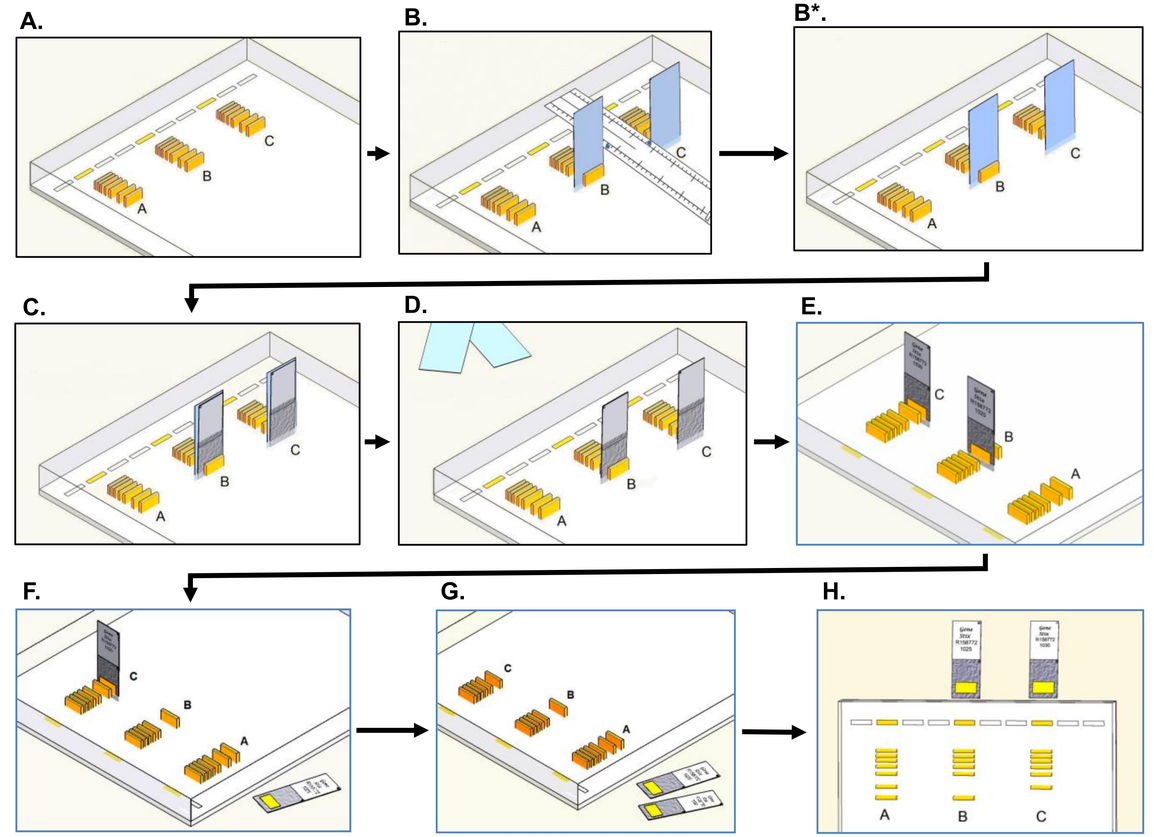

Figure 2. The Electro-Sep Gene Stix method for isolation of size-selected DNA fragments. **A.** Electrophoresis (EP) gel with migrated DNA of variable sizes. **B.** Placement of Locator Tabs using a calibrated DNA Migration Gauge. **C.** Placement of Gene Stix. **D.** Removal of locator tabs. **E.** View of 55 min EP Pattern with 2 Gene Stix in place. **F.** View of 55 min EP pattern with removal of first Gene Stix. **G.** View of 55 min EP pattern with removal of second Gene Stix. **H.** Top down view of 55 min EP after removal of second Gene Stix with size-selected DNA captured on each Gene Stix.

CONCLUSIONS

The Electro-Sep DNA isolation and purification kit provides a simple, yet powerful solution for isolating DNA fragments of variable sizes, resulting in size-selected DNA fragments directly ready for multiple downstream applications.