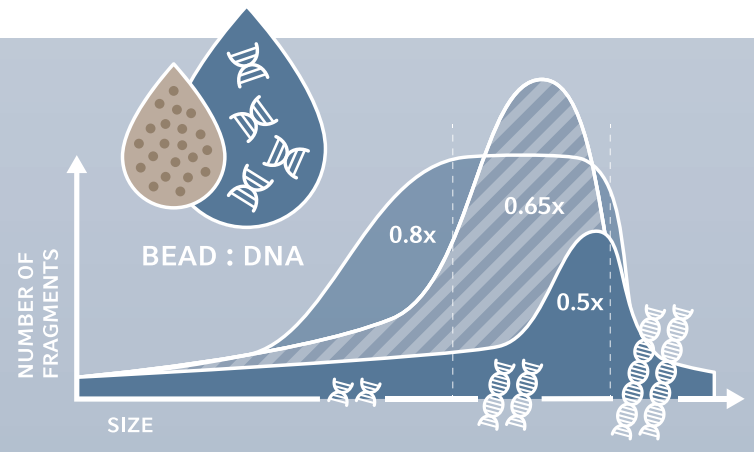
Stay Informed

Handling Magnetic Beads during NGS Library Preparation

The preparation of a high-quality NGS library is a cost-, labor-, and time-intensive process that requires a lot of focus and experience. One of the most critical steps in this process is the handling of the magnetic beads.

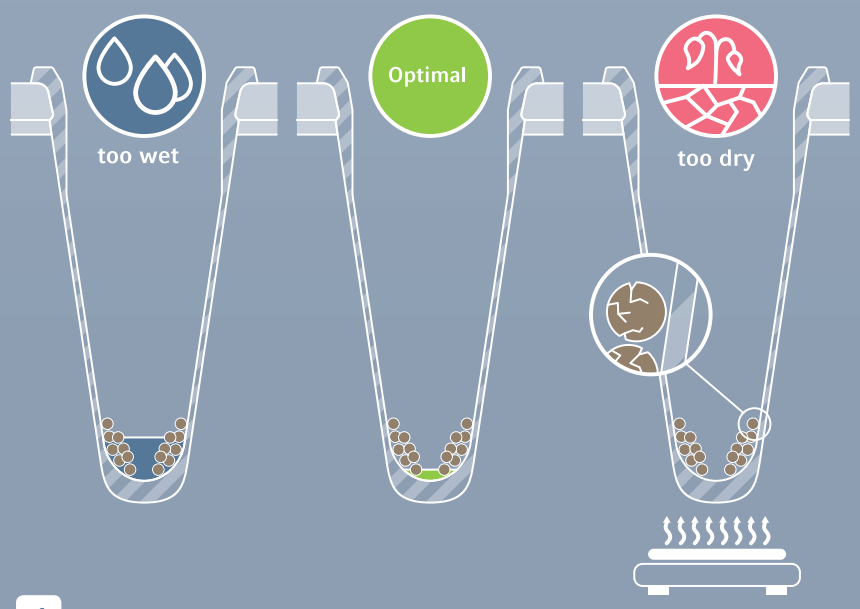


1 Bead-based cleanup

This process appears several times during NGS library preparation and is used to remove impurities as well as buffer and enzymes from previous enzymatic reactions. It can be used to select a specific fragment size and/or to concentrate your sample.

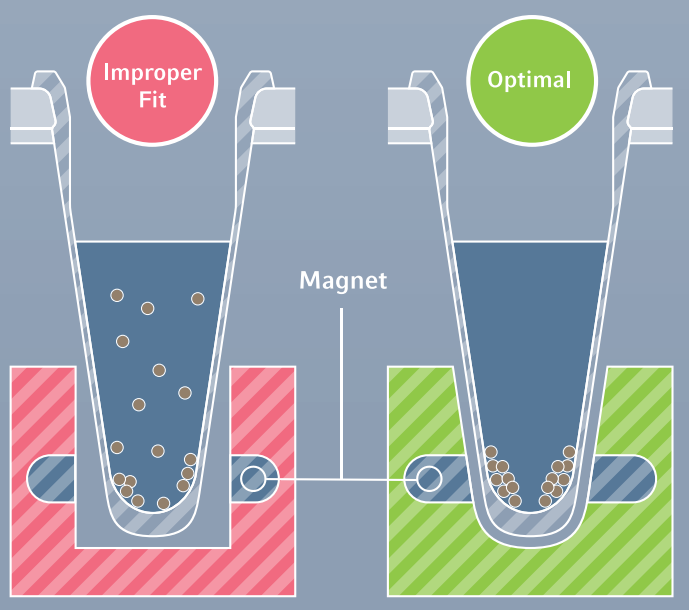
2 Binding

The volume ratio of »bead solution« to »DNA solution« influences the length of DNA fragments that are recovered during a magnetic bead-based cleanup. If you want to get rid of small DNA fragments (e.g. primers or sequencing adapters) you choose a small volume ratio here. For the recovery of a reproducible DNA fragment size, it is crucial to stick meticulously to this volume ratio as well as thoroughly resuspending the magnetic beads.



4 Drying

Before the final elution of the DNA fragments, it is essential to remove as much ethanol as possible from the sample. This is important because ethanol can inhibit enzymatic reactions downstream in the process. Be careful not to over-dry the magnetic beads to avoid problems with bead resuspension and DNA elution.



3 Separation

A proper fit of your consumable and the magnet used during the separation step is vital for a high-quality cleanup. Ensure that you are using a strong magnet that forms a solid bead pellet or bead ring to avoid loss of beads.

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