Dynabeads® M-280 Streptavidin contains 10 mg (6–7 × 10^8) Dynabeads®/mL, in phosphate buffered saline (PBS) pH 7.4, with 0.1% bovine serum albumin (BSA) and 0.02% sodium azide as a preservative. The Washing Solution contains 10 mM Tris-HCl (pH 7.5), 1 mM EDTA, and 2.0 M NaCl. The Binding Solution composition is proprietary.

Downstream manipulations and handling of the bead-bound DNA are easy due to the strength and stability of the biotin/streptavidin interaction and the magnetic properties of the Dynabeads®. The Binding Solution included in the kit enhances immobilization of long (>2 kb) biotinylated DNA fragments to the beads several folds, giving an increased binding efficiency (see Figure 1).

**Downstream Applications**
- Pure template isolation for sequencing procedures/DNA footprinting.
- Chromatin isolation for cell biology applications.
- Intracellular transport studies of mRNA and mRNA processing (by immobilization of whole genes followed by in vitro transcription).
- Other functional applications may include transcription and replication studies or studies on protein-DNA interactions.

**Alternative Biotinylation Procedures**
- End labelling through a fill-in reaction with a biotinylated deoxyribonucleotide using the Klenow fragment of DNA polymerase I.
- End-labelling using PCR with a biotinylated primer.

**Protocol**

**Immobilization Procedure**
1. Thoroughly resuspend the Dynabeads® in the vial (vortex >30 sec or tilt and rotate for 5 min).
2. Transfer 5 µL (50 µg) resuspended beads to a 1.5 mL microcentrifuge tube. Place the tube on the magnet for 2 min.
3. Carefully remove and discard the supernatant while the tube remains on the magnet. Avoid touching the bead pellet with the pipette tip.
4. Remove the tube from the magnet. Add 20 µL Binding Solution along the inside wall of the tube where the beads are collected and gently resuspend by pipetting.

**Note:** the solution may be viscous. Avoid foaming.
5. Place the tube on the magnet for 2 min and remove the supernatant.

---

**Product Use:** For research use only. Not for human or animal therapeutic or diagnostic use.
6. Resuspend the beads in 20 µL Binding Solution.
7. Add 20 µL of a solution containing the biotinylated DNA-fragments to the resuspended beads. Mix carefully to avoid foaming of the solution.
8. Incubate the tube at room temperature for 3 hours on a roller to keep the beads in suspension.
9. Place the tube on the magnet and remove the supernatant as in step 3, above.
10. Wash the Dynabeads®/DNA-complex twice in 40 µL Washing Solution and once in distilled water or Tris-HCl pH 8.0.
11. Resuspend the Dynabeads®/DNA-complex in the appropriate buffer for your downstream application.

**Note:** Some applications might need an additional washing step in the appropriate downstream buffer to “condition” the Dynabeads®/DNA-complex.

### Release Immobilized Biotinylated Molecules

Breaking the biotin-streptavidin bond requires harsh conditions. As an example, 5 min incubation at 65°C or 2 min at 90°C in 10 mM EDTA pH 8.2 with 95% formamide typically dissociates >96% of immobilized biotinylated DNA. Alternatively, the Dynabeads® with immobilized target molecules may be boiled for 5 min in 0.1% SDS.

### Description of Material

The kit contains Dynabeads® M-280 Streptavidin (uniform, superparamagnetic, polymer beads with a monolayer of streptavidin covalently attached to the hydrophobic bead surface), a Binding Solution, and a Washing Solution.

The recombinant streptavidin employed is a protein (approx. 52 kDa) made up of four identical subunits, each containing a high-affinity binding site for biotin (KD = 10–15 M). It has the same biotin binding properties as avidin, but less non-specific binding is observed. The interaction between streptavidin and biotin is formed very rapidly and, once formed, unaffected by wide extremes of pH, temperature, organic solvents, and other denaturing agents. The streptavidin monolayer is covalently coupled to the beads, ensuring negligible leakage. The absence of excess physically-adsorbed streptavidin also ensures low batch-to-batch variations and optimal reproducibility for your application or assay.

### Related Products

<table>
<thead>
<tr>
<th>Product</th>
<th>Cat. no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynabeads® M-280 Streptavidin</td>
<td>11205D</td>
</tr>
<tr>
<td>Dynabeads® M-270 Streptavidin</td>
<td>65305</td>
</tr>
<tr>
<td>Dynabeads® MyOne™ Streptavidin C1</td>
<td>65001</td>
</tr>
<tr>
<td>DynaMag™-2</td>
<td>12321D</td>
</tr>
<tr>
<td>HulaMixer® Sample Mixer</td>
<td>15920D</td>
</tr>
</tbody>
</table>

*REF* on labels is the symbol for catalog number.