**Dynabeads® mRNA DIRECT™ Kit**

The reliable method for isolation of poly A⁺ RNA directly from cells and tissue

- Easy isolation of pure and intact mRNA
- Fast - 15 minute protocol
- Isolates high quality mRNA directly from any crude sample
- Flexible - scales up and down according to your sample size

**The Dynabeads® mRNA DIRECT™ Kit** is designed to isolate highly pure and intact poly A⁺ RNA directly from cells, animal and plant tissues. The isolated mRNA can be used directly in any downstream application such as Northern (fig.2), cDNA synthesis, RT-PCR, solid-phase cDNA library construction (fig. 3), differential display and subtractive hybridisation. The direct isolation is performed in 15 minutes without having to prepare total RNA or perform any other purification steps. As the oligo (dT)₂₅ residues are covalently linked to the Dynabeads, the beads can be reused four times. The kit provides enough reagents for four isolations or up to 20 with reuse of beads from Prod. No. 610.11 or eight isolations or up to 40 with reuse of beads from Prod. No. 610.12 based on 4 x10⁶ cells or 50 mg tissue using 250 µl per isolation. The protocol can also be scaled according to your sample size. Approximately 2 µg mRNA can be isolated per 250 µl of Dynabeads® Oligo (dT)₂₅ depending on tissue and cell type and the expression level of the mRNA. If the Dynabeads are reused for a total of five mRNA isolations, the capacity of 1 ml Dynabeads Oligo (dT)₂₅ is between 30 µg and 60 µg of mRNA.

**Proven Dynabeads technology**

Dynabeads Oligo (dT)₂₅ are uniform, superparamagnetic, polystyrene beads with oligo (dT)₂₅ covalently bound to the surface. The method relies on the base pairing between the poly A⁺ tail of messenger RNA and the oligo (dT) on the Dynabeads. The uniform, inert surface allows for enzymatic reactions to be performed efficiently directly on the bead surface. Enzymatic reactions such as reverse transcription and PCR can be performed directly in the presence of the beads. The oligo (dT) on the bead surface is used both to capture the mRNA, and as a primer for the reverse transcription of first strand cDNA.

**High quality and reproducible results**

The benefit of this simple protocol is that losses caused by sample manipulations are kept to a minimum. This, combined with the RNase inhibitor supplied in the product, assures the sensitive isolation of full-length intact mRNA. More than 200 key reference papers demonstrate the use of Dynabeads Oligo (dT)₂₅ for isolation of mRNA from cells and tissues of a number of different plants and animals. Please contact your local Dynal office or supplier for more information or specific references.

**Improve the quality of your downstream application**

The isolated mRNA is sufficiently concentrated to be used directly in all downstream molecular biology applications. This highly purified and intact mRNA is ideal for Northern analysis. By using mRNA instead of total RNA, cleaner and more sensitive results are obtained. The reduced background and increased intensity and sensitivity of signal give high quality Northern results (fig 2).

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**Fig. 1: Schematic flow-chart of mRNA isolation with the Dynabeads mRNA DIRECT™ Kit**
An additional advantage is that it is not necessary to elute the captured mRNA for construction of a cDNA library. This results in a stable, covalently linked cDNA library (fig. 3) that can be reused for specific applications such as cDNA cloning, RT-PCR, RACE and subtractive hybridisation (1-5).

Dynal recommends the use of the following magnets with the Dynabeads mRNA DIRECT™ Kit: Dynal MPC®-E, Dynal MPC®-E-1 or Dynal MPC®-M.

Dyna beads® mRNA DIRECT™ Micro Kit (Prod. No. 610.21): use this product for isolation from micro-sized samples (up to 2.5 x 10⁶ mononuclear cells, up to 1 x 10⁸ cultured cells or up to 5 mg tissue). This kit offers a fast and simple way to combine poly A⁺ RNA isolation and RT-PCR. The micro scale mRNA isolation protocol can be automated using the Dynal MPC®-auto96 on commercially available robotic workstations.

Dyna beads® mRNA Purification Kit (Prod. No. 610.06): use this product for isolation of mRNA from total RNA.

Dyna beads® Oligo (dT)25 (Prod. No. see below): use this product as an experienced user or if you have specific requirements and protocols.

Dyna beads® mRNA DIRECT™ Buffer Set (Prod. No. 610.31) provides additional buffers for use with the Dynabeads mRNA DIRECT™ Kit and Dynabeads Oligo (dT)25.

### Ordering Information

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<th>Product</th>
<th>Content</th>
<th>Prod.No.</th>
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<tr>
<td>Dynabeads® mRNA DIRECT™ Kit</td>
<td>4 (20) isolations</td>
<td>610.11</td>
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<tr>
<td>Dynabeads® mRNA DIRECT™ Kit</td>
<td>8 (40) isolations</td>
<td>610.12</td>
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<tr>
<td>Dynabeads® mRNA DIRECT™ Buffer Set</td>
<td>Lysis/Binding Buffer, Washing Buffer A, Reconditioning Solution, Storage Buffer Oligo (dT)25</td>
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<tr>
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**References:**