Sera-Mag™ Oligo(dT)-Coated Magnetic Particles

RNA PREPARATION

Sera-Mag™ Oligo(dT)-Coated Magnetic Particles easily isolates and extracts your valuable mRNA from a variety of sources and enables you to perform such applications as RT-PCR cDNA library construction, cDNA microarrays, affinity purification, primer extension and subtractive hybridization.

- Covalently bound oligo(dT)14 prevents leaching from the particle surface
- Very high, specific poly A+ binding capacity ensures maximum extraction of mRNA
- Proprietary surface characteristics provides low non-specific binding and more precise isolation accuracy
- Stability in buffer systems (pH 4 to 11) optimizes performance in most applications
- Excellent colloidal stability significantly slows settling in the absence of a magnetic field
- Encapsulation means no exposed iron and no interference with downstream enzymatic applications
- Tight size distribution ensures even particle separation and excellent lot-to-lot reproducibility

Given the excess of rRNA from cells and the fact that eukaryotic mRNA makes up only 1% to 3% of total RNA, having a purification method that is both versatile and efficient is critical. Studies show that rRNA contamination may be caused by the pairing of rRNA to mRNA. To break this interaction, one must increase stringency by increasing binding temperatures. Sera-Mag™ Oligo(dT) Magnetic Particles remove 90% or more of mRNA from total RNA with just one extraction. This efficiency, coupled with the fact that they are versatile at high temperatures, makes these particles well-suited for this application.

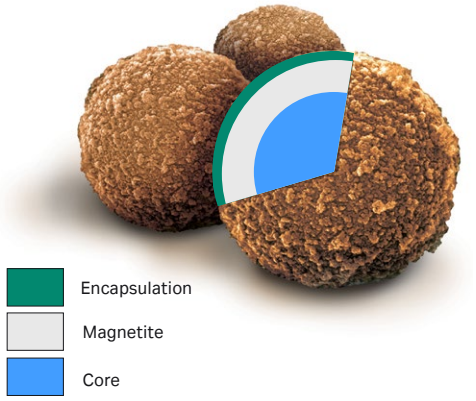


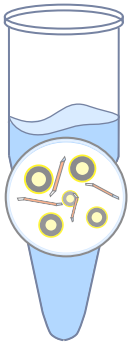
Fig 1. SEM image showing the cauliflower-like surface of the Sera-Mag™ beads which dramatically increases the overall surface area available for binding.

Sera-Mag™ Oligo(dT)-Coated Magnetic Particles (Fig 1) are nominal 1 µm super-paramagnetic particles of uniform size that provide high surface oligo(dT) concentration with extemely high poly A+ binding capacity available to enhance productivity. One milliliter of Sera-Mag™ particles can bind up to 12 µg of mRNA from cells or tissue (depending upon expression levels).

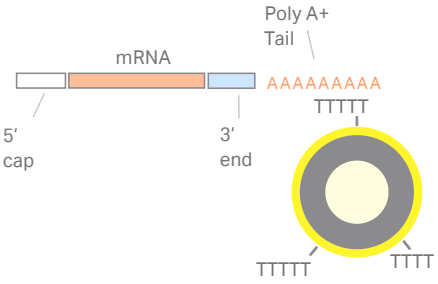
Colloidally stable in the absence of a magnetic field, these particles separate rapidly and completely from suspension when a magnetic field is applied (Fig 2).

Binding of polyadenylated RNA (poly-A+ RNA) to the covalently bound oligo(dT) groups on the surface is easily accomplished using standard hybridization conditions. Additionally, oligo(dT) particles can be used as a universal base particle to attach your unique oligo sequence.

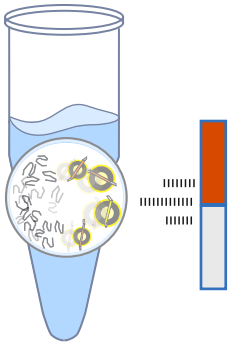
(A) Total RNA sample



(B) Mix Oligo(dT) with RNA sample



(C) Pairing of polyadenylated tail



(D) Apply magnetic field for mRNA separation

Fig 2. Binding of target mRNA occurs through the pairing of the polyadenylated RNA tail found on the 3′ end of mRNA to the covalently bound oligo(dT) groups on the surface of the Sera-Mag™ Oligo(dT) Magnetic Particles. This binding is easily accomplished using standard hybridization conditions.

Specifications

Particle composition	Polystyrene core particle encapsulated in magnetite with surface coated oligo(dT)$_{14}$
Stability	Compatible with most commonly used detergents and biological buffer systems (pH 4 to 11). Stable in guanidine isothiocyanate, dimethyl formamide (DMF), dimethyl sulfoxide (DMSO), and PCR cycling temperatures
Binding capacity	> 300 pmol (dA)$_{30}$ per mg
Particle size	1 µm nominal diameter
Density	1.5 g/cm^3
Concentration	Supplied at approximately 1% solids (10 mg/mL)
Fill volume	1 mL, 5 mL, and 100 mL bottles
Magnetite content	~40%
Additives	0.05% sodium azide
Package includes	Certificate of Analysis and Package Insert
Storage and handling	Unless otherwise stated, refrigerate (2°C to 8°C) product when not in use but do not freeze. Store upright and keep bottle tightly sealed. Mix product with gentle inversion by hand, roller or vortex mixer.

Ordering information

Product	Quantity	Product code
Sera-Mag™ Oligo(dT)-Coated Magnetic Particles	1 mL	38152103011150
Sera-Mag™ Oligo(dT)-Coated Magnetic Particles	5 mL	38152103010150
Sera-Mag™ Oligo(dT)-Coated Magnetic Particles	100 mL	38152103010350

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