

Ready-To-Go™ RT-PCR Beads

REVERSE TRANSCRIPTASE-POLYMERASE CHAIN REACTION (RT-PCR)

Description

Ready-To-Go™ RT-PCR Beads are stable at room temperature and designed for performing single-tube RT-PCR. The reagents are optimized for full-length cDNA synthesis to > 7.5 kb and optimal sensitivity from PCR.

Applications

Ready-To-Go™ RT-PCR Beads can be used with either total RNA or mRNA isolated using various methods (Fig 1). RT-PCR can be applied to a variety of analyses, from detecting RNA in a species to determining relative levels of a specific RNA (Fig 2). Gene-specific PCR primers can be added at the same time as the cDNA synthesis primer to perform one-step RT-PCR, or PCR primers can be added after first-strand synthesis for two-step reactions. The beads are available in either 0.5 or 0.2 mL tubes — enough for 100 or 96 reactions, respectively.

Ready-To-Go™ RT-PCR Beads offer:

- Convenience: All the components needed for RT-PCR are included in a reaction bead. Simply add water, template RNA, and primers.
- Reproducibility: Beads are manufactured under highly controlled conditions, ensuring reproducible results (Fig 3).
- Reduced risk of contamination: Individual predisposed reactions minimize sample handling and pipetting steps, thus reducing the risk of RNA degradation, contamination, and pipetting errors.
- Reliability: Each batch of beads is function-tested to ensure quality and consistency of results.
- Ambient temperature stability: Ready-To-Go™ RT-PCR Beads can be shipped and stored at room temperature.

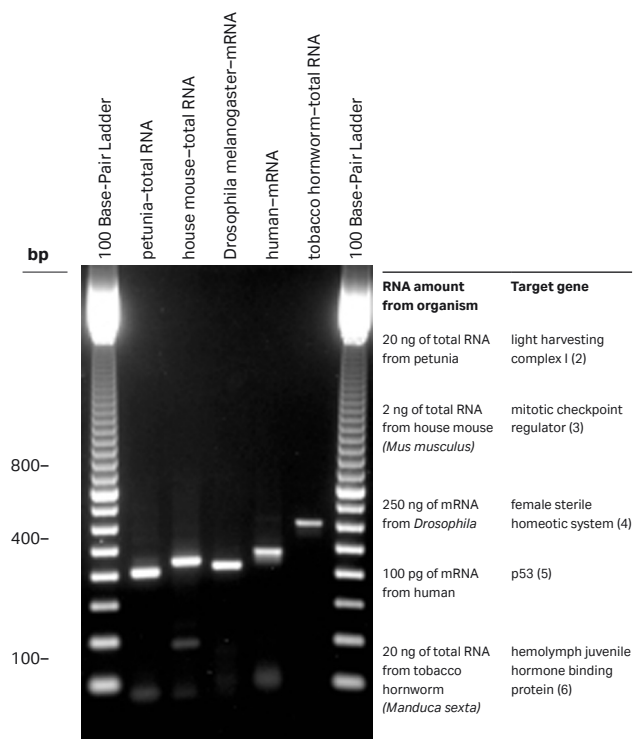


Fig 1. RT-PCR detection of specific mRNAs from a range of sources. Source organisms and RNAs are indicated above the lanes. The target genes for amplification and the amounts of RNA used are indicated in the above table.

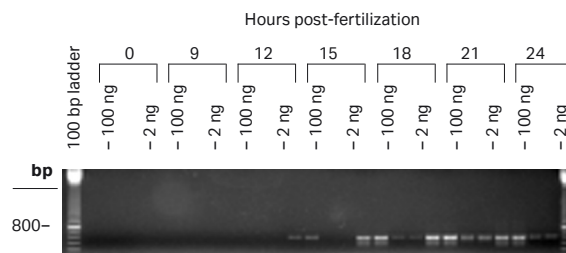


Fig 2. Relative titer of hemolymph juvenile hormone binding protein mRNA (6). Duplicate one-step RT-PCRs were run using 100 ng and 2 ng of total RNA for each time point. Five µg of pd(N)₆ and 10 pmol of the gene-specific primers were used for all reactions. Total RNA was isolated from a pool of 10 to 20 eggs from the black larval mutant of *Manduca sexta*.

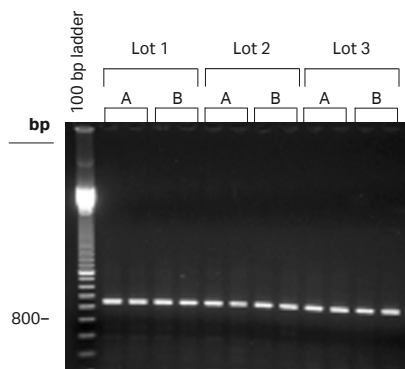


Fig 3. Reproducibility of RT-PCR using Ready-To-Go™ RT-PCR Beads. A 450 bp fragment from the mouse mitotic checkpoint regulator (3) gene was amplified by two researchers (A and B) using three batches of beads.

Components

RT-PCR beads: Room-temperature stable beads containing buffer, dATP, dCTP, dGTP, dTTP, approximately 2.0 units of *Taq* DNA Polymerase, M-MuLV reverse transcriptase, RNase inhibitor, and stabilizers (including RNase/ DNase-Free BSA). When a bead is reconstituted to 50 μ L, the concentration of each dNTP is 200 μ M in 10 mM Tris-HCl (pH 9.0), 60 mM KCl, and 1.5 mM $MgCl_2$.

Control mix beads: A bead containing rabbit globin mRNA (1 ng) and 8 pmol each of 5'-specific globin primer (5'-d[ACACTTCTGGTCCATCCGACTGAG]-3') and 3'-specific globin primer (5'-d[GCCACTCACTCAGACTTTATTCAAA]-3').

pd(N)₆: Lyophilized; 275 mg.

pd(T)₁₂₋₁₈: Lyophilized; 55 mg.

Quality control

Each batch of Ready-To-Go™ RT-PCR Beads is tested to ensure its ability to generate an RT-PCR product using a Control Mix Bead and an RT-PCR bead. In addition, the beads are tested using *Drosophila melanogaster* mRNA (7.6 kb) and primers specific for a 425 bp sequence from the *fsh* gene.

Storage

Store at ambient temperature in pouch with desiccant.

References

1. Chomczynski, P. and Sacchi, N. Single-step method of RNA isolation by acid guanidinium thiocyanate-phenol-chloroform extraction. *Anal. Biochem.* **162**, 156–159 (1987).
2. Stayton M. M. *et al.*, Characterization of a full-length petunia cDNA encoding a polypeptide of the light-harvesting complex associated with photosystem I. *Plant Mol. Biol.* **10**, 127–137 (1987).
3. Starborg M. *et al.*, A novel murine gene encoding a 216-kDa protein is related to a mitotic checkpoint regulator previously identified in *Aspergillus nidulans*. *J. Biol. Chem.* **269**, 24133–24137 (1994).
4. Haynes, S. R. *et al.*, The *Drosophila fsh* locus, a maternal effect homeotic gene, encodes apparent membrane proteins. *Dev. Biol.* **134**, 246–257 (1989).
5. Lamb, P. and Crawford, Characterization of the human p53 gene. L., *Mol. and Cell. Biol.* **6**, 1379–1385 (1986).
6. Goodman, W. G. and Chang, E.S. Juvenile hormone cellular and hemolymph binding protein, in *Comprehensive Insect Physiology, Biochemistry, and Pharmacology: Endocrinology I*. (Kerkut, G. A. and Gilbert, L. I., eds.) pp 491, Pergamon Press, Oxford, England (1985).

Ordering information

Product	Pack size	Product code
Ready-To-Go™ RT-PCR Beads	0.5 mL tubes, 100 reactions	27926601
	0.2 mL tubes, 96 reactions	27926701
	0.2 mL hinged tube with cap, 96 reactions	27925901

Related products

First-strand synthesis	Pack size	Product code
First-Strand cDNA Synthesis Kit	55 reactions	27926101
Ready-To-Go™ You-Prime First-Strand Beads	50 reactions	27926401

PCR	Pack size	Product code
PuReTaq™ Ready-To-Go™ PCR Beads	Multiwell plate, 96 reactions	27955701
	Multiwell plate, 5 × 96 reactions	27955702
	0.5 mL tubes, 100 reactions	27955801
	0.2 mL hinged tube with cap, 96 reactions	27955901
Taq DNA Polymerase (cloned)	10 × 250 units	27079806
	250 units	27079804
Amersham™ Hot Start Master Kit	100 reactions	25150001
Hot Start Mix Ready-To-Go™	0.2 mL, 96 reactions	28900653
	0.5 mL, 100 reactions	28900646
	0.2 mL, 480 reactions	28900654

Nucleotides	Pack size	Product code
Amersham™ dNTP Set (100 mM each A, C, G, T)	4 × 25 µmol	28406551
	4 × 100 µmol	28406552
Amersham™ 2'-Deoxyuridine 5'-Triphosphate Solution, 100 mM	25 µmol	28406541
	100 µmol	28406542
Amersham™ 2'-Deoxycytidine 5'-Triphosphate Solution, 100 mM	100 µmol	28406512

Nucleotides (cont.)	Pack size	Product code
Amersham™ PCR Nucleotide Mix dNTP Set (25 mM each A, C, G, T)	500 µmol	28406560
Amersham™ PCR Nucleotide Mix dNTP Set (10 mM each A, C, G, T)	500 µmol	28406564
Amersham™ dNTP Set (100 mM each A, C, G, T)	4 × 10 µmol	28406558
Amersham™ 2'-Deoxyadenosine 5'-Triphosphate Solution, 100 mM	25 µmol	28406501
Amersham™ 2'-Deoxythymidine 5'-Triphosphate Solution, 100 mM	100 µmol	28406532
Amersham™ DNA Polymerization Mix dNTP Set (20 mM each A, C, G, T)	100 µmol	28406557
Amersham™ dNTP Set (100 mM each A, C, G, T)	4 × 500 µmol	28406553
Amersham™ 2'-Deoxyguanosine 5'-Triphosphate Solution, 100 mM	100 µmol	28406522
Amersham™ 2'-Deoxyadenosine 5'-Triphosphate Solution, 100 mM	100 µmol	28406502

mRNA and total RNA purification	Pack size	Product code
Amersham™ RNeasy Mini Kit	10 preps	25050087
	20 preps	25050070
	50 preps	25050071
	250 preps	25050072
RNeasy 96 Kit	4 × 96 preps	25050075

DNA purification	Pack size	Product code
ExoProStar™ enzymatic PCR clean-up technology	20 reactions	US78220
	100 reactions	US78210
	500 reactions	US78211
	2000 reactions	US78212
	5000 reactions	US78225
GFX™ PCR DNA and Gel Band Purification Kit	10 purifications	28903466
	100 purifications	28903470
	250 purifications	28903471
MicroSpin™ S-400 HR Columns	50 columns	27514001

[cytiva.com/RTG-PCRbeads](https://www.cytiva.com/RTG-PCRbeads)

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