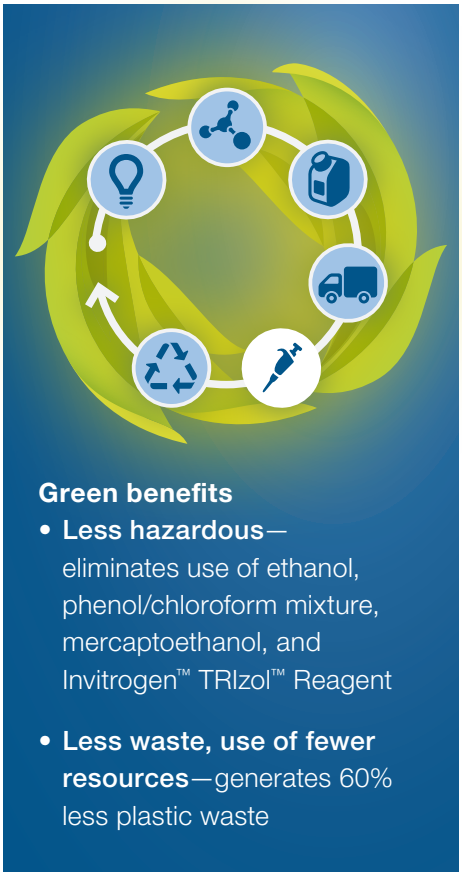
TaqMan miRNA ABC Purification Kit



Green benefits

- **Less hazardous**—eliminates use of ethanol, phenol/chloroform mixture, mercaptoethanol, and Invitrogen™ TRIzol™ Reagent
- **Less waste, use of fewer resources**—generates 60% less plastic waste

Introduction

We are committed to designing our products with the environment in mind—it's part of how we enable our customers to make the world healthier, cleaner, and safer. This fact sheet provides the rationale behind the environmental claim that use of the Applied Biosystems™ TaqMan® miRNA ABC Purification Kit results in reduced exposure to hazardous materials and generates less waste than comparable products. The TaqMan miRNA ABC Purification Kit (anti-miRNA bead capture) eliminates the need to use hazardous solvents and requires fewer plastic consumables from sample preparation to final analysis.

Product description

The TaqMan miRNA ABC Purification Kit contains buffers and magnetic beads for single-tube isolation of specific miRNA from small inputs of all human sample types, including blood, serum, plasma, formalin-fixed, paraffin-embedded (FFPE) samples, solid tissues, cultured cells, and saliva, typically in 75 minutes.

Green features

Less hazardous

Traditional RNA extraction protocols require clean-up with hazardous reagents such as:

- **Ethanol**—highly flammable, causes systemic toxicity
- **Phenol/chloroform**—toxic through inhalation, ingestion, or absorption through the skin; corrosive; phenol is a suspected carcinogen
- **Mercaptoethanol**—may be fatal when absorbed through the skin
- **TRIzol Reagent**—toxic, corrosive, and a suspected mutagen

Using the TaqMan miRNA ABC Purification Kit eliminates the need to use any of the hazardous reagents mentioned above.

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Less waste, use of fewer resources
Traditional RNA extraction methodologies involve multiple steps for RNA extraction and clean-up—requiring the use of multiple disposable tubes, vials, pipettes, and pipette tips. The TaqMan miRNA ABC Purification Kit requires fewer plastic consumables than traditional technologies and generates less hazardous waste. A comparison to a traditional RNA extraction methodology showed that the traditional methodology generated 139.6 g of plastic waste (tubes, pipettes, and pipette tips) vs. 55.7 g from the TaqMan miRNA ABC Purification Kit (Table 1). This amounts to a 60% reduction in plastic waste.

Table 1. Comparison of plastic waste generated using a traditional RNA extraction method and the TaqMan miRNA ABC Purification Kit.

Traditional blood RNA extraction method					TaqMan miRNA ABC Purification Kit				
Step in procedure	Plastic item	No. used	Piece weight (g)	Total mass (g)	Step in procedure	Plastic item	No. used	Piece weight (g)	Total mass (g)
Add 100% ethanol to RPE cells	50 mL pipette	1	20.08	20.08	Add lysis buffer	10 mL pipette	1	9.1	9.1
	1 mL tip	1	0.9	0.9	Add 100% ethanol	10 mL pipette	1	9.1	9.1
Use tube for hazardous waste	50 mL tube	1	12.5	12.5	Add lysis buffer or ABC buffer	0.2 mL tip	10	0.28	2.8
Add 350 µL RLT buffer	1 mL tip	10	0.85	8.5	Add beads to LoBind Tube and remove supernatant	0.2 mL tip	10	0.28	2.8
Add 70% ethanol	1 mL tip	10	0.85	8.5	Use hybridization tube	1.5 mL tube	10	1.0	10.0
Add 500 µL RPE cells	1 mL tip	10	0.85	8.5	Collect hybridization waste (nonhazardous)	150 µL	10	0.15	1.5
Add 2nd 500 µL RPE aliquot	1 mL tip	10	0.85	8.5	Add wash buffer 1 and remove	0.2 mL tip	10	0.28	2.8
Add sample to tubes	1.5 mL conical tube	10	1.0	10.0	Collect wash buffer 1 waste (nonhazardous)	0.1 mL	10	0.1	1.0
Add water	0.2 mL tip	10	0.28	2.8	Add wash buffer 2 and remove	0.2 mL tip	10	0.28	2.8
Add 2nd water wash	0.2 mL tip	10	0.28	2.8	Collect wash buffer 2 waste (nonhazardous)	0.1 mL	10	0.1	1.0
Remove gDNA	Column, tube	10	1.65	16.5	Add elution buffer	0.2 mL tip	10	0.28	2.8
Use spin columns	Column, tube	10	2.93	29.3	Collect miRNA eluate	1.5 mL conical tube	10	1.0	10.0
Store in collection tube	2 mL tube	10	1.0	10.0					
Total				**139.6**		**Total**			**55.7**
						Waste reduction			**60%**

Find out more at **thermofisher.com/taqmanmirna**

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