TaqMan miRNA ABC Purification Kit

Comprison to traditional purification methods

Green benefits

- Less hazardous: No phenol:chloroform, mercaptoethanol, or Invitrogen™ Ambion™ TRIzol™ Reagent needed
- Less waste: 60% less waste generated during purification

Introduction

Thermo Fisher Scientific is 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 claims that use of this product results in reduced exposure to hazardous material and generates less waste than comparable products. Using the Applied Biosystems™ TaqMan™ miRNA ABC Purification Kit (anti-miRNA bead capture) eliminates the need for hazardous solvents and requires far 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 microRNA (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 in 75 minutes.

Green features

Less hazardous

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

- Phenol:Chloroform Solutions—toxic through inhalation, ingestion, and when absorbed through the skin; corrosive; suspected carcinogen
- Mercaptoethanol—may be fatal when absorbed through the skin
- TRIzol products—toxic, corrosive, suspected mutagen

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

Please review the MSDS for the TaqMan miRNA ABC Purification Kit at **thermofisher.com/msds**

Less waste

Traditional RNA extraction methodologies require 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, reducing costs associates with lab plastics and waste disposal.

A comparison to traditional RNA extraction methodology showed that the traditional methodology generated 139.54 g of plastic waste (tubes, pipettes, pipette tips) as compared to 55.74 g from the TaqMan miRNA ABC Purification Kit (Table 1).

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Table 1. Comparison of the amount of waste generated using traditional RNA extraction methods compared to TaqMan miRNA ABC Purification Kit.

Traditional blood RNA extraction methods				
Step in procedure	Plastic description	# used	Piece weight (g)	Total mass (g)
Add 100% ethanol to RPE	50 ml pipette	1	20.75	20.75
Add 1 ml EL	1 ml tip	1	0.85	0.85
Tube for hazardous waste	50 ml tube	1	12.54	12.54
Add 350 µl RLT	1 ml tip	10	0.85	8.5
Add 70% ethanol	1 ml tip	10	0.85	8.5
Add 500 µl RPE	1 ml tip	10	0.85	8.5
Add 2nd 500 µl RPE aliquot	1 ml	10	0.85	8.5
Sample tubes	1.5 ml conical tube	10	1.0	10.0
Add water	0.2 ml tip	10	0.28	2.8
Add 2nd water wash	0.2 ml tip	10	0.28	2.8
gDNA eliminator	Column, tube	10	1.65	16.5
Spin Columns	Column, tube	10	2.93	29.3
Collection tube	2 ml tube	10	1.0	10.0
Total used				139.54

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TaqMan miRNA ABC Purification Kit				
Step in procedure	Plastic description	# used	Piece weight (g)	Total mass (g)
Add Lysis buffer	10 ml pipette	1	9.12	9.12
Add 100% ethanol	10 ml pipette	1	9.12	9.12
Add Lysis buffer/ ABC buffer	0.2 ml tip	10	0.28	2.8
Add beads to LoBind Tube and remove supernatant	0.2 ml tip	10	0.28	2.8
Hybridization tube	1.5 ml tube	10	1.0	10.0
Hybridization waste (nonhazardous)	150 µL	10	0.15	1.5
Add wash buffer 1 & remove	0.2 ml tip	10	0.28	2.8
Wash buffer 1 waste (nonhazardous)	0.1 ml	10	0.1	1.0
Add wash buffer 2 & remove	0.2 ml tip	10	0.28	2.8
Wash buffer 2 waste (nonhazardous)	0.1 ml	10	0.1	1.0
Add elution buffer	0.2 ml tip	10	0.28	2.8
Tube for miRNA eluate	1.5 ml conical tube	10	1	10.0
Total used				55.74
Waste reduction				60%

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

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