

ExoComplete™

A high-throughput system from extracellular vesicles (EVs) to mRNA capture

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Key Benefits

- **Easy to use**
 - Seamless process from EVs to mRNA isolation
 - Minimal liquid transfer, fewer centrifuge steps
 - Less hands-on time
- **High throughput**
 - Up to 96 samples can be processed at once
- **Excellent reproducibility**
 - Outstanding intra- and inter-assay precision

Extracellular vesicles (EVs), once thought to be merely waste excreted from cells, are proving to be viable biomarkers and offering new insight into cell-to-cell communication in both normal and disease states. EVs are released from cells and found in most human body fluids, including blood, urine, cerebrospinal fluid, and saliva. They encapsulate intracellular proteins, mRNA, and microRNA that can be used to help better understand the functions of cells at the molecular level.

Conventional methods of EV isolation, namely ultracentrifugation, tended to produce clean samples but involved a tedious process not amenable to parallel processing of large sample numbers. Likewise, conventional mRNA purification methods require organic solvent or lengthy washing steps which can introduce error and decrease yield. The ExoComplete™ was designed to overcome these issues. The ExoComplete™ system isolates EVs from biological samples such as plasma in 96-well or 8-well strip filter format and from larger-volume samples such as urine in a novel single collection tube format. A proprietary filter material enables fast filtration of biological samples without clogging and reproducible isolation of EVs without the use of conventional ultracentrifugation. After lysing the captured EVs, mRNA can be isolated directly through hybridization with single stranded oligo (dT) immobilized in the wells of mRNA Capture plate or mRNA Capture strip. The advantage of this method over conventional magnetic beads and spin column methods is a seamless process and better consistency between well-to-well and assay-to-assay runs.

ExoComplete™ Configurations



ExoComplete™ Plate #88011

For smaller volume of biological samples such as plasma or serum

Kit includes:

- (1) EV Capture Plate (400 µL)*
- (1) mRNA Capture Plate
- Reagents and consumables

* EV Capture Plate (800 µL) available
ExoComplete™ Plate 800 #88012



ExoComplete™ Strip 800 #88013

For smaller volume of biological samples such as plasma or serum

Kit includes:

- (3) EV Capture 8-Well Strips (800 µL)
- (3) mRNA Capture 8-Well Strips
- Reagents and consumables



ExoComplete™ Tube + Plate #88014

For larger volume of biological samples such as urine, cell culture or plasma

Kit includes:

- (24) EV Capture Tube (12.5 mL)**
- (1) mRNA Capture Plate
- Reagents and consumables

** Additional tubes sold separately
ExoComplete™ EV Capture Tubes #88016



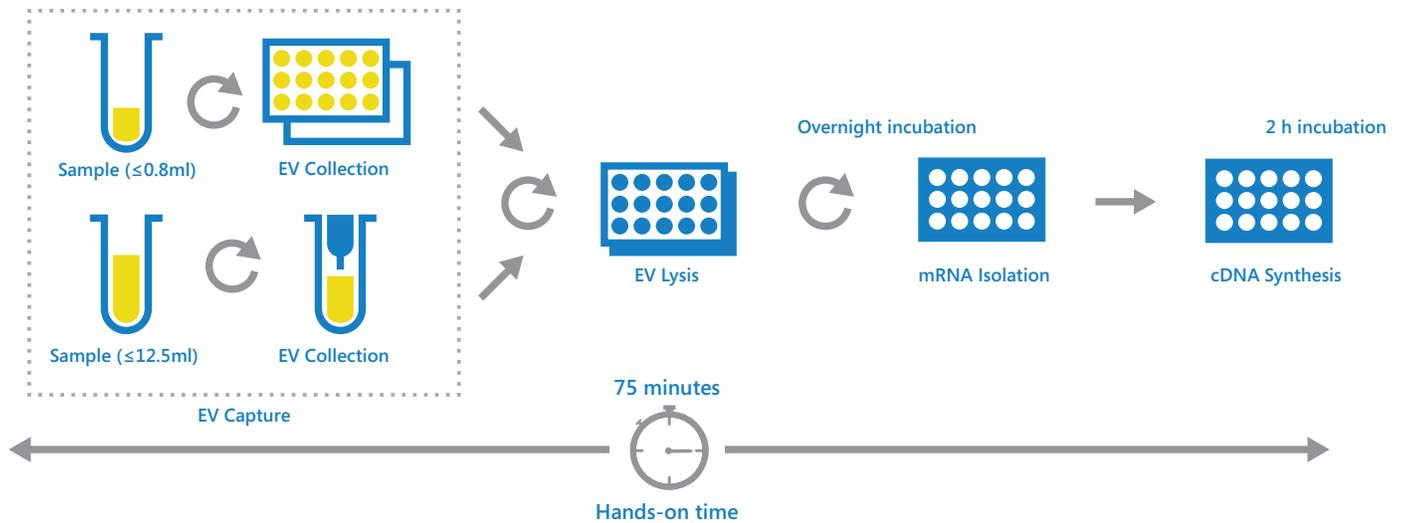
ExoComplete™ Tube + Strip #88015

For larger volume of biological samples such as urine, cell culture or plasma

Kit includes:

- (24) EV Capture Tube (12.5 mL)
- (3) mRNA Capture 8-Well Strips
- Reagents and consumables

ExoComplete™ Protocol Overview



Product Description

Isolated EVs can be lysed directly on the filter material by adding lysis buffer. Guanidine thiocyanate and other components of the buffer immediately and effectively inactivate ribonucleases to ensure isolation of intact mRNA. After transferring the EV lysates to the mRNA Capture Plate, mRNA can be isolated through hybridization with single-strand oligo (dT) immobilized in the wells of the mRNA Capture Plate. At this point, mRNA can either be removed for downstream applications or cDNA can be synthesized directly in the well, using Reverse Transcription Reagent (Cat # 88017), which was optimized especially for the plate.

Published Research Applications

Plasma EVs in Post-Transplantation Bone Marrow Assessment

Using the ExoComplete™ Plate, researchers were able to identify potentially new biomarkers for the assessment of bone marrow condition. EV mRNA was isolated from patients before and after undergoing hematopoietic stem cell transplantation. Hematopoietic precursor cell-derived mRNAs in plasma exosomes and microvesicles were measured.²

Urine Exosome mRNA in Diabetic Kidney Disease (DKD)

Using the ExoComplete™ Tube, researchers were able to identify several potential DKD biomarkers. EV mRNA was isolated from healthy and DKD patients using the kit and prepared for NGS. Differential gene expression analysis identified 27 mRNA that were up-regulated in DKD patients. RT-qPCR validated 6 of 27 potential biomarkers.³

Downstream applications

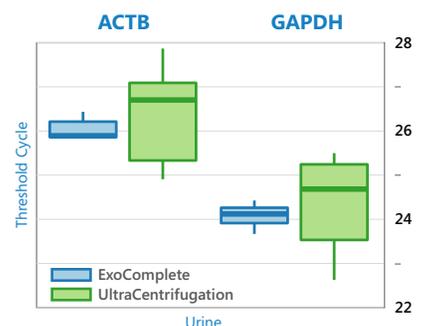
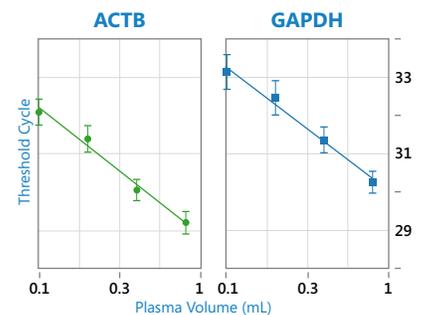
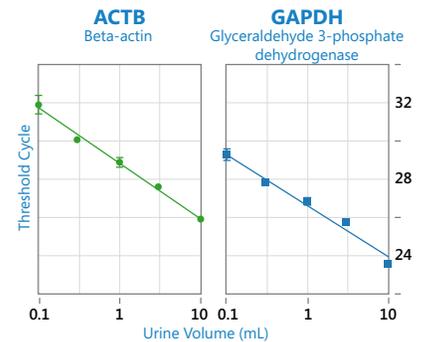
- Real-time quantitative RT-PCR (qPCR)
- Next-generation sequencing
- Single- and double-stranded cDNA synthesis

References

1. Murakami T, Oakes M, Ogura M, Tovar V, Yamamoto C, Mitsuhashi M. Development of Glomerulus-, Tubule-, and Collecting Duct-Specific mRNA Assay in Human Urinary Exosomes and Microvesicles. *PLoS One* 2014 Oct 2;9(9):e109074.
2. Aoki J et al. Posttransplantation Bone Marrow Assessment by Quantifying Hematopoietic Cell-Derived mRNAs in Plasma Exosomes/Microvesicles. *Clinical Chemistry* 60:4, 675-682 (2014).
3. Yamamoto, Cindy et al. Urine exosome mRNA in Diabetic Kidney Disease. ISEV 2015 Poster Presentation. April 2015.

Comparative data

Linearity and intra-assay reproducibility are shown for healthy human plasma and urine EV mRNA isolated from ExoComplete. Comparative analyses confirmed that the ExoComplete method provided comparable or even superior results to the standard ultracentrifugation method in terms of mRNA assay sensitivity, intra-assay reproducibility, and ease of use.¹



Ordering Information

Part No.	Product	EV capture well	mRNA capture well	Max sample vol./well
88011	Exocomplete™ Plate	96	96	400 µL
88012	Exocomplete™ Plate 800	96	96	800 µL
88013	Exocomplete™ Strip 800	24	24	800 µL
88014	Exocomplete™ Tube + Plate	24*	96	12.5 mL
88015	Exocomplete™ Tube + Strip	24	24	12.5 mL

*96 samples with additional purchases of the EV Capture Tube (Part No. 88016)

Components and reagents

Part No.	Product	EV capture well	Max sample vol./well
88016	EV Capture Tube	24	12.5 mL

Part No.	Product	RT reaction	Sample vol./well
88017	Reverse Transcription Reagent	48	30 µL

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OR CALL

800 233 6278 (U.S. only)

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