

EXODUS

Tear Exosome Isolation Solution

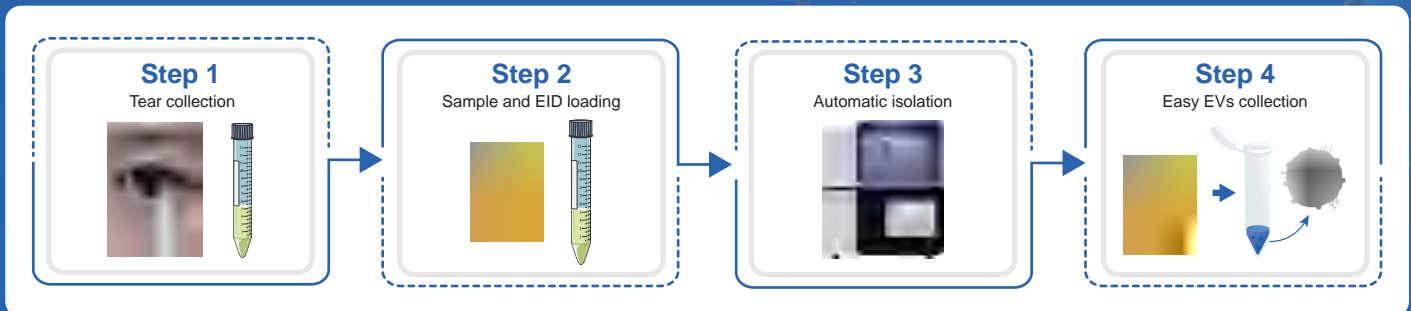
EXODUS is a novel isolation system that offers simple and precise isolation of tear EVs. The EVs isolated by EXODUS can be applied to diagnosing dry eye, diabetic retinopathy, uveal melanoma, or other eye-related diseases.



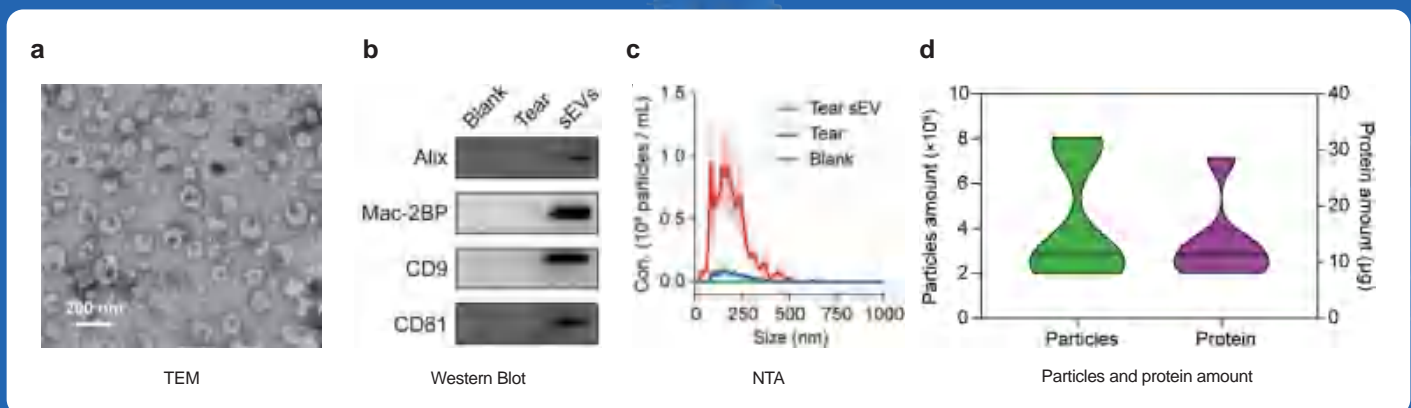
Key features

- Rapid isolation:** <10 mins
- Tear sample volume:** $\geq 10 \mu\text{L}$
- High purity, high yield:** Purity >99%, Yield >90%
- Easy to use:** Isolate tear EVs automatically

Isolation procedure



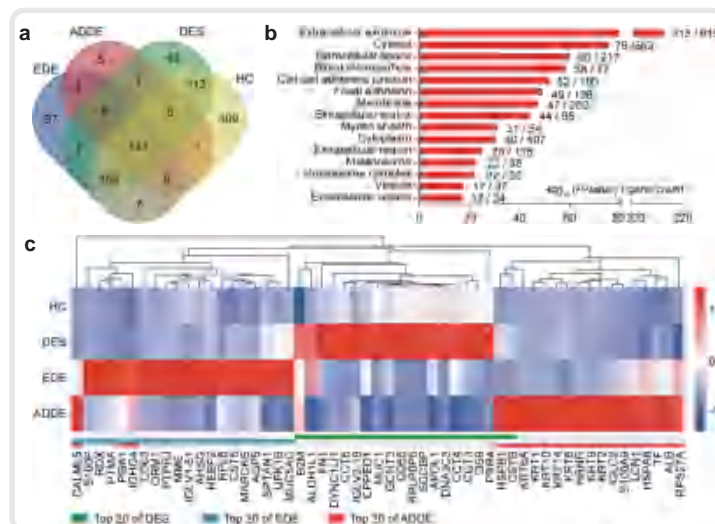
Characterization results



Application cases of EXODUS

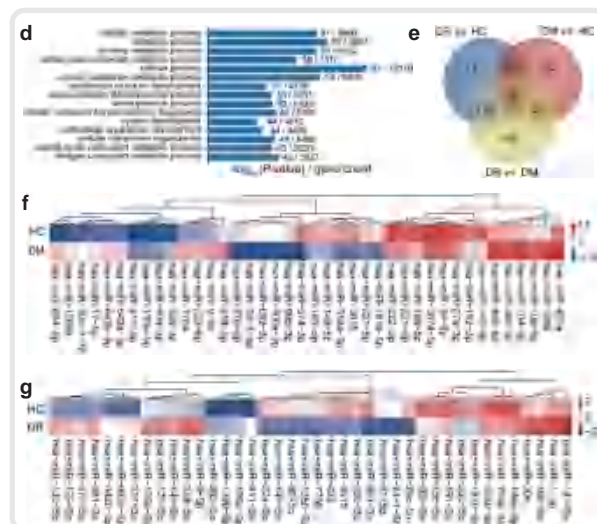
① Tear EVs isolated by EXODUS for diagnosis of dry eye and diabetic retinopathy

■ Proteomic profiling of tear EVs for dry eye classification.



- (a) Venn diagram of proteins identified in EDE, ADDE, DES, and HC groups.
 (b) Cellular components of 904 proteins from all groups.
 (c) Heat map showing top 20 upregulated proteins (vs. healthy control) in each dry eye group.
 (d) The enriched biological processes from the identified exosomal miRNAs.

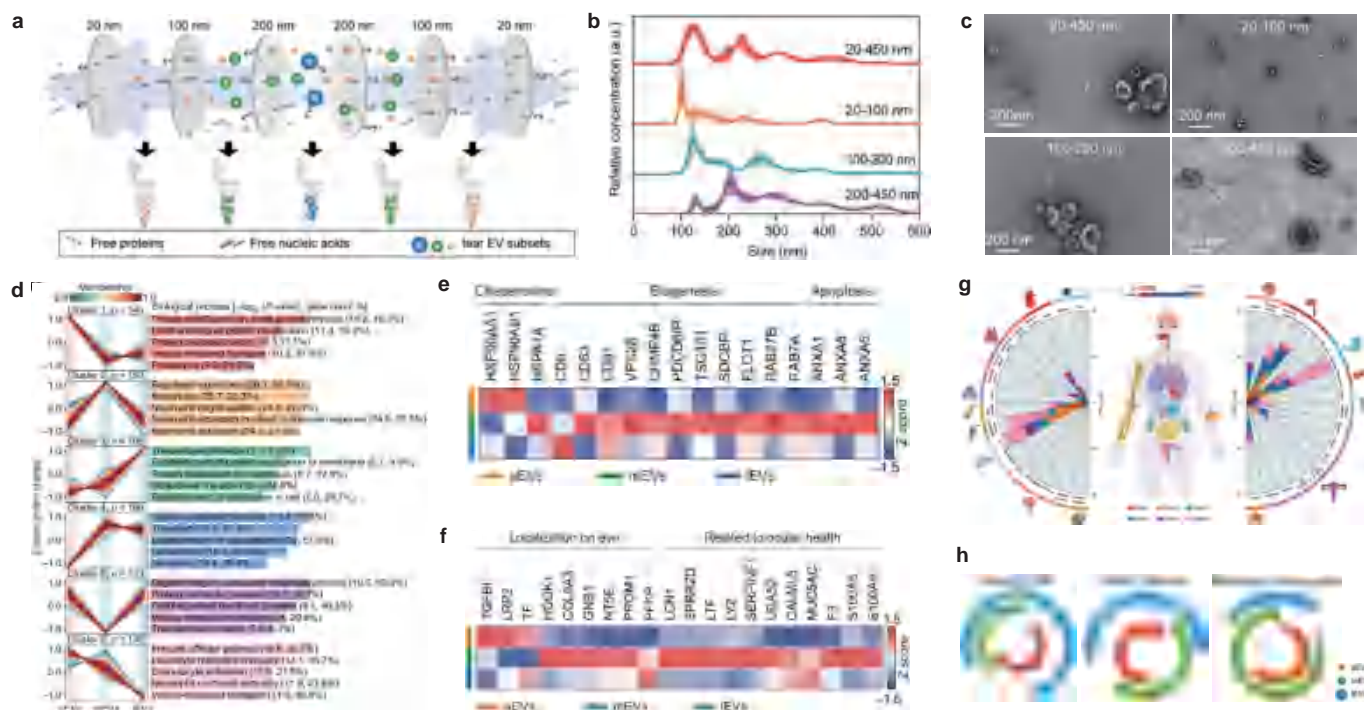
■ miRNA profiling of tear EVs for diabetes mellitus and diabetic retinopathy



- (e) Venn diagram of the DEGs profile when compared with every two groups.
 (f) Heat map showing the top 20 upregulated and downregulated DEGs for DM compared to HC.
 (g) The comparison of the exosomal miRNA profiles between DR and HC.

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② Isolation of tear EV subtypes by EXODUS for proteomic analysis



- (a) EXODUS-sub isolation principle.
 (b) Nanoparticle tracking analysis indicating the size distribution of the tear EV subpopulations (n=6).
 (c) Typical transmission electron microscopy images of different-size EV subtypes.
 (d) Cluster patterns (left) and top 5 biological processes (right) of cluster proteins.
 (e) Heatmap of the relative abundance of identified EV proteins among subgroups.
 (f) Heatmap of the relative abundance of the visual system-related proteins in tear EV subtypes.
 (g) Detection of tissue-specific proteins among clusters of differentially abundant proteins.
 (h) Distributions of the proteins among the different EV subtypes, focusing on those specific to eye-related neuronal cells, müller glial cells, and blood and immune cells.

Sci Adv. 2023, 9(11):1137-1144.