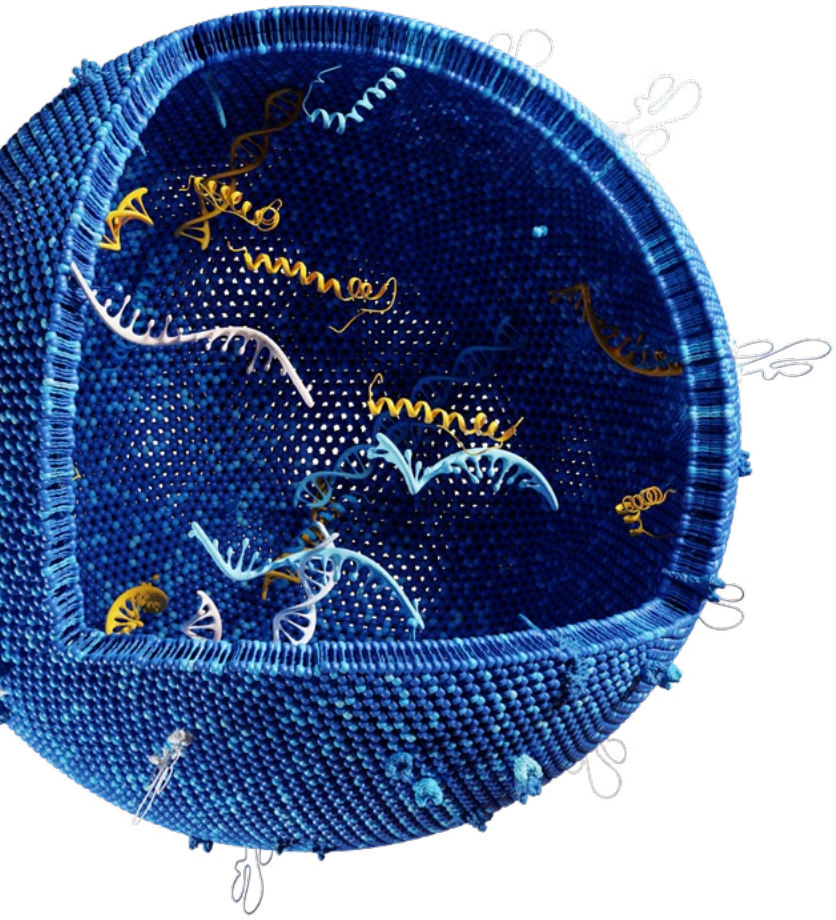
bio-techne® | R&D SYSTEMS™

Validated Antibodies for Extracellular Vesicles Research

Isolate. Identify. Characterize.

Extracellular vesicles (EVs) are revolutionizing biomarker discovery, diagnostics and therapeutics. We provide a growing portfolio of antibodies validated on a wide range of applications for EV research from advancing biogenesis to health and disease. Confidently isolate, identify and characterize EV preparations from biological fluids and cell culture media with validated antibodies designed for unmatched specificity and reproducibility.



Why Choose R&D Systems™ Antibodies for EV Research:

Enhanced antibody validation

Leverage 40+ years of antibody design and development expertise

EV-relevant applications

Stringent application-focused antibody validation process designed for high performance, including ELISA, Simple Western™ Technology, Western Blot, ICC/IF and Flow

EV-recommended markers

For accurate and reproducible EV identification and purity assessment, and deeper characterization and functional studies

Largest commercial portfolio

Over 130,000 primary antibodies covering key EV, tissue, disease and cell-specific markers

Flexible custom solutions

Including conjugation, engineering, formulation and bulk options

Target the Markers That Matter

According to Minimal Information for Studies of Extracellular Vesicles (MISEV) guidelines from the International Society of Extracellular Vesicles (ISEV), the recommended markers for EV characterization are divided into both a minimal and extended set of markers. Minimal markers ensure preparations contains EVs and not cellular debris or protein aggregates, whilst extended markers help define EV subtypes, origin, and biological roles.

R&D Systems provides a broad selection of antibodies spanning key MISEV categories (Table 1), empowering researchers to achieve everything from core characterization to in-depth functional analysis of EVs. Our solutions are designed for versatility—supporting EV studies across diverse applications, research areas, and sample types.

TABLE 1.

Selected MISEV Guideline Markers for EV Identification and Characterization. R&D Systems Validated Antibody Applications.

Marker(s)	Type	Purpose	Validated Antibody Applications						
			IC	WB	SW	ELISA	ICC/IF/IHC	Flow	IEM
CD9, CD63, CD81, CD82	Tetraspanin transmembrane proteins	Proves lipid bilayer presence	☑	☑	☑	☑	☑	☑	☑
Alix, TSG101	Cytosolic proteins (ESCRT-pathway)	Proves internal cytosolic cargo	☑	☑	☑	☑	☑	☑	☑
Flotillin-1	Lipid anchored scaffolding protein	Proves membrane associated cargo		☑	☑	☑	☑		
HSP60, HSP70, HSP90	Chaperone protein. Intracellular exosome cargo protein	Proves membrane associated cargo		☑	☑	☑	☑	☑	
Calnexin, GM130	Non EV organelle	Negative control /purity assessment		☑	☑		☑	☑	
EpCAM	Transmembrane glycoprotein	Epithelial/ Tumor marker	☑	☑	☑	☑	☑	☑	
Galectin 1	β-galactoside binding protein	Disease/Tumor marker	☑	☑	☑	☑	☑	☑	

IC: Immunocapture, WB: Western Blot, SW: Simple Western, ICC/IF/IHC: Immunocytochemistry, Immunofluorescence, Immunohistochemistry, Flow: Flow Cytometry, IEM: Immuno Electron Microscopy

Explore EV Marker Antibodies

Scan the QR Code or visit:

bio-techne.com/research-areas/exosomes

Advance Your EV Protein Analysis with Simple Western Systems

Simple Western automated capillary systems deliver precise protein expression analysis using low sample volumes, even from complex biological samples like EVs.

To ensure reproducibility and reliability, R&D Systems applies rigorous, platform-specific antibody validation for Simple Western assays. Our validated portfolio includes:

- Canonical EV markers (Figure 1 and Table 2)
- Disease-associated biomarkers (Figure 2 and Table 3)

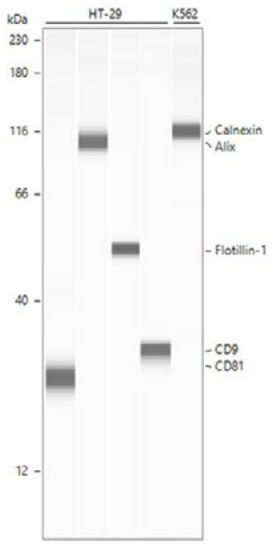


Figure 1.Simple Western lane-view analysis of canonical EV markers. Lysates of exosome standards were prepared according to protocol, and canonical EV targets were detected using antibodies for EVs listed in Table 2. Calnexin, Alix, and Flotillin-1 experiments were conducted under reducing conditions, while CD9 and CD81 were run under non-reducing conditions, all using the 12-230kDa separation system.

TABLE 2.

General EV markers and corresponding exosome standards evaluated on Simple Western.

Primary Antibody	Catalog	Exosome Standards Tested
Alix	NBP1-49701	HT-29 (NBP3-11685)
Calnexin	NB100-1974	K562 (NBP2-49864)
CD9	MAB11464	HT-29 (NBP3-11685)
CD81	MAB46152	HT-29 (NBP3-11685)
Flotilin-1	NBP1-79022	HT-29 (NBP3-11685)
TSG101	NBP2-67884	HT-29 (NBP3-11685)

Explore Simple Western for EV Research

Scan the QR Code or visit:
bio-techne.com/resources/instrument-applications/extracellular-vesicle-protein-analysis-with-jess

FIGURE 2.

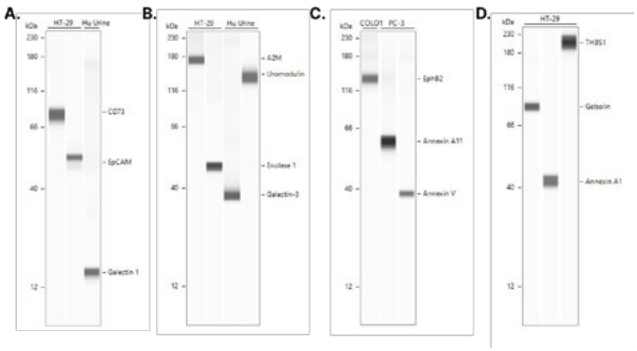


Figure 2. Simple Western lane-view analysis of disease biomarkers. Lysates of exosome standards were prepared according to protocol and antibodies for disease markers (Table 3) were used to detect their targets. (A) Cancer biomarkers: CD73, EpCAM, Galectin 1 (B) Infectious disease biomarkers: A2M, Enolase 1, Galectin-3, Uromodulin (C) Neurological disease biomarkers: Annexin A11, Annexin V, EphB2 (D) Kidney disease biomarkers: Annexin A1, Gelsolin/GSN, THBS1. These experiments were conducted under reducing conditions and using the 12-230kDa separation system.

TABLE 3.

EV-associated disease biomarkers for cancer, kidney disease, neurological disease, and infectious disease and corresponding exosome standards evaluated on Simple Western.

Primary Antibody	Catalog	Exosome Standards Tested
CD73	AF5795	HT-29 (NBP3-11685)
EpCAM	AF960	HT-29 (NBP3-11685)
Galectin-1	AF1152	Hu Urine (NBP2-49840)
A2M	MAB1938	HT-29 (NBP3-11685)
Enolase 1	NBP2-25147	HT-29 (NBP3-11685)
Galectin-3	AF1154	Hu Urine (NBP2-49840)
Uromodulin	AF5144	Hu Urine (NBP2-49840)
Annexin A11	AF3927	PC-3 (NBP2-49856)
Annexin V	MAB3991	PC-3 (NBP2-49856)
EphB2	AF467	COLO1 (NBP2-49845)
Annexin A1	AF3770	HT-29 (NBP3-11685)
Gelsolin/GSN	MAB8170	HT-29 (NBP3-11685)
THBS-1	AF3074	HT-29 (NBP3-11685)

Meet Simple Western

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