Automation of Fast and Reliable Western Immunoassays using the Jess™ System and epMotion® 5073

The Jess™ System, powered by Simple Western™ Technology from Bio-Techne, is a capillary immunoassay platform that fully automates traditional western blotting experiments. When paired with the epMotion 5073 liquid handler, Jess supports fully automated plate loading for protein samples, antibodies, and reagents using a standardized workflow, yielding accurate and reproducible results.

Product features of the Jess™ System

- Low sample volume requirements
- High sensitivity with chemiluminescence and fluorescence detection
- Fast turnaround time with reproducible quantitative results in just 3 hours
- Automated and simplified process with gel-free and blot-free system

Product features of the epMotion

- 6 SLAS/ANSI (incl. TMX module) worktable positions for epMotion 5073
- Automated exchange of all dispensing tools
- Maximum pipetting accuracy from 0.2 to 1000 µL
- Intuitive epBlue software for programming supported by MultiCon PC controller
- Peltier element for heating and cooling of samples and/or reagents
- E-mail notification and integrated LED lights for visual feedback on system status

Protocol overview

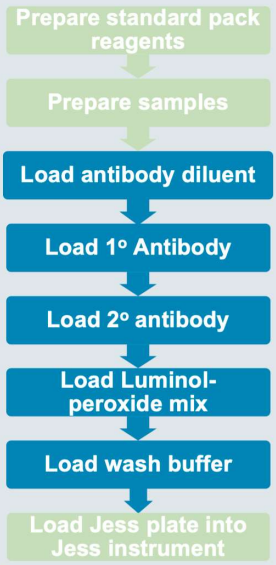
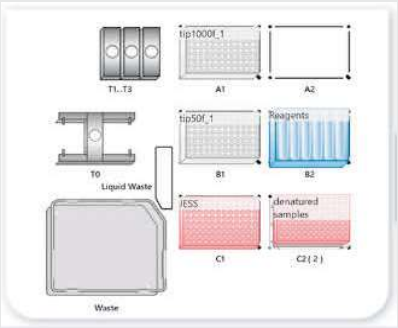


Figure 1: Loading immunoassay samples onto the epMotion 5073 liquid handler and conducting analysis with the Jess™ instrument. Loading samples and reagents using the epMotion takes 22 minutes. Jess™ runtime is 3 hours.

On-deck setup Off-deck setup

Worktable configuration

Figure 2: Worktable layout for loading Jess™ plate on the epMotion® 5073.



Application data

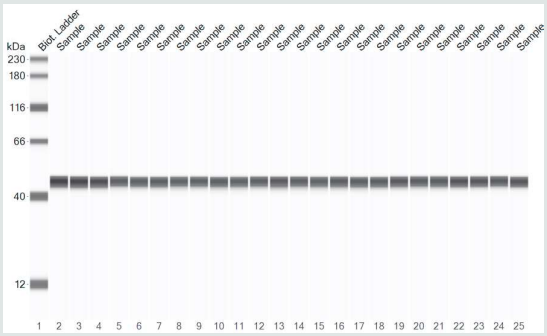
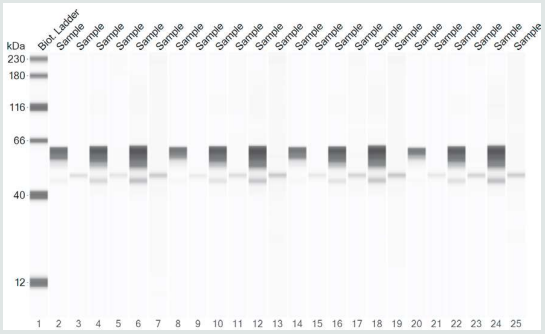


Figure 3: To test the accuracy, we utilize the Jess™ training kit to detect ERK1 signals in 24 HeLa cell lysates. The data plot for 24 ERK1 signals is displayed on the right, showing an average of 520K, a standard deviation of 48k, and a %CV of 9.23



	Ave.	SD	%CV
1:225	1.83m	0.19m	10.68
1:75	2.21m	0.28m	12.98
1:25	2.51m	0.06m	2.38

Figure 4: To mimic a standard protein assay performed in the experiment, three different beta-actin and HSP60 antibody dilutions were used to detect signals in 24 HeLa cell lysates. Beta-actin (unsaturated) values are shown on the right side (Lanes 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25 from left), demonstrating the accuracy and repeatability of a protein immunoblotting assay performed by combining epMotion® and Jess™ instruments.

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