

# THE NEXT GENERATION WESTERN PROTEIN ANALYZER



## MEET ABBY™



Western blot analysis comes with many challenges—labor-intensive protocols take a long time to get data and multiple hands-on steps result in user error and data variability. At best, you end up with semi-quantitative results when what you really need, and deserve, is highly reproducible immunoassay quantitation.

Meet Abby™, the next generation chemiluminescence western protein analyzer who moves your Western workflow into the 21st century. Abby automates the protein separation and immunodetection of traditional Western blotting, eliminating many of the tedious, error-prone steps. Just load your samples and reagents into the microplate, and Abby does the rest. She separates your proteins by size and precisely manages antibody additions, incubations, washes, detection steps, and even the analysis. Come back to fully analyzed and quantitated results of 24 samples in as little as 3 hours. With Abby's chemiluminescent detection you'll get picogram-level sensitivity, letting you maximize the data you get from your sample. Best of all, you get reliable and reproducible results with target normalization to the amount of protein loaded.

Analysis is a breeze. Want to identify whether a protein is present or absent? Abby gives you the qualitative Western data you are used to seeing. Even better, she'll quantitate the results for you too. With just a few clicks you'll be analyzing immunoassay-like standard curves and precisely quantifying your protein. Annotate your data directly in Compass for publication ready images. Abby, she's the next generation Western super-hero.

## HOW CAN ABBY HELP YOU?



### REPRODUCIBLE

Abby™ precisely controls sample loading, incubations and washes; she eliminates the inconsistencies and user-dependent variability that can be introduced during traditional Westerns. She delivers intra-assay CVs <15%, giving you the consistency you need to be confident in your data.



### HIGH THROUGHPUT

With her 13 or 25 sample capillary cartridges, you'll get the throughput you need, with minimum hands-on time. Use RePlex™ with Abby and perform two immunoassays in the same capillary, saving you time and precious sample.



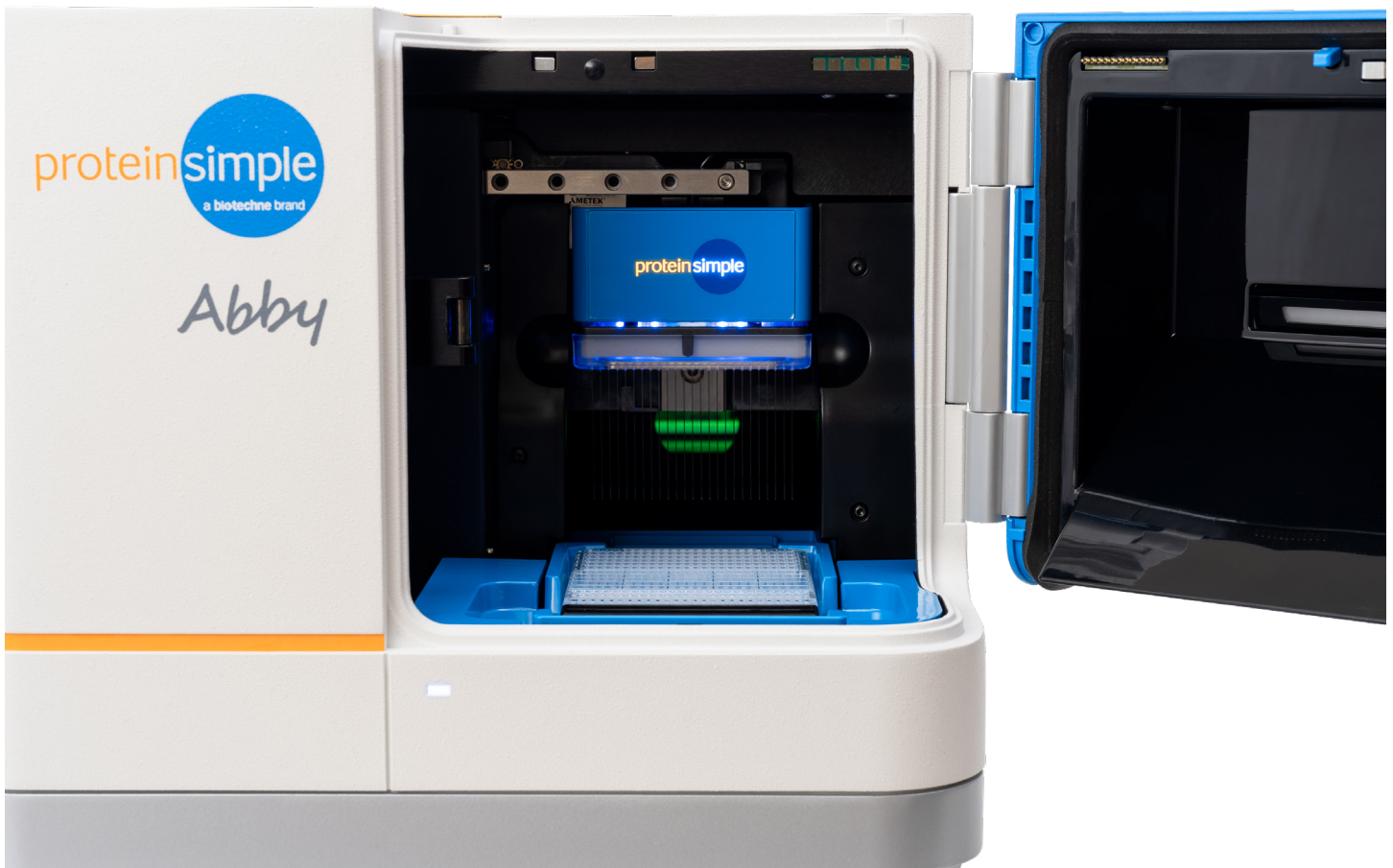
### FAST

With Abby, it's pipette, run and done! Simply load your sample, antibodies and reagents into the plate, insert your plate and cartridge into Abby and press start. In as little as 3 hours of hands-free runtime, you can be analyzing data for your next discovery or publication.



### QUANTITATIVE

With Abby quantitation is a breeze. At the conclusion of your run, use the lane view option to generate fully annotated images or dive deep for fully quantitative analysis of protein size data. With a few clicks, you'll be analyzing immunoassay-like standard curves and precisely quantifying your protein.



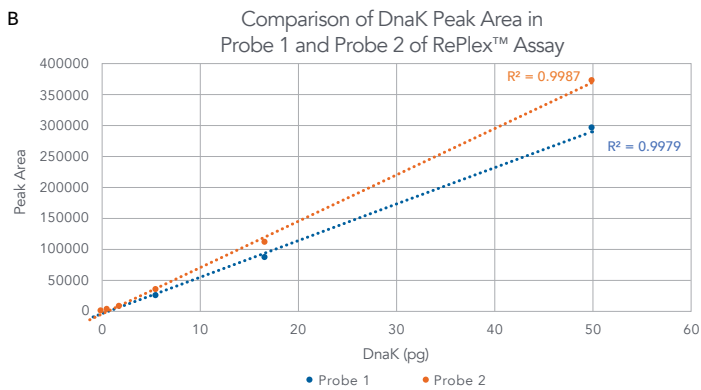
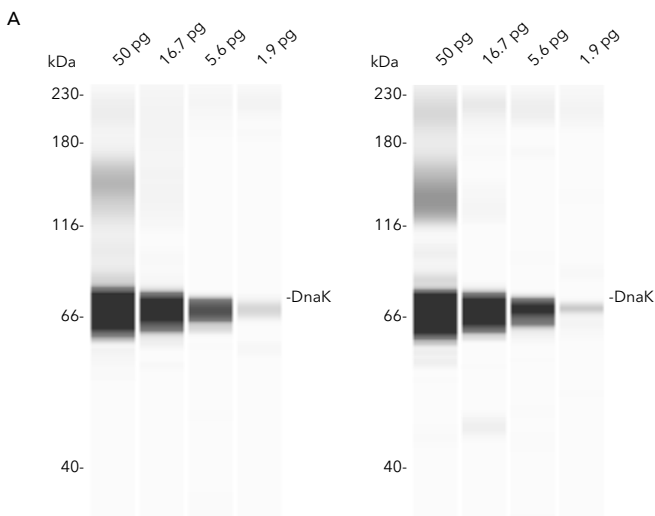


# WESTERNS RE-IMAGINED: ABBY DELIVERS PICOGRAM SENSITIVITY AND TOTAL PROTEIN DETECTION

YOU'LL NEVER WANT TO TOUCH A TRADITIONAL WESTERN BLOT AGAIN!

## CHEMILUMINESCENCE DETECTION

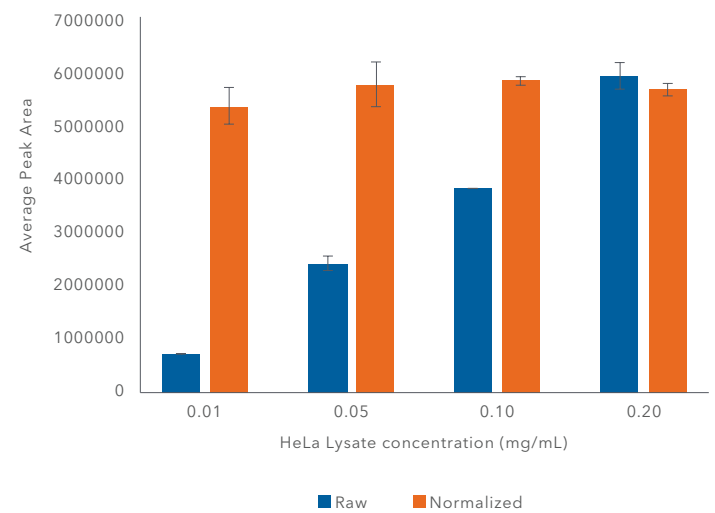
Working with low abundance targets or precious samples? Chemiluminescent detection by Abby™ gives you picogram-level sensitivity, letting you maximize the data you get from your sample. Further conserve your precious sample by performing two chemiluminescence immunoassays in the same capillary using RePlex™.



Abby chemiluminescent detection provides picogram sensitivity. Figure shows the results of a LOD study using DnaK recombinant protein spiked into HeLa lysate then probed with consecutive RePlex immunoassays. Lane views of different pg/well concentrations for Probe 1 and 2 are displayed (A) along with a plot of Peak Area vs. DnaK concentration (B). LODs observed were of 2.6 pg/well and 1.7 pg/well for probe 1 and 2, respectively. Picogram sensitivity is maintained when the same immunoassay is repeated within the same capillary in a RePlex run.

## TOTAL PROTEIN NORMALIZATION

Loading control normalization can lead to inconsistent results. RePlex on Abby gives you an easy way to see if your samples contain a consistent total protein load by assessing all your proteins immobilized in the same capillary as your immunoassay using total protein detection. Increase the confidence in your results through total protein normalization.

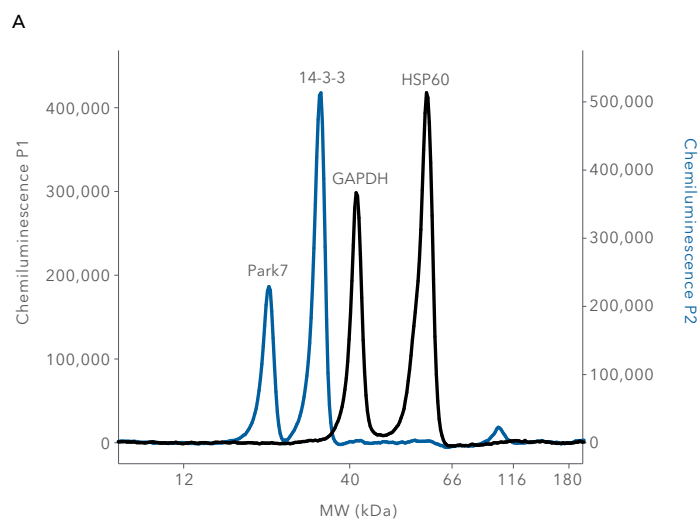
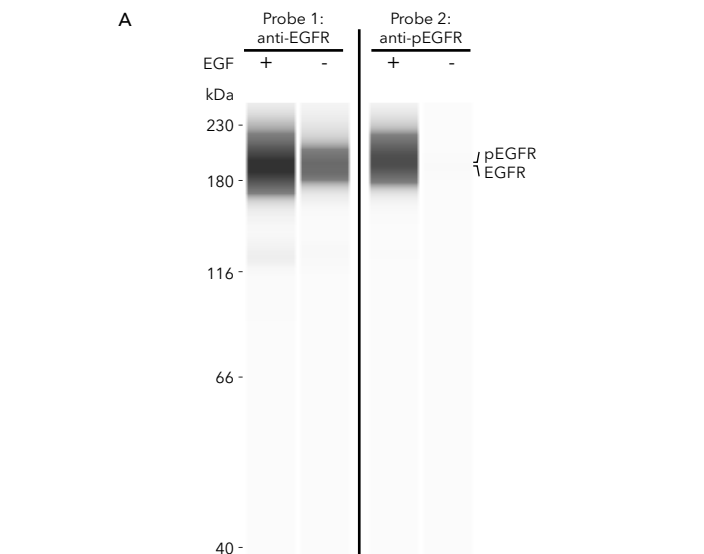


Normalize your data with total protein detection in the same capillary using RePlex. HeLa lysates (0.01 - 0.2 mg/mL) were separated and probed with a 14-3-3 antibody in Probe 1 followed by the Total Protein Assay in Probe 2. Protein normalization using RePlex shows comparable 14-3-3 signal across increasing concentrations of HeLa lysate.

# ABBY'S SUPER-POWERS SIMPLIFY WESTERN ANALYSIS

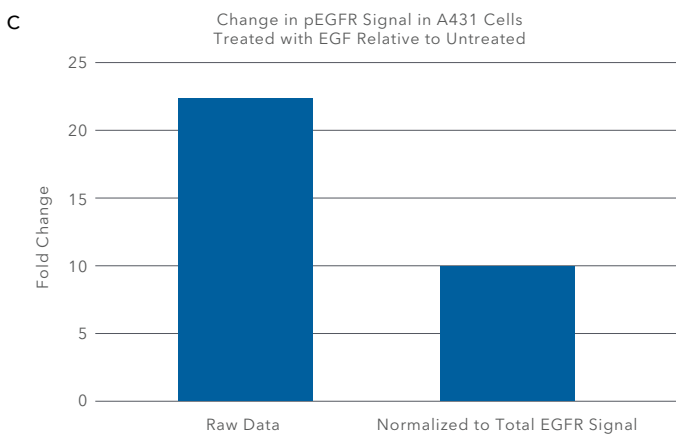
## DETECT TOTAL / PHOSPHO TARGETS AND MULTIPLEX WITH EASE

Abby™ leapfrogs traditional western blot technology by allowing the flexibility to do more with your precious samples. Investigate total / phospho targets or detect multiple targets in consecutive immunoassays within the same capillary using RePlex™. Enjoy the flexibility of antibody choice, low volume sample requirement, more data points per sample, and Simple Western automation in the next generation of Western analysis. With Abby™ you can even multiplex multiple targets using the RePlex™ module.

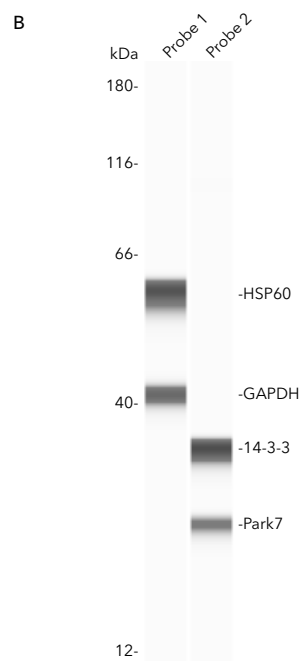


**B**

Sample	Primary	Cap	Name	MW (kDa)	Area	Corr. Area	S/N
A431 + EGF	anti-EGFR	P1:4	EGFR	195	449169.7	203337.7	639.9
A431 Untreated	anti-EGFR	P1:5	EGFR	195	203337.7	203337.7	198.2
A431 + EGF	anti-pEGFR	P2:4	pEGFR	200	3254280.1	1473202.4	9153.4
A431 Untreated	anti-pEGFR	P2:5	pEGFR	195	148255.3	148255.3	521.6



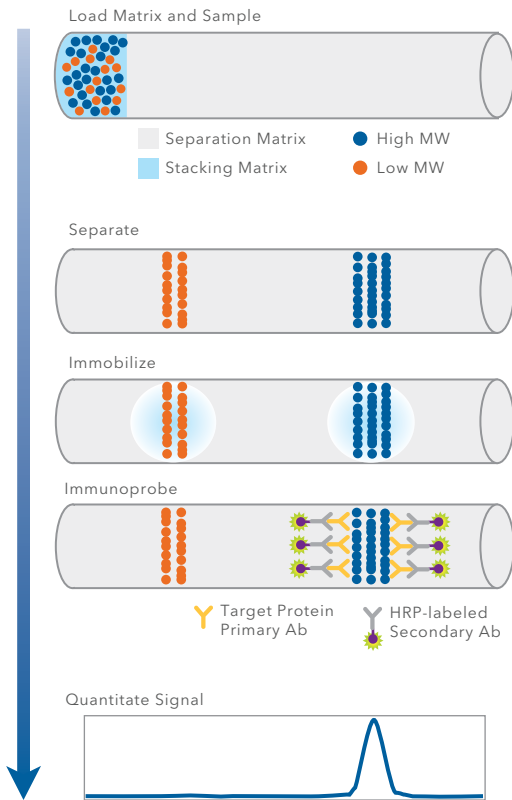
RePlex with Abby gives you multiple measurements per sample. Measure total and phosphorylated levels of your protein. This figure highlights Abby's ability to use total and phospho-specific antibody pairs in a single sample using RePlex. Lane view (A) shows strong total EGFR signal was observed in EGF-treated (+) and untreated (-) samples while phospho-EGFR signal only appeared in the EGF-treated sample, as expected. Peaks Table (B) in Compass for Simple Western shows automated normalization of EGF-treated and untreated signal to total EGFR signal. RePlex enables normalization to total EGFR signal to provide more accurate quantitation of fold changes in phospho-EGFR signal, as displayed in the graph (C).



RePlex with Abby enables multiple targets to be probed within the same experiment, saving time and money while conserving precious sample. Figure shows an electropherogram (A) and lane view (B) of HSP60 and GAPDH detected in the first probe of a RePlex immunoassay, and 14-3-3 and Park7 detected in the second.

# HOW DOES ABBY WORK?

## CHEMILUMINESCENT DETECTION



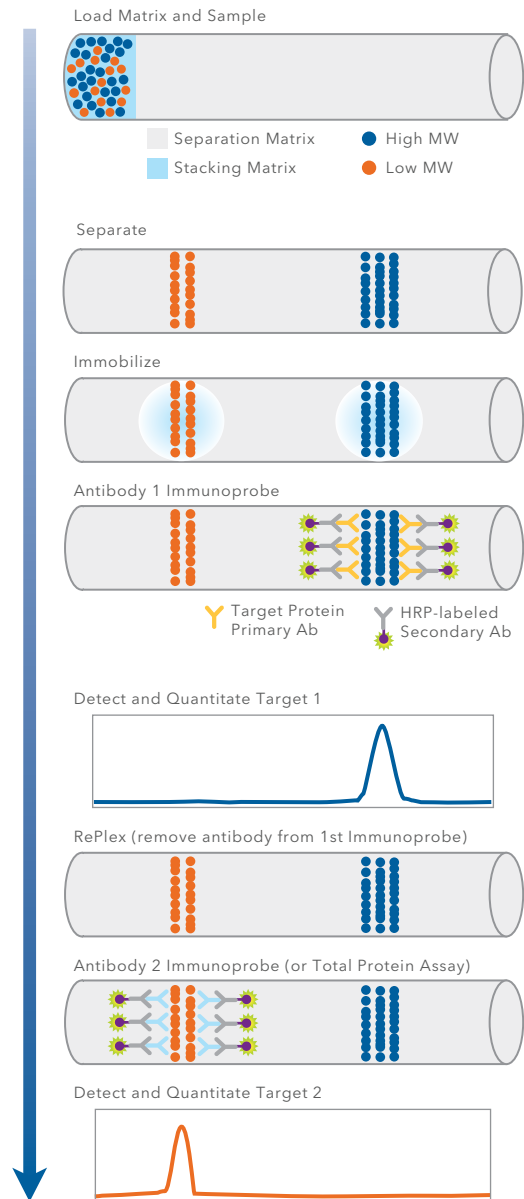
**How does Abby work?** Immunoassays take place in a capillary. Samples and reagents are loaded into an assay plate and placed in Abby. As little as 3  $\mu$ L of sample volume is required for sample to be loaded automatically into the capillary. Proteins are separated by size as they migrate through stacking and separation matrices. The separated proteins are then covalently immobilized to the capillary wall via a proprietary, photoactivated capture chemistry. Target proteins are identified using a primary antibody and immunoprobed using an HRP-conjugated secondary antibody and chemiluminescent substrate. The resulting chemiluminescent signal is detected and quantified.

## RETHINK, REUSE, REPLEX!

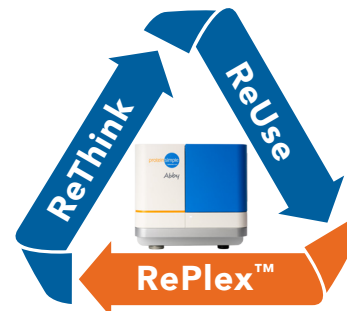
With the RePlex feature on Abby, you can run two immunoassays within the same capillary to get all your rich protein characterization data from just one sample!

- Quantify expressed phosphorylated target and total target levels.
- Normalize your data with total protein detection in the same capillary.
- Greater flexibility in immunoprobe selection.
- More data points per sample.
- Save time and money on consumables.

## REPLEX™ WITH ABBY™



**RePlex enables two rounds of sequential immunoprobes.** RePlex with Abby follows the same chemiluminescence workflow described for a single immunoprobe, but introduces an automated antibody removal step for a second round of immunoprobings. Stripping and reprobing is a thing of the past!



# MOVE YOUR WESTERNS INTO THE 21ST CENTURY WITH ABBY™!

SIMPLE WESTERN SYSTEM		
SYSTEM SPECIFICATION	ABBY	TRADITIONAL WESTERNS
Maximum samples per run	25	25
Run time for max samples (size assays)	<3 hours <5 hours using RePlex	2 days
Hands-on time	30 minutes	3.25 hours



ABBY SYSTEM SPECIFICATIONS		
DESCRIPTION	TOTAL PROTEIN SPECIFICATION	CHEMILUMINESCENCE SPECIFICATION
Sample required	0.3-1.2 µg	0.6-1.2 µg
Volume required	3 µL/well	
Size range	Molecular weight (MW) ladder ranges from 2-440 kDa	
Sizing CV	<10%	
Intra-assay CV	<15%	
Inter-assay CV	<20% †	<20%*
Resolution (± percent difference in MW)	± 15-20% for MW <20 kDa ± 10% for MW >20 kDa	
Quantitation CV	<20% (total protein and chemiluminescence)	
Dynamic range	2-3 logs	3-4 logs
Sensitivity	ng	Low pg
Capillary	5 cm, 100 µm, 400 nL	
Runtime	<3 hours RePlex: 5 hours	
Samples per run	13 or 25	
Weight	21 kg	
Dimensions (closed)	0.36 m H x 0.36 m W x 0.57 m D	
Dimensions (open)	0.36 m H x 0.53 m W x 0.57 m D	
Power	US/CAN 120 V AC, 60 Hz, 4.2 amps Europe 240 V AC, 50 Hz, 2.1 amps Japan 100 V AC, 50/60 Hz, 5.0 amps	
Operating temperature	18-24 °C	
Operating humidity	20-60% relative, non-condensing	

† Percent peak area

\* Inter-assay CV is with system control

Abby Part Numbers:  
004-680 (w/ computer)  
004-690 (without computer)

# WHERE SCIENCE INTERSECTS INNOVATION™

At ProteinSimple, we're changing the way scientists analyze proteins. Our innovative product portfolio helps researchers reveal new insight into proteins, advancing their understanding of protein function. We enable cutting-edge research to uncover the role of proteins in disease and provide novel approaches to develop and analyze protein-based therapeutics. We empower you to make your next discovery by eliminating common protein analysis workflow challenges.

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