Just SNAP and go!

SNAP i.d.® 2.0 system for Western blotting and IHC

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Merck Millipore is a business of MERCK



Multiple slides, multiple blots, multiple conditions.

There's so much room for experimental variability in traditional immunodetection workflows. For your peace of mind – and ours – we designed the SNAP i.d.® 2.0 system to streamline your Western blot and immunohistochemistry experiments.

The concept is simple: a vacuum-driven flow of blocking, antibody, and washing solutions reduces slide and membrane handling. That means a lot less shaking, dipping, pouring and waiting.

And now you can process multiple blots and slides in parallel, so it's easy to apply consistent conditions across experiments.

Take protein detection to new dimensions:
www.merckmillipore.com/SNAP

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SNAP i.d.® 2.0 Protein Detection System for Western Blotting

Unlike conventional Western blotting, where diffusion is the primary means of reagent transport, the SNAP i.d.® 2.0 system applies a vacuum to actively drive reagents through the membrane. This advanced technology promotes antigen binding and thorough washing, enabling you to better optimize your Western blotting conditions.



Key Benefits

- Faster results
- Faster testing of different antibodies
- Higher throughput of Western blots each day

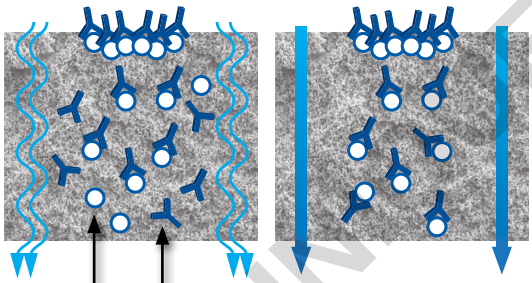
How does the SNAP i.d.® 2.0 system work?

The vacuum-driven SNAP i.d.® 2.0 system fully exploits three-dimensional reagent distribution and decreases the immunodetection time from hours to minutes using the following mechanisms:

1. The system increases local antibody concentrations at binding sites by using vacuum filtration, driving the antibody – antigen binding reaction forward and shortening incubation times.
2. Vacuum pulls any residual, unbound antibody out of the membrane, lowering background signal.

Traditional Western blotting relies on diffusion

SNAP i.d.® system actively pulls the reagents through the membrane



Antigen embedded in membrane

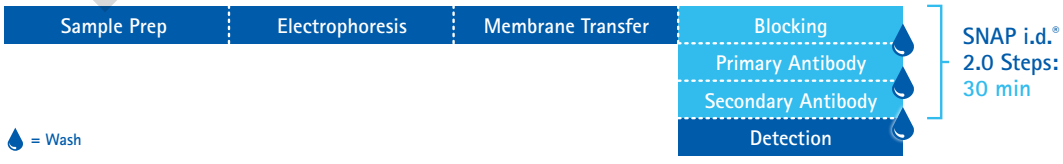
Antigen trapped in membrane

Advantages of the SNAP i.d.® 2.0 System's vacuum transport feature

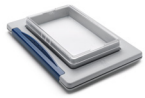
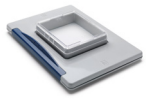
- Draws reagents through blotting membrane
- Minimizes over-blocking
- Thoroughly flushes membranes instead of just rinsing
- Reduces incubation times

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SNAP i.d.® 2.0 system in the Western blotting workflow



Faster Blots, Better Signals. Comparison of the traditional Western blotting protocol relative to SNAP i.d.® 2.0 system's 30 minute protocol.

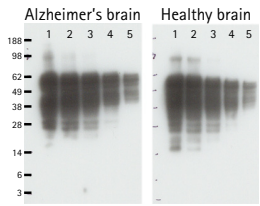
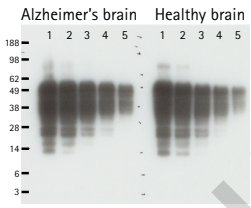
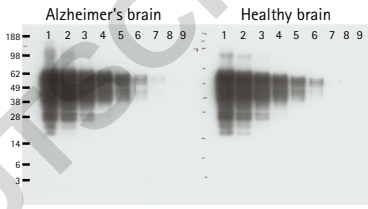
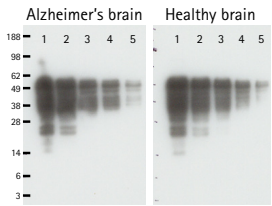

Blot Holder Specifications

	Midi	Mini	Each half of MultiBlot
Dimensions (cm)	17.8 x 10.2	12.7 x 9.1	11.4 x 6.4
Max Blot Size (cm)	8.5 x 13.5	7.5 x 8.4	4.5 x 8.5

Equivalent performance, a fraction of the time.

You frequently need to optimize antibody conditions using multiple antibody dilutions, across multiple sample types and matrices. With the SNAP i.d.® 2.0 system, you can turn around your optimization experiments in a fraction of the time it takes for traditional Western blot detection.

Western blot optimization of anti-Tau-1 antibody in Alzheimer's disease brain and healthy brain samples

	SNAP i.d.® 2.0 MultiBlot	SNAP i.d.® 2.0 Mini Blot	SNAP i.d.® 2.0 Midi Blot	Standard Western blot detection
MW				
Blocking	0.5% NFDM for 20 sec	0.5% NFDM for 20 sec	0.5% NFDM for 20 sec	0.5% NFDM for 1 hr
Primary Antibody	Anti-Tau1 1: 1,000 for 10 min	Anti-Tau1 1: 1,000 for 10 min	Anti-Tau1 1: 1,000 for 10 min	Anti-Tau1 1: 5,000 for 1 hr
Secondary Antibody	Goat anti-Mouse 1: 10,000 for 10 min	Goat anti-Mouse 1: 10,000 for 10 min	Goat anti-Mouse 1: 10,000 for 10 min	Goat anti-Mouse 1: 50,000 for 1 hr
Total Time	< 30 min	< 30 min	< 30 min	3 hr 30 min

MultiBlot, Mini Blot, and Standard Western blot detection

Lane	Concentration (µg)
1	20
2	10
3	5
4	2.5
5	1.25

Midi Blot

Lane	Concentration (µg)
1	20
2	10
3	5
4	2.5
5	1.25
6	0.63
7	0.31, 0.16 and 0.08
8	0.16
9	0.08

Human brain samples from an Alzheimer's disease patient and from a healthy donor were lysed in CytoBuster™ Protein Extraction Reagent (Cat. No. 71009). Samples were serially diluted and separated by SDS-PAGE. Gels were transferred to Immobilon®-P membrane. Blots were processed in the SNAP i.d.® 2.0 system using MultiBlot, Mini, and Midi frames with their corresponding blot holders. A control blot was processed by standard immunodetection. All blots were blocked with 0.5% NFDM and probed with primary anti-Tau1 (Cat. No. MAB3420) and secondary HRP-conjugated goat anti-mouse (Cat. No. AP124P) using the conditions indicated above. Blots were incubated with Luminata™ Forte HRP substrate and exposed to X-ray film for 15 minutes.

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Ordering Information

Product Description	Cat. No.	Qty/Pk
Base System		
The SNAP® i.d. 2.0 Systems contain everything you need to get started, including the detection base, 2 blot holding frames, 2 blot holders, 2 antibody collection trays, a blot roller and rolling pad, 2 wetting trays, vacuum tubing, and a Quick Start User Guide.		
SNAP® i.d. 2.0 System - Mini (7.5 x 8.4 cm)	SNAP2MINI	1
SNAP® i.d. 2.0 System - Midi (8.5 x 13.5 cm)	SNAP2MIDI	1
SNAP® i.d. 2.0 System - MultiBlot (4.5 x 8.4 cm)	SNAP2MB3	1
SNAP® i.d. 2.0 System - Mini and Midi (7.5 cm and 8.5 x 13.5 cm)	SNAP2MM	1
SNAP® i.d. 2.0 System - Mini and MultiBlot	SNAP2MB1	1
SNAP® i.d. 2.0 System - Midi and MultiBlot	SNAP2MB2	1
Components for Western Blotting Procedures		
SNAP i.d.® 2.0 MultiBlot Holding Frame	SNAP2FRMB01	1
SNAP i.d.® 2.0 Mini Blot Holding Frame (single pack)	SNAP2FRMN01	1
SNAP i.d.® 2.0 Mini Blot Holding Frames (double pack)	SNAP2FRMN02	1
SNAP i.d.® 2.0 Midi Blot Holding Frame (single pack)	SNAP2FRMD01	1
SNAP i.d.® 2.0 Midi Blot Holding Frames (double pack)	SNAP2FRMD02	1
SNAP i.d.® 2.0 MultiBlot Holders (includes 2 well blanks)	SNAP2BHMB050	50
SNAP i.d.® 2.0 Mini Blot Holders	SNAP2BHMN0100	100
SNAP i.d.® 2.0 Midi Blot Holders	SNAP2BHMD0100	100
SNAP i.d.® 2.0 Antibody Collection Tray	SNAPABTR	20
SNAP i.d.® Blot Roller	SNAP2RL	1
Blotting Membranes		
Immobilon®-P PVDF, 0.45 µm, 26.5 x 3.75 cm roll	IPVH00010	1
Immobilon®-P PVDF, 0.45 µm, 7 x 8.4 cm sheet	IPVH07850	50
Immobilon®-P PVDF, 0.45 µm, 8.5 x 13.5 cm sheet	IPVH08130	10
Immobilon®-FL PVDF, 0.45 µm, 26.5 x 3.75 cm roll	IPFL00010	1
Immobilon®-FL PVDF, 0.45 µm, 7 x 8.4 cm sheet	IPFL07810	10
Immobilon®-PSQ PVDF, 0.2 µm, 7 x 8.4 cm sheet	ISEQ07850	50
Immobilon®-P PVDF Sandwich, 0.45 µm, 7 x 8.4 cm	IPSN07852	20
Immobilon®-P PVDF Sandwich, 0.45 µm, 8.5 x 13.5 cm	IPSN08132	20
Reagents for Western Blotting		
Luminata™ Forte Western HRP Substrate	WBLUF0500	500 mL
Luminata™ Crescendo Western HRP Substrate	WBLUR0500	500 mL
Luminata™ Classico Western HRP Substrate	WBLUC0500	500 mL
Immobilon® Western HRP Substrate	WBKLS0500	500 mL
Calbiochem® SignalBoost™ Immunoreaction Enhancer Kit	407207	1 kit
Re-Blot™ Plus Strong Antibody Stripping Solution, 10X	2504	50 mL
bløk®-CH Buffer	WBAVDCH01	500 mL
bløk®-FL Buffer	WBAVDFL01	500 mL
bløk®-PO Buffer	WBAVDP001	500 mL

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SNAP i.d.® 2.0 IHC System



SNAP i.d.® 2.0 Protein Detection System for Immunohistochemistry (IHC) introduces a new capability to the innovative, vacuum-driven SNAP i.d.® 2.0 system. The IHC frame and slide holders allow you to block, probe, and stain up to 12 tissue slides per frame. Reduced handling time and multiple-slide processing make this system ideal for antibody and protocol optimization.

Immunohistochemistry workflow includes blocking, antibody incubations, labeling and wash steps, all of which can be streamlined using the SNAP i.d.® 2.0 Protein Detection System for IHC.



Key Benefits

- Eliminates the need for pap pens
- Antibodies can be collected and reused
- Slide handling time is significantly decreased
- Less time spent on wash steps
- Parallel processing of multiple slides

Key Features

- Flexibility of multiple slide configurations enables the processing of 1 to 24 slides at a time
- Compatible with standard IHC slides and protocols
- Compatible with diverse tissue preparations including formalin-fixed or fresh frozen samples
- Intuitive format
  - Incorporates blocking, washing, and antibody incubation and labeling steps
  - Systematizes handling multiples slides without the cost of automation
- Test tracker feature on frame cover helps keep track of IHC steps

How does the SNAP i.d.® 2.0 Protein Detection System for IHC work?

With two individually controlled sides, the system base allows for independent, vacuum-driven processing of either one or two IHC frames. Each of the IHC frames can process between 1 to 12 glass slides through independent vacuum ports.

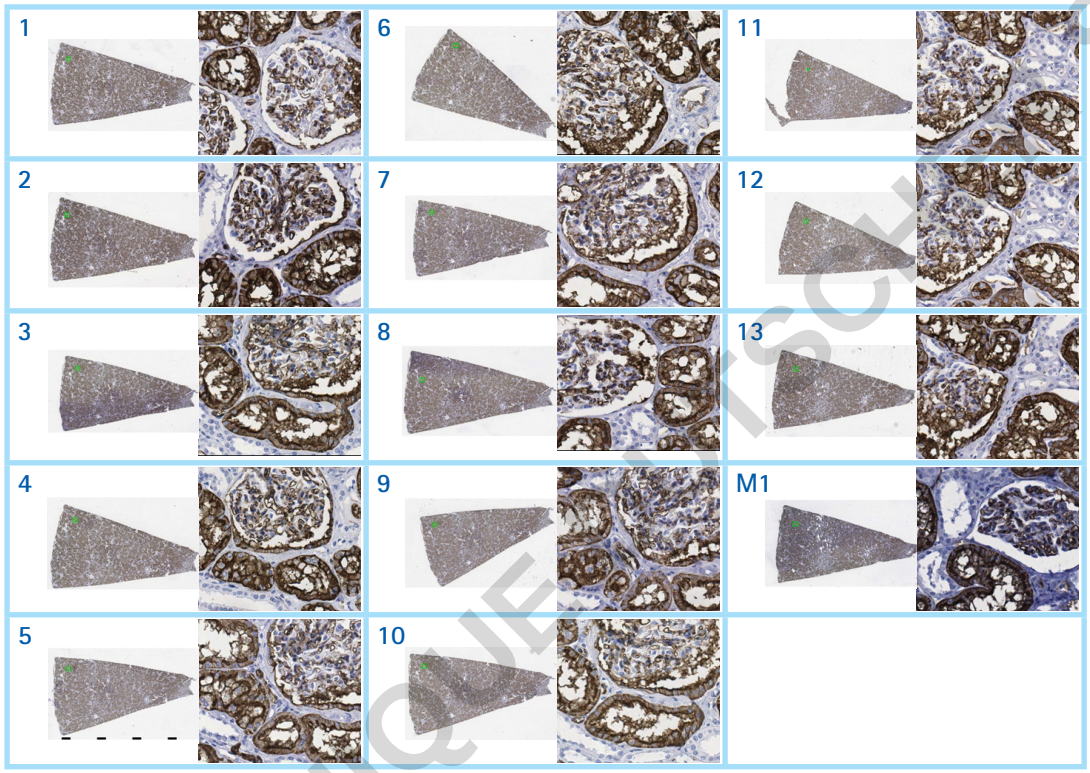
Each slide holder has an injection/recovery port that enables the manual addition, as well as the removal and recovery, of small volumes of antibodies or reagents; reagents can also be flushed using the vacuum feature if conservation is not a priority.



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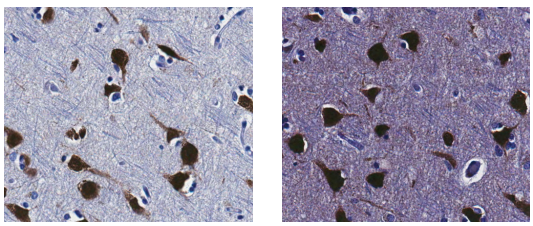
Comparable performance to traditional methods, even in archival tissue

The SNAP i.d.® 2.0 IHC System produces comparable staining to traditional protocols even in archival tissue. In the first example below, the system was used to detect Aquaporin 1 in archival human kidney tissue. Note the characteristic differential staining of kidney proximal tubule epithelium and renal corpuscle. The second example shows NeuN signal in human brain, localized as expected to neuronal nuclei. Despite processing 12 slides in parallel and shortening the handling time and protocol, the staining is robust and consistent with no blotchy artifacts that sometimes plague autostainers. There is no apparent tissue degradation as compared with traditional protocols. Classic histological stains such as hematoxylin can be applied using the same system.



Detection of Aquaporin 1 in human kidney tissue (formalin-fixed and paraffin-embedded (FFPE): SNAP i.d.® 2.0 IHC System (sections 1–13) vs. Standard IHC protocol (section M1). Fifteen tissue sections (5 µm) were assembled on FisherBiotech® ProbeOn Plus™ slides. Slides were rehydrated and antigen retrieved (heat-induced epitope retrieval, HIER) using Reveal Decloaker (Biocare Medical, LLC) in a pressure cooker for 15 minutes at 110 °C. Thirteen slides were then processed using the SNAP i.d.® IHC system, and one was processed using the manual protocol. Blocking was performed by incubating 10 min with Punisher™ reagent (Biocare). After three washes with TBST, slides were incubated 2 h with Anti-Aquaporin 1 (Cat. No. AB2219, 1:2,000). After three more TBST washes, slides were incubated 10 min with Anti-Rabbit Secondary Antibody (Biocare). Signal was detected using a HRP-DAB detection kit (Biocare). Slides were washed three times with TBST and were counterstained with hematoxylin for 1 min. After three final washes, slides were dehydrated with four 5-minute changes of 100% ethanol, cleared with three changes of xylene and coverslipped with Ecomount medium (Biocare).

SNAP i.d.® IHC System | Manual IHC



Detection of NeuN in human cerebral cortex (FFPE): SNAP i.d.® 2.0 IHC System (left) vs. standard manual IHC protocol (right). Anti-NeuN (Cat. No. MAB377, 1:2,000) was used to stain sections of human cerebral cortex using the protocols described in the previous figure.

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Ordering Information

SNAP i.d.® 2.0 system

Base System

The SNAP® i.d. 2.0 Systems for IHC contain everything you need to get started, including the detection base, IHC frame and incubation cover, slide holders, an assembly fixture, vacuum tubing and a Quick Start User Guide.

Description	Catalogue No.
SNAP i.d.® 2.0 Protein Detection System – Single IHC	SNAP2IHC
SNAP i.d.® 2.0 Protein Detection System – Double IHC	SNAP2IHC2

SNAP i.d.® 2.0 consumables

Description	Qty	Catalogue No.
SNAP i.d.® 2.0 IHC Frame	1 EA	*SNAP2FRIHC*
SNAP i.d.® 2.0 IHC Slide Holders	24/pk	SNAP2SH

Reli(Ab)le™ Antibodies for IHC

Reliable results depend on reliable reagents. When you work with reliable antibodies, you can work efficiently and effectively. We guarantee performance because we manufacture performance. We are committed to manufacturing antibodies that perform as specified and as anticipated. Our quality starts at inception and carries through manufacturing, production and distribution, into the lab and onto the bench. From start to finish, we build a platform for reliable performance that provides you with the ultimate confidence in your findings.

Popular IHC Antibodies

Product Description	Qty	Catalogue No.
Anti-Actin Antibody, clone C4	100 µL	MAB1501
Anti-APP A4 Antibody, a.a. 66-81 of APP {NT}, clone 22C11	50 µg	MAB348
Anti-Choline Acetyltransferase Antibody	500 µL	AB144P
Anti-GAD67 Antibody, clone 1G10.2	100 µg	MAB5406
Anti-Microtubule-Associated Protein 2 (MAP2) Antibody	100 µL	AB5622
Anti-NeuN Antibody, clone A60	500 µg	MAB377
Anti-NG2 Chondroitin Sulfate Proteoglycan Antibody	100 µg	AB5320
Anti-Olig-2 Antibody	100 µL	AB9610
Anti-Sox9 Antibody	100 µg	AB5535
Anti-Tyrosine Hydroxylase Antibody	100 µL	AB152

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