

PathScan® Intracellular Signaling Array Kit (Fluorescent Readout)



✓ 1 Kit
(32 multiplexed assays)

Orders ■ 877-616-CELL (2355)
orders@cellsignal.com
Support ■ 877-678-TECH (8324)
info@cellsignal.com
Web ■ www.cellsignal.com

rev. 02/25/16

For Research Use Only. Not For Use In Diagnostic Procedures.

Species Cross-Reactivity: H

Description: The PathScan® Intracellular Signaling Array Kit (Fluorescent Readout) is a slide-based antibody array founded upon the sandwich immunoassay principle. The array kit allows for the simultaneous detection of 18 important and well-characterized signaling molecules when phosphorylated or cleaved. Target-specific capture antibodies have been spotted in duplicate onto nitrocellulose-coated glass slides. Each kit contains two 16-pad slides, allowing the user to test up to 32 samples and generate 576 data points in a single experiment. Cell lysate is incubated on the slide followed by a biotinylated detection antibody cocktail. Streptavidin-conjugated DyLight™ 680 is then used to visualize the bound detection antibody. A fluorescent image of the slide can then be captured with a digital imaging system and spot intensities quantified using array analysis software.

Specificity/Sensitivity: PathScan® Intracellular Signaling Array Kit (Fluorescent Readout) detects the indicated cellular proteins and signaling nodes only when phosphorylated or cleaved at the specified residues. (see Array Target Map). No significant cross-reactivity has been observed between targets. This kit is optimized for cell lysates diluted to a total protein concentration between 0.2 and 1 mg/ml (see kit protocol).

Products Included	Quantity	Cap Color
Array Slides	2 slides	
Multi-Well Gasket	2 gaskets	
Sealing Tape	2 sheets	
20X Array Wash Buffer	15 ml	White
Array Blocking Buffer	5 ml	Red
Array Diluent Buffer	15 ml	Blue
10X Detection Antibody Cocktail	300 µl	White
10X DyLight™ 680-linked Streptavidin	300 µl	Brown
*Cell Lysis Buffer #7018	30 ml	Clear

*Kit should be stored at 4°C with the exception of 1X Cell Lysis Buffer, which is stored at -20°C (packaged separately).

Intracellular Signaling

	Target	Phosphorylation Site	Modification
1	Positive Control	N/A	N/A
2	Negative Control	N/A	N/A
3	Erk1/2	Thr202/Tyr204	Phosphorylation
4	Stat1	Tyr701	Phosphorylation
5	Stat3	Tyr705	Phosphorylation
6	Akt	Thr308	Phosphorylation
7	Akt	Ser473	Phosphorylation
8	AMPKα	Thr172	Phosphorylation
9	S6 Ribosomal Protein	Ser235/236	Phosphorylation
10	mTOR	Ser2448	Phosphorylation
11	HSP27	Ser78	Phosphorylation
12	Bad	Ser112	Phosphorylation
13	p70 S6 Kinase	Thr389	Phosphorylation
14	PRAS40	Thr246	Phosphorylation
15	p53	Ser15	Phosphorylation
16	p38	Thr180/Tyr182	Phosphorylation
17	SAPK/JNK	Thr183/Tyr185	Phosphorylation
18	PARP	Asp214	Cleavage
19	Caspase-3	Asp175	Cleavage
20	GSK-3β	Ser9	Phosphorylation

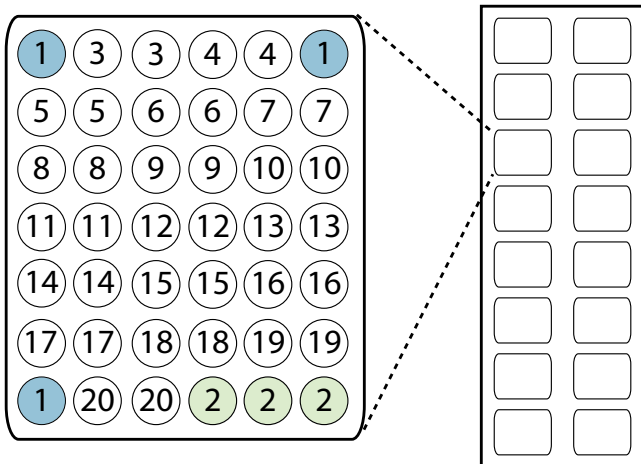


Figure 1. Target map of the PathScan® Intracellular Signaling Array Kit (Fluorescent Readout) #7744.

Background: Phosphorylation and proteolysis are two widespread covalent post-translational modifications that represent important regulatory mechanisms in biology. Detection of these modifications on a set of cellular proteins playing a well-understood role in cell biology can provide a broad snapshot of intracellular signaling.

The MAPK/Erk cascade is one of the best characterized and widely studied signaling modules. It is involved in a broad range of cellular processes such as proliferation, differentiation, and motility. MAPK/Erk is activated by a wide range of extracellular signals including growth factors, cytokines, hormones, and neurotransmitters. It is activated by dual phosphorylation at Thr202 and Tyr204 by the dual specificity kinases MEK1 and MEK2.

p38 and JNK MAPKs are core components of two additional structurally related signal transduction modules. p38 and JNK are activated through a similar dual phosphorylation mechanism by various MAPK kinases in response to pro-inflammatory cytokines, stressful conditions, or genotoxicity.

Stat1 and Stat3 are important signaling molecules that are involved in immunity and inflammation and can be activated by a variety of cytokines or growth factors. Stat1 and Stat3 are phosphorylated at Tyr701 or Tyr705, respectively, by cytokine receptor-tethered tyrosine kinases of the Jak family or, in some cases, by other tyrosine kinases such as Src.

Akt is a protein kinase generally activated in response to growth factor stimulation that transmits growth and survival signals. Phosphorylation of Akt at Ser473 and Thr308 by TORC2 complex and PDK1, respectively, are reliable predictors of Akt activation. Phosphorylation of PRAS40 at Thr246 by Akt relieves PRAS40 inhibition of TORC1. Akt phosphorylation of the pro-apoptotic protein Bad at Ser112 and the multifunctional kinase GSK-3 β at Ser9 inhibits their activity and promotes cell survival.

mTOR is an important signaling hub that is a major component of two macromolecular complexes, TORC1 and TORC2. mTOR is phosphorylated at Ser2448 and integrates growth factor signaling and nutrient availability, thus playing an important role in cell growth and homeostasis. mTORC1 phosphorylates p70 S6 Kinase at Thr389, leading to kinase activation and cell cycle progression. The S6 ribosomal protein is found downstream of p70 S6 Kinase and its phosphorylation at Ser235/236 reflects mTOR pathway activation and predicts cell cycle progression.

AMPK is an energy sensor that is activated by phosphorylation at Thr172 in response to elevated AMP levels. AMPK regulates fatty acid metabolism, as well as modulates protein synthesis and cell growth.

HSP27 is a mediator of cell stress that confers resistance to adverse environmental change. HSP27 is phosphorylated at Ser78 within the p38 MAPK pathway.

p53 plays an important role in cellular response to DNA damage and other genomic aberrations. Phosphorylation of p53 at Ser15 by ATM/ATR or DNA-PK in response to DNA damage leads to its stabilization and accumulation.

Caspase-3 is a critical executor of apoptosis. Caspase-3 is activated by endoproteolytic cleavage at Asp175 and exerts its pro-apoptotic activity through cleavage of multiple cellular targets. PARP, an enzyme that is involved in DNA repair, is one of the main substrates of activated caspase-3. Cleavage at Asp214 leads to PARP inactivation. Increased levels of cleaved caspase-3 and cleaved PARP are reliable indicators of apoptosis.

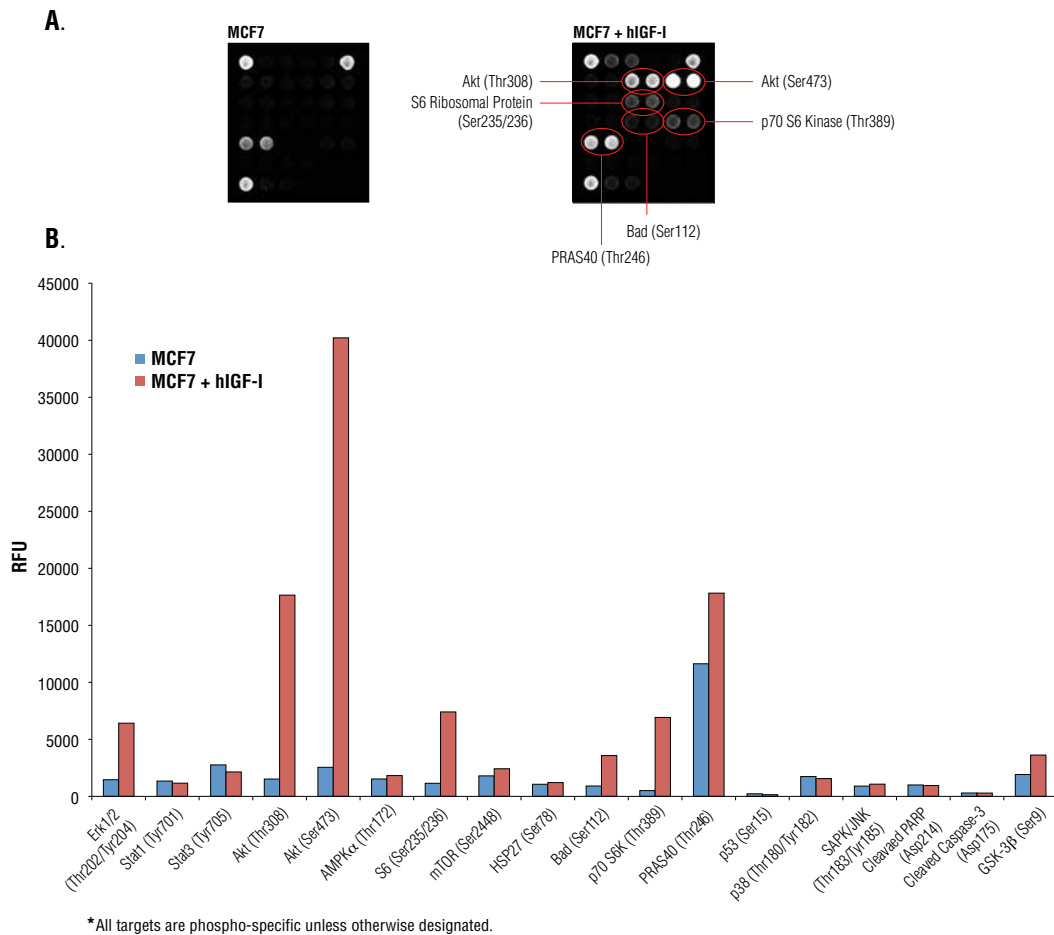


Figure 2. MCF7 cells were grown to 80% confluency and then serum starved overnight. Cells were either untreated or treated with Human Insulin-like Growth Factor I (hIGF-I) #8917 (100 ng/ml, 20 min). Cell extracts were prepared and analyzed using the PathScan® Intracellular Signaling Array Kit (Fluorescent Readout) #7744. Panel A shows images that were acquired using the LI-COR® Biosciences Odyssey® imaging system. Panel B shows quantification of results. Pixel intensity was quantified using Array Vision software.

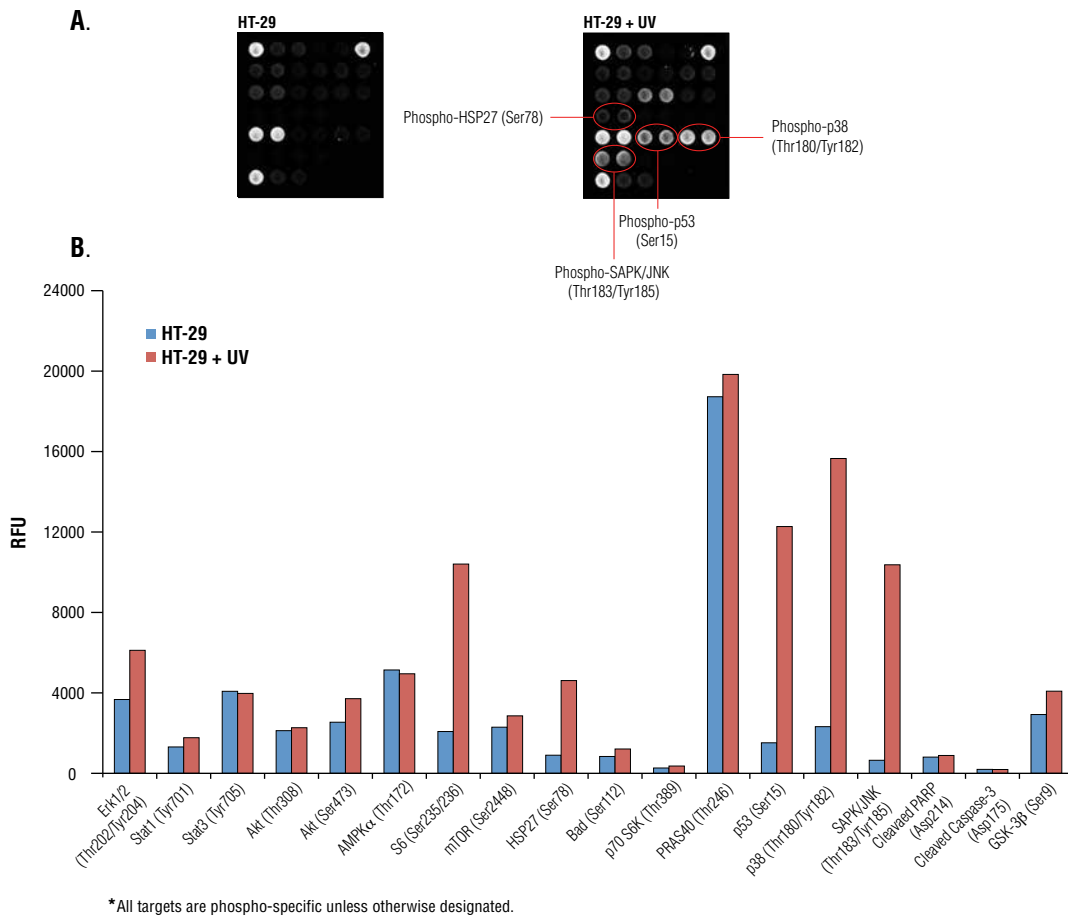


Figure 3. HT-29 cells were grown to 80% confluency and then either untreated or UV-irradiated and allowed to recover for 60 min. Cell extracts were prepared and analyzed using the PathScan® Intracellular Signaling Array Kit (Fluorescent Readout) #7744. Panel A shows images that were acquired using the LI-COR® Biosciences Odyssey® imaging system. Panel B shows quantification of results. Pixel intensity was quantified using Array Vision software.

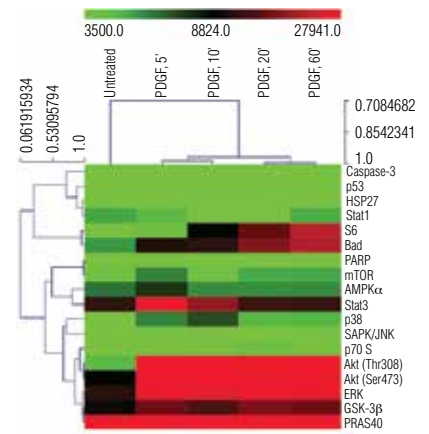


Figure 5. NIH/3T3 cells were grown to 85% confluency and then serum starved overnight. Cells were treated with Human Platelet-Derived Growth Factor BB (hPDGF-BB) #8912 (100 ng/ml) for the indicated time periods and cell extracts were prepared and analyzed using the PathScan® Intracellular Signaling Array Kit (Fluorescent Readout) #7744. Images were acquired using the LI-COR® Biosciences Odyssey® imaging system. Pixel intensity was quantified using Array Vision software. Heatmap analysis was generated using MeV analysis software.

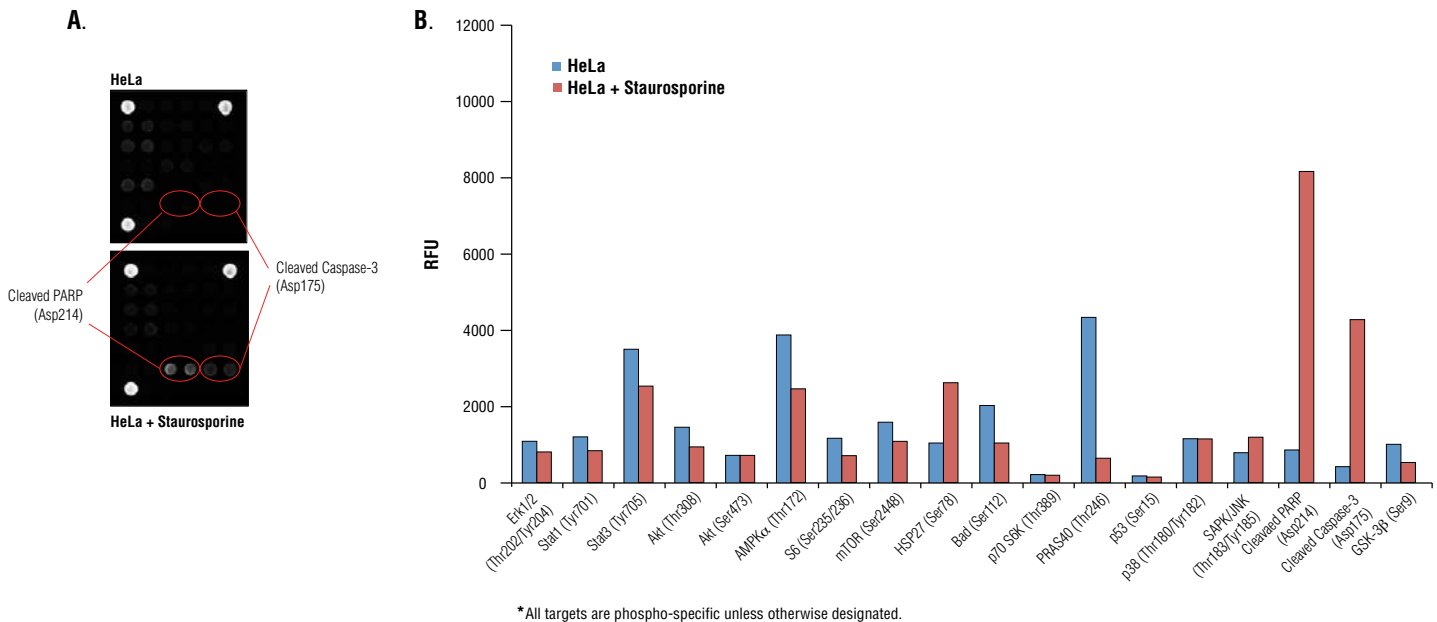


Figure 4. HeLa cells were grown to 90% confluency and then either untreated or treated with Staurosporine #9953 (1 μM, 3.5 hr). Cell extracts were prepared and analyzed using the PathScan® Intracellular Signaling Array Kit (Fluorescent Readout) #7744. Panel A shows images that were acquired using the LI-COR® Biosciences Odyssey® imaging system. Panel B shows quantification of results. Pixel intensity was quantified using Array Vision software.

PathScan® Antibody Array Kit (Fluorescent Readout) Protocol

A Preparing Cell Lysates

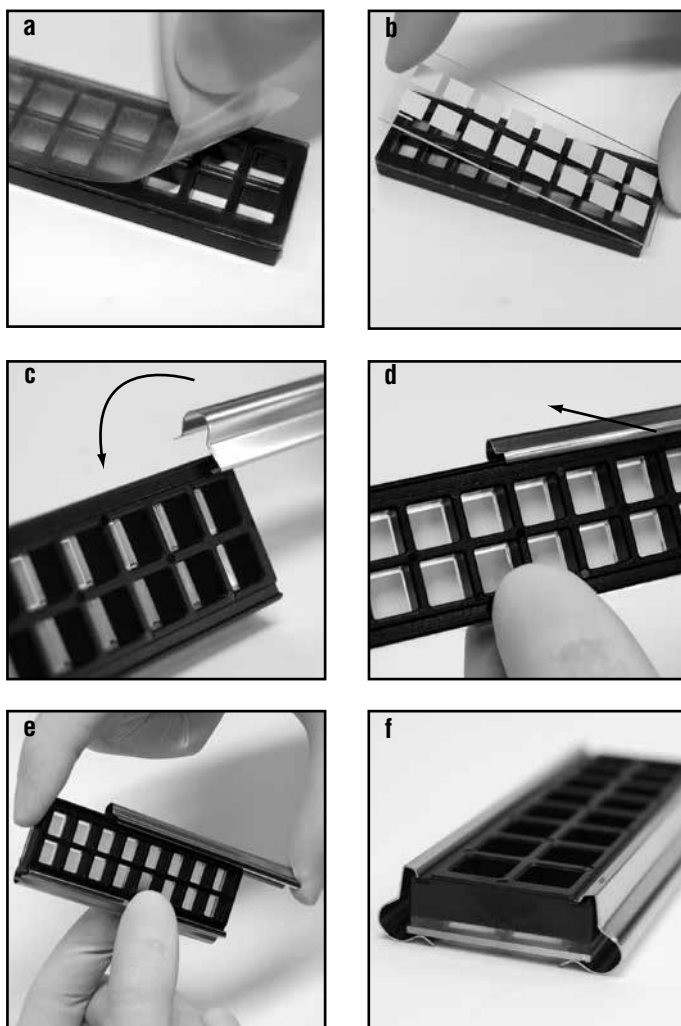
1. Thaw 1X Cell Lysis Buffer #7018 and mix thoroughly. Supplement Cell Lysis Buffer with phenylmethylsulfonyl fluoride (PMSF) to a final concentration of 1 mM, or a cocktail of protease inhibitors (not included). Keep lysis buffer on ice.
2. Remove media and wash cells once with ice-cold 1X PBS.
3. Remove PBS and add ice-cold 1X Cell Lysis Buffer. For adherent cells, use 0.5 ml 1X Cell Lysis Buffer for each plate (10 cm in diameter). Incubate on ice for 5 minutes.
4. If using adherent cells, dislodge the cells using a cell scraper. Transfer lysed cells to an appropriate tube. Keep on ice.
5. Microcentrifuge at maximum speed for 10 minutes at 4°C and transfer the supernatant to a new tube. The supernatant is the cell lysate. Lysate may be used immediately or stored at -80°C in single-use aliquots.
6. Immediately before performing the assay, dilute lysates to 0.2 – 1.0 mg/ml in Array Diluent Buffer. Set aside on ice.

B Assay Procedure

1. Bring glass slides and blocking buffer to room temperature before use.
2. Prepare 1X Array Wash Buffer by diluting 20X Array Wash Buffer in deionized water.
Dilute 1mL of 20X Array Wash Buffer with 19 ml of deionized water. Label as 1X Array Wash Buffer.
3. Prepare 1X Detection Antibody Cocktail as follows:
For running only 1 slide: Dilute 150µL of 10X Detection Antibody Cocktail with 1350 µl of Array Diluent Buffer.
For running 2 slides: Dilute 300 µl of 10X Detection Antibody Cocktail with 2700 µl of Array Diluent Buffer.
4. Prepare 1X DyLight 680™-linked Streptavidin as follows:
For running only 1 slide: Dilute 150 µl of 10X DyLight 680™-linked Streptavidin with 1350 µl of Array Diluent Buffer.
For running 2 slides: Dilute 300 µl 10X DyLight 680™-linked Streptavidin with 2700 µl of Array Diluent Buffer.
*Keep on ice and protect from light.
5. Affix the multi-well gasket to the glass slide (see figure at right):
 - a. Place the multi-well gasket face-down on the benchtop (the silicone layer should be facing up). Remove the protective plastic film.
 - b. Carefully place the glass slide on top of the multi-well gasket with the nitrocellulose pads facing down while aligning the pads with the openings in the gasket. The orientation line should appear in the upper left hand corner when the slide is oriented vertically.
 - c. Insert the numbered metal clip into the groove in the gasket and rotate the clip into the locked position. Ensure that the clip is on the same side as the orientation line on the slide.
 - d. Slide the clip into place. The number "1" on the metal clip will now be in the same corner of the assembly as the orientation line.
 - e. Snap the unmarked metal clip to the other side of the assembly in the same manner and slide into place.
 - f. The assembled array is ready to use.
6. Add 100 µl Array Blocking Buffer to each well and cover with sealing tape. Incubate for 15 minutes at room temperature on an orbital shaker.
Note: Do not allow the pads to dry out until after step 14.
7. Decant Array Blocking Buffer by gently flicking out the liquid into a sink or other appropriate waste receptacle. Add 75 µl diluted lysate to each well and cover with sealing tape. Incubate for 2 hours at room temp (or overnight at 4°C) on an orbital shaker.

8. Decant well contents by gently flicking out the liquid into a sink or other appropriate waste receptacle. Add 100 µl 1X Array Wash Buffer to each well and incubate for 5 minutes at room temperature on an orbital shaker. Repeat three more times. Decant well contents.
9. Add 75 µl 1X Detection Antibody Cocktail to each well and cover with sealing tape. Incubate for 1 hour at room temperature on an orbital shaker.
10. Wash 4 X 5 minutes with 100 µl 1X Array Wash Buffer as in step 8.
Note: From this point on, keep slide protected from light.
11. Add 75 µl 1X DyLight 680™-linked Streptavidin to each well and cover with sealing tape. Incubate for 30 minutes at room temperature on an orbital shaker.
12. Wash 4 X 5 minutes with 100 µl 1X Array Wash Buffer as in step 8.
13. Remove multi-well gasket by pulling the bottom of the metal clips away from the center of the slide, then peeling the slide and gasket apart.
14. Place the slide face up in a plastic dish (a clean pipette tip box cover works well). Wash once for 10 seconds with 10 ml deionized water.
15. Remove slide from plastic dish and allow to dry completely.
16. Capture an image of the slide using a fluorescent digital imaging system capable of exciting at 680 nm and detecting at 700 nm. Quantify spot intensities using commercially available array image analysis software.

DyLight™ is a registered trademark of Thermo Fisher Scientific Inc. and its subsidiaries.



Material Safety Data Sheet (MSDS) for PathScan® Antibody Array Kit

I. Identification:

Product name: PathScan® Antibody Array Kit
Product Catalog: 7744, 7323, 9700 Kits
Manufacturer Supplier: Cell Signaling Technology
 3 Trask Lane
 Danvers, MA 01923 USA
 978-867-2300 TEL
 978-867-2400 FAX
 978-578-6737 EMERGENCY TEL

II. Composition/Information:

Substance Name: PathScan® Antibody Array Kit

CAS#: None

This product is For Research Use Only. According to 29 CFR 1910.1200(d), mixtures with hazardous ingredients at less than <1% and carcinogens at less than <0.1% are considered non-hazardous. Please refer to the individual material safety data sheets for hazard information specific to kit components.

- Array Slides MSDS
- PathScan® Sandwich ELISA Lysis Buffer (1X) (CST#7018) MSDS
- Array Blocking Buffer MSDS
- Array Diluent Buffer MSDS
- Array Wash Buffer MSDS
- Detection Antibody Cocktail MSDS
- HRP-linked Streptavidin MSDS (Kit 7323 only)
- DyLight™ 680-linked Streptavidin MSDS (Kit 7744 only)
- 20X LumiGLO & 20X Peroxide (CST#7003) MSDS

III. Hazard Identification:

Emergency Overview:

Not considered hazardous.

Not expected to produce significant adverse health effects when the recommended instructions for use are followed. No known significant effects or critical hazards.

IV. First Aid Measures:

Inhalation: Remove to fresh air. If breathing is difficult, get medical attention.

Ingestion: If person is conscious, wash out mouth with water. Get medical attention.

Skin exposure: Wash skin with soap and water. If irritation develops or persists, get medical attention.

Eye exposure: Immediately flush eyes water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion: Not applicable.

Fire extinguishing media: Water spray, dry chemical, alcohol foam, or carbon dioxide.

Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.

Specific Hazard: None.

VI. Accidental Release Measures: Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Storage: Store kit in tightly closed container at 4°C.

VIII - XIII. Refer to individual MSDS for kit components for Sections 8-13 information: Exposure Controls/Personal Protection, Physical and Chemical Properties, Stability and Reactivity, Toxicological Information, Ecological information, Disposal Considerations.

XIV. Transport Information:

DOT: Proper Shipping Name: None.

This substance is considered Non-Hazardous for transport.

IATA: Proper Shipping Name: None.

This substance is considered Non-Hazardous for air transport.

XV. Regulatory Information:

EU Regulations/Classifications: Xi. Irritant.

Risk Phrases: Irritant. Irritating to eyes and skin. Harmful if swallowed.

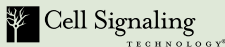
Safety Phrases: In case of contact wash with water and seek medical attention.

US Regulatory Information: Irritant.

XVI. Other Information:

This product is not intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and shall be used only as a guide. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.

Material Safety Data Sheet (MSDS) for PathScan® Intracellular Signaling Antibody Array Kit



I. Identification:

Product name: PathScan® Intracellular Signaling Antibody Array Kit
Product Catalog: 7744, 7323 Kits
Manufacturer Supplier: Cell Signaling Technology
 3 Trask Lane
 Danvers, MA 01923 USA
 978-867-2300 TEL
 978-867-2400 FAX
 978-578-6737 EMERGENCY TEL

II. Composition/Information:

Substance Name: PathScan® Intracellular Signaling Antibody Array Kit
CAS#: None
This product is For Research Use Only. According to 29 CFR 1910.1200(d), mixtures with hazardous ingredients at less than <1% and carcinogens at less than <0.1% are considered non-hazardous. Please refer to the individual material safety data sheets for hazard information specific to kit components.

- Array Slides MSDS
- PathScan® Sandwich ELISA Lysis Buffer (1X) (CST47018) MSDS
- Array Blocking Buffer MSDS
- Array Diluent Buffer MSDS
- Array Wash Buffer MSDS
- Detection Antibody Cocktail MSDS
- HRP-linked Streptavidin MSDS (Kit 7323 only)
- DyLight 680®-linked Streptavidin MSDS; (Kit 7744 only)
- 20X LumigLO & 20X Peroxide (CST47003) MSDS

III. Hazard Identification:

Emergency Overview:
 Not considered hazardous.
 Not expected to produce significant adverse health effects when the recommended instructions for use are followed. No known significant effects or critical hazards.

IV. First Aid Measures:

Inhalation: Remove to fresh air. If breathing is difficult, get medical attention.
Ingestion: If person is conscious, wash out mouth with water. Get medical attention.
Skin exposure: Wash skin with soap and water. If irritation develops or persists, get medical attention.
Eye exposure: Immediately flush eyes water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Not applicable.
Autoignition Temperature: Not applicable.
Explosion: Not applicable.
Fire extinguishing media: Water spray, dry chemical, alcohol foam, or carbon dioxide.
Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.
Specific Hazard: None.

VI. Accidental Release Measures: Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Storage: Store kit in tightly closed container at 4°C.
VIII - XIII. Refer to individual MSDS for kit components for Sections 8-13 information. Exposure Controls/Personal Protection, Physical and Chemical Properties, Stability and Reactivity, Toxicological Information, Ecological information, Disposal Considerations.

XIV. Transport Information:

DOT: Proper Shipping Name: None.
 This substance is considered Non-Hazardous for transport.
IATA: Proper Shipping Name: None.
 This substance is considered Non-Hazardous for air transport.

XV. Regulatory Information:

EU Regulations/Classifications: Xi, Irritant.
Risk Phrases: Irritant. Irritating to eyes and skin. Harmful if swallowed.
Safety Phrases: In case of contact wash with water and seek medical attention.
US Regulatory Information: Irritant.

XVI. Other Information:

This product is not intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and shall be used only as a guide. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.

Material Safety Data Sheet (MSDS) for PathScan® Antibody Array Glass/Nitrocellulose Slides (with immobilized antibodies)



I. Identification:

Product name: PathScan® Antibody Array Glass/Nitrocellulose Slides (with immobilized antibodies)
Product Catalog: 7744, 7323 Kit component
Manufacturer Supplier: Cell Signaling Technology
 3 Trask Lane
 Danvers, MA 01923 USA
 978-867-2300 TEL
 978-867-2400 FAX
 978-578-6737 EMERGENCY TEL

II. Composition/Information:

This product is For Research Use Only. There are no ingredients present that, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

III. Hazard Identification:

OSHA: Not considered hazardous.
Potential Health Effects: No known significant effects of critical hazards.

IV. First Aid Measures:

Inhalation: Remove to fresh air. If breathing is difficult, get medical attention.
Ingestion: If person is conscious, wash out mouth with water. Get medical attention.
Skin exposure: Wash skin with soap and water. If irritation develops or persists, get medical attention.
Eye exposure: Immediately flush eyes water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Not applicable.
Autoignition Temperature: Not applicable.
Explosion: Not applicable.
Fire extinguishing media: Water spray, dry chemical, foam, or carbon dioxide.
Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.
Specific Hazard: None.

VI. Accidental Release Measures: Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Store at 4°C in tightly closed container. Do not breathe vapor. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Avoid prolonged or repeated exposure.

VIII. Exposure Controls/Personal:

Ventilation System: A system of local (fume hood) and general exhaust is recommended.
Skin Protection: Wear compatible chemical resistant gloves and protective clothing.
Eye protection: Wear chemical safety goggles. Maintain emergency eyewash and shower in work area.

IX. Physical And Chemical Properties

Appearance: solid
Odor: data not available
pH: data not available
Boiling Point: data not available
Melting Point: data not available
Freezing Point: data not available
Volatile Organic Compounds (VOC): data not available
Autoignition temp.: data not available
Solubility in water: data not available

Orders ■ 877-616-CELL (2355) orders@cellsignal.com Support ■ 877-678-TECH (8324) info@cellsignal.com Web ■ www.cellsignal.com

Material Safety Data Sheet (MSDS) for PathScan® Antibody Array Blocking Buffer



I. Identification:

Product name: PathScan® Antibody Array Blocking Buffer
Product Catalog: 7744, 7323 Kit Component
CAS#: None
Manufacturer Supplier: Cell Signaling Technology
 3 Trask Lane
 Danvers, MA 01923 USA
 978-867-2300 TEL
 978-867-2400 FAX
 978-578-6737 EMERGENCY TEL

II. Composition/Information:

This product is For Research Use Only. There are no ingredients present that, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

III. Hazard Identification:

OSHA: Not considered hazardous.
Potential Health Effects: No known significant effects of critical hazards.

Routes of Exposure: None.
Skin Exposure: No known significant effects of critical hazards.
Eye Exposure: No known significant effects of critical hazards.
Inhalation: No known significant effects of critical hazards.
Ingestion: No known significant effects of critical hazards.

IV. First Aid Measures:

Inhalation: Remove to fresh air. If breathing is difficult, get medical attention.
Ingestion: If person is conscious, wash out mouth with water. Get medical attention.
Skin exposure: Wash skin with soap and water. If irritation develops or persists, get medical attention.
Eye exposure: Immediately flush eyes water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Not applicable.
Autoignition Temperature: Not applicable.
Explosion: Not applicable.
Fire extinguishing media: Water spray, dry chemical, foam, or carbon dioxide.
Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.
Specific Hazard: None.

VI. Accidental Release Measures: Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Store at 4°C in tightly closed container. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid prolonged or repeated exposure.

VIII. Exposure Controls/Personal:

Ventilation System: A system of local (fume hood) and general exhaust is recommended.
Skin Protection: Wear compatible chemical resistant gloves and protective clothing.
Eye protection: Wear chemical safety goggles. Maintain emergency eyewash and shower in work area.

Material Safety Data Sheet (MSDS) for PathScan® Sandwich ELISA Lysis buffer (1X)



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I. Identification:

Product name: PathScan® Sandwich ELISA Lysis buffer (1X)
Product Catalog: 7018
CAS#: Not applicable to mixtures
Manufacturer Supplier: Cell Signaling Technology
 3 Trask Lane
 Danvers, MA 01923 USA
 978-867-2300 TEL
 978-867-2400 FAX
 978-578-6737 EMERGENCY TEL

II. Composition/Information:

According to 29 CFR 1910.1200(d), mixtures with hazardous ingredients at less than <1% and carcinogens at less than <0.1% are considered non-hazardous.

Ingredient	Percent (%w/w)	CAS#	Hazardous
Triton X100 (polyethylene glycol octylphenyl ether)	1%	9002-93-1	Yes
Sodium pyrophosphate	0.89%	13472-36-1	No
Sodium chloride	0.88%	7647-14-5	No
Tris-HCl	-0.11%	1185-53-1	No
Sodium fluoride	-0.11%	7681-49-4	No
EGTA	-0.04%	64-42-5	No
EDTA, disodium salt	-0.04%	6381-92-6	No
Beta-glycerophosphate	0.03%	819-83-0	No
Sodium orthovanadate	-0.02%	13721-39-6	No
Leupeptin	-0.01%	103476-89-7	No
Water	>96%	7732-18-5	No

III. Hazard Identification: This product is not for use in humans. It is intended for research purposes only. **EMERGENCY OVERVIEW:**
Triton X100 (CAS# 9002-93-1) OSHA hazards: Harmful by ingestion. Irritant.

Potential Health Effects:

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: May cause eye irritation.
Ingestion: Harmful if swallowed.

IV. First Aid Measures:

Inhalation: If inhaled, remove to fresh air. If breathing is difficult, get medical attention.
Ingestion: If person is conscious, wash out mouth with water. Do not induce vomiting. Get medical attention.
Skin exposure: In case of contact, immediately wash skin with soap and water for at least 15 minutes. Remove contaminated clothing. Wash clothing before reuse.
Eye exposure: In case of contact with eyes, immediately flush eyes with water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: No data available.
Autoignition Temperature: No data available.
Explosion: No data available.
Fire extinguishing media: Water spray, dry chemical, foam, or carbon dioxide.
Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.

VI. Accidental Release Measures: Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Store at 4°C in tightly closed container. Avoid inhalation of vapor or mist. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid prolonged or repeated exposure.

VIII. Exposure Controls/Personal:

Ventilation System: A system of local and/or general exhaust is recommended.
Skin Protection: Wear compatible chemical resistant gloves and protective clothing.
Eye protection: Wear protective safety glasses or chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

IX. Physical And Chemical Properties

Appearance: clear liquid
Odor: data not available
pH: 7.5
Melting Point: data not available
Boiling Point: data not available
Flash Point: data not available
Freezing Point: data not available
Volatile Organic Compounds: data not available
Autoignition temp.: data not available
Solubility in water: soluble in phosphate buffered saline

X. Stability and Reactivity:

Stability: Stable under normal conditions.
Conditions/materials to avoid: strong oxidizing agents, strong acids, strong bases.
Hazardous Decomposition: carbon monoxide, carbon dioxide.
Hazardous polymerization: data not available.

XI. Toxicological Information:

Acute Toxicity: data not available
Chronic exposure: data not available

Potential Health Effects:

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.
Ingestion: Harmful if swallowed.

Exposure Remarks on Hazardous Ingredient Triton X100 (CAS# 99036-19-5)
 LD50 mouse intravenous: 1200 mg/kg
 LD50 rat oral 1800 - 3800 mg/kg

XII. Ecological Information:

Data not available.

XIII. Disposal Considerations: Dispose of in accordance with federal, state and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

XIV. Transport Information:

DOT: Proper Shipping Name: None. This substance is considered Non-Hazardous for transport.
IATA: Proper Shipping Name: None. This substance is considered Non-Hazardous for air transport.

XV. Regulatory Information:

Hazardous Ingredient Triton X100 (CAS# 99032-93-1)
 OSHA: Harmful by ingestion, Irritant.
 DSL: Listed
 SARA 302, 313 Not Listed
 SARA 311/312: Acute Health Hazard
 Massachusetts Right to Know Not Listed, Pennsylvania Right to Know: Listed, New Jersey Right to Know: Listed, California Prop. 65: Not Listed

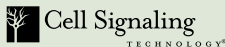
XVI. Other Information:

This product is not intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and shall be used only as a guide. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.

Orders ■ 877-616-CELL (2355) orders@cellsignal.com Support ■ 877-678-TECH (8324) info@cellsignal.com Web ■ www.cellsignal.com

Orders ■ 877-616-CELL (2355) orders@cellsignal.com Support ■ 877-678-TECH (8324) info@cellsignal.com Web ■ www.cellsignal.com

Material Safety Data Sheet (MSDS) for PathScan® Antibody Array Diluent Buffer



I. Identification:

Product name: PathScan® Antibody Array Diluent Buffer
Product Catalog: 7744, 7323 Kit Component
Manufacturer Supplier: Cell Signaling Technology
 3 Trask Lane
 Danvers, MA 01923 USA
 978-867-2300 TEL
 978-867-2400 FAX
 978-578-6737 EMERGENCY TEL

II. Composition/Information:

This product is For Research Use Only. According to 29 CFR 1910.1200(d), mixtures with hazardous ingredients at less than <1% and carcinogens at less than <0.1% are considered non-hazardous.

Ingredients:	Percent	CAS#
Bovine serum albumin	5%	9048-46-8
Tween20	<1%	9005-64-5
Kathon	<0.5%	55965-84-9
Non-hazardous phosphate buffered saline	>95%	none

III. Hazard Identification:

This product is not for use in humans. It is intended for research purposes only. To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been established.

OSHA: No known hazards.

EU: Ingredient: Kathon (0.5%); Xi: Irritant, R36/38-43-52/53

Routes of Exposure:

Skin Exposure: May cause skin irritation. May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membrane and upper respiratory tract.

Ingestion: May be harmful if swallowed.

IV. First Aid Measures:

Inhalation: Remove to fresh air. If breathing is difficult, get medical attention.

Ingestion: If person is conscious, wash out mouth with water. Get medical attention.

Skin exposure: Wash skin with soap and water. If irritation develops or persists, get medical attention.

Eye exposure: Immediately flush eyes water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion: Not applicable.

Fire extinguishing media: Water spray, dry chemical, alcohol foam, or carbon dioxide.

Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.

Specific Hazard: None.

VI. Accidental Release Measures:

Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Store at 4°C in tightly closed container. Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid prolonged or repeated exposure.

VIII. Exposure Controls/Personal:

Ventilation System: A system of local (fume hood) and general exhaust is recommended.

Skin Protection: Wear compatible chemical resistant gloves and protective clothing.

Eye protection: Wear chemical safety goggles. Maintain emergency eyewash and shower in work area.

IX. Physical And Chemical Properties

Appearance: colorless liquid
Odor: data not available
pH: data not available
Boiling Point: data not available
Melting Point: data not available
Freezing Point: data not available
Volatile Organic Compounds (VOC): data not available
Autoignition temp.: data not available
Solubility in water: data not available

X. Stability and Reactivity:

Stability: Stable under normal conditions.

Conditions/materials to avoid: Data not available.

Hazardous Decomposition: Data not available.

Hazardous polymerization: Will not occur.

XI. Toxicological Information:

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Routes of Exposure:

Skin Exposure: May cause skin irritation. May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membrane and upper respiratory tract.

Ingestion: May be harmful if swallowed.

Toxicity information on hazardous ingredient **Kathon (0.5%), CAS#55965-84-9**

LDSO Mouse Oral: 60 mg/kg LDSO Rat Oral: 53 mg/kg

XII. Ecological Information:

No data available.

XIII. Disposal Considerations:

Dispose of in accordance with federal, state and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

XIV. Transport Information:

DOT: Proper Shipping Name: None.

This substance is considered Non-Hazardous for transport.

IATA: Proper Shipping Name: None.

This substance is considered Non-Hazardous for air transport.

XV. Regulatory Information:

EU: Ingredient Kathon CAS# 55965-84-9 Annex I Listed; Index # 613-167-00-5

0.5% Kathon concentration classification: Xi: Irritant, R36/38-43-52/53

R36/38: Wear suitable protective clothing, gloves and eye/face protection

R43: May cause sensitization by skin contact.

RS3: May cause long-term adverse effects in the aquatic environment.

OSHA: No known hazards.

Canadian DSL: Not Listed.

SARA 302, 313: Not Listed.

SARA 311/312: Not Listed.

Massachusetts Right To Know: Not Listed. **Pennsylvania Right To Know:** Not Listed.

New Jersey Right To Know: Not Listed. **California Prop. 65:** Not Listed.

XVI. Other Information:

This product is not intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and shall be used only as a guide. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.

Material Safety Data Sheet (MSDS) for PathScan® Antibody Array Wash Buffer



I. Identification:

Product name: PathScan® Antibody Array Wash Buffer
Product Catalog: 7744, 7323 Kit Component
Manufacturer Supplier: Cell Signaling Technology
 3 Trask Lane
 Danvers, MA 01923 USA
 978-867-2300 TEL
 978-867-2400 FAX
 978-578-6737 EMERGENCY TEL

II. Composition/Information:

This product is For Research Use Only. According to 29 CFR 1910.1200(d), mixtures with hazardous ingredients at less than <1% and carcinogens at less than <0.1% are considered non-hazardous.

Ingredients:	Percent	CAS#
Tween20	2%	9005-64-5
Non-hazardous 20X phosphate buffered saline	98%	none

III. Hazard Identification:

This product is not for use in humans. It is intended for research purposes only. To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been established.

Routes of Exposure:

Skin Exposure: May cause skin irritation. May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membrane and upper respiratory tract.

Ingestion: May be harmful if swallowed.

Toxicity information on hazardous ingredient **Kathon (0.5%), CAS#55965-84-9**

LDSO Mouse Oral: 60 mg/kg LDSO Rat Oral: 53 mg/kg

IV. First Aid Measures:

Inhalation: Remove to fresh air. If breathing is difficult, get medical attention.

Ingestion: If person is conscious, wash out mouth with water. Get medical attention.

Skin exposure: Wash skin with soap and water. If irritation develops or persists, get medical attention.

Eye exposure: Immediately flush eyes water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion: Not applicable.

Fire extinguishing media: Water spray, dry chemical, alcohol foam, or carbon dioxide.

Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.

Specific Hazard: None.

VI. Accidental Release Measures:

Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Store at 4°C in tightly closed container. Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid prolonged or repeated exposure.

VIII. Exposure Controls/Personal:

Ventilation System: A system of local (fume hood) and general exhaust is recommended.

Skin Protection: Wear compatible chemical resistant gloves and protective clothing.

Eye protection: Wear chemical safety goggles. Maintain emergency eyewash and shower in work area.

IX. Physical And Chemical Properties

Appearance: colorless liquid
Odor: data not available
pH: data not available
Boiling Point: data not available
Melting Point: data not available
Freezing Point: data not available
Volatile Organic Compounds (VOC): data not available
Autoignition temp.: data not available
Solubility in water: data not available

X. Stability and Reactivity:

Stability: Stable.

Conditions/materials to avoid: Data not available.

Hazardous Decomposition: Data not available.

Hazardous polymerization: Will not occur.

XI. Toxicological Information:

No known hazards.

Routes of Exposure:

Skin Exposure: May cause skin irritation. May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membrane and upper respiratory tract.

Ingestion: May be harmful if swallowed.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

XII. Ecological Information:

No data available.

XIII. Disposal Considerations:

Dispose of in accordance with federal, state and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

XIV. Transport Information:

DOT: Proper Shipping Name: None.

This substance is considered Non-Hazardous for transport.

IATA: Proper Shipping Name: None.

This substance is considered Non-Hazardous for air transport.

XV. Regulatory Information:

EU: Not classified.

OSHA: No known hazards.

Canadian DSL: Not Listed.

SARA 302, 313: Not Listed.

SARA 311/312: Not Listed.

Massachusetts Right To Know: Not Listed. **Pennsylvania Right To Know:** Not Listed.

New Jersey Right To Know: Not Listed. **California Prop. 65:** Not Listed.

XVI. Other Information:

This product is not intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and shall be used only as a guide. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.

Material Safety Data Sheet (MSDS) for PathScan® Antibody Array Detection Antibody Cocktail



I. Identification:

Product name: PathScan® Antibody Array Detection Antibody Cocktail
Product Catalog: 7744, 7323 Kit Component
Manufacturer Supplier: Cell Signaling Technology
 3 Trask Lane
 Danvers, MA 01923 USA
 978-867-2300 TEL
 978-867-2400 FAX
 978-578-6737 EMERGENCY TEL

II. Composition/Information:

This product is For Research Use Only. According to 29 CFR 1910.1200(d), mixtures with hazardous ingredients at less than <1% and carcinogens at less than <0.1% are considered non-hazardous.

Ingredients:	Percent	CAS#
Bovine Serum Albumin	5%	9048-46-8
Tween20	<1%	9005-64-5
Kathon	<0.5%	55965-84-9
Immunoglobulin	<0.1%	none
Non-hazardous phosphate buffered saline	>95%	none

III. Hazard Identification:

This product is not for use in humans. It is intended for research purposes only. To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been established.

OSHA: Not considered hazardous.

EU: Ingredient: Kathon (0.5%); Xi: Irritant, R36/38-43-52/53

Routes of Exposure:

Skin Exposure: May cause skin irritation. May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membrane and upper respiratory tract.

Ingestion: May be harmful if swallowed.

IV. First Aid Measures:

Inhalation: Remove to fresh air. If breathing is difficult, get medical attention.

Ingestion: If person is conscious, wash out mouth with water. Get medical attention.

Skin exposure: Wash skin with soap and water. If irritation develops or persists, get medical attention.

Eye exposure: Immediately flush eyes water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion: Not applicable.

Fire extinguishing media: Water spray, dry chemical, foam, or carbon dioxide.

Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.

Specific Hazard: None.

VI. Accidental Release Measures:

Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Store at 4°C in tightly closed container. Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid prolonged or repeated exposure.

VIII. Exposure Controls/Personal:

Ventilation System: A system of local (fume hood) and general exhaust is recommended.

Skin Protection: Wear compatible chemical resistant gloves and protective clothing.

Eye protection: Wear chemical safety goggles. Maintain emergency eyewash and shower in work area.

IX. Physical And Chemical Properties

Appearance: colorless liquid
Odor: data not available
pH: data not available
Boiling Point: data not available
Melting Point: data not available
Freezing Point: data not available
Volatile Organic Compounds (VOC): data not available
Autoignition temp.: data not available
Solubility in water: data not available

X. Stability and Reactivity:

Stability: Stable.

Conditions/materials to avoid: Bases, oxidizing agents.

Hazardous Decomposition: Data not available.

Hazardous polymerization: Will not occur.

XI. Toxicological Information:

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Routes of Exposure:

Skin Exposure: May cause skin irritation. May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membrane and upper respiratory tract.

Ingestion: May be harmful if swallowed.

Toxicity information on hazardous ingredient **Kathon (0.5%), CAS#55965-84-9**

LDSO Mouse Oral: 60 mg/kg LDSO Rat Oral: 53 mg/kg

XII. Ecological Information:

No data available.

XIII. Disposal Considerations:

Dispose of in accordance with federal, state and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Material Safety Data Sheet (MSDS) for PathScan® Antibody Array Dylight 680®-linked Streptavidin



I. Identification:

Product name: PathScan® Antibody Array Dylight 680®-linked Streptavidin
Product Catalog: 7744 Kit Component
Manufacturer Supplier: Cell Signaling Technology
 3 Trask Lane
 Danvers, MA 01923 USA
 978-867-2300 TEL
 1-978-867-2400 FAX
 978-578-6737 EMERGENCY TEL

II. Composition/Information:

This product is For Research Use Only. According to 29 CFR 1910.1200(d), mixtures with hazardous ingredients at less than <1% and carcinogens at less than < 0.1% are considered non-hazardous.

Ingredients:	Percent	CAS#
Bovine serum albumin	5%	9048-46-6
Tween20	<1%	9005-64-5
Kathon	<0.5%	55965-84-9
Non-hazardous phosphate buffered saline	>95%	none

III. Hazard Identification:

This product is not for use in humans. It is intended for research purposes only. To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been established.

OSHA: No known hazards.
EU: Ingredient Kathon (0.5%): Xi: Irritant. R36/38-43-52/53

Routes of Exposure: **Skin Exposure:** May cause skin irritation. May be harmful if absorbed through skin.

Eye Exposure: May Cause eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membrane and upper respiratory tract.
Ingestion: May be harmful if swallowed.

IV. First Aid Measures:

Inhalation: Remove to fresh air. If breathing is difficult, get medical attention.

Ingestion: If person is conscious, wash out mouth with water. Get medical attention.

Skin exposure: Wash skin with soap and water. If irritation develops or persists, get medical attention.

Eye exposure: Immediately flush eyes water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion: Not applicable.

Fire extinguishing media: Water spray, dry chemical, alcohol foam, or carbon dioxide.

Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes.

Specific Hazard: None.

VI. Accidental Release Measures: Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Store at 4°C in tightly closed container. Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid prolonged or repeated exposure.

VIII. Exposure Controls/Personal:

Ventilation System: A system of local (fume hood) and general exhaust is recommended.

Skin Protection: Wear compatible chemical resistant gloves and protective clothing.

Eye protection: Wear chemical safety goggles. Maintain emergency eyewash and shower in work area.

IX. Physical And Chemical Properties

Appearance: colorless liquid
Odor: data not available
pH: data not available
Boiling Point: data not available
Melting Point: data not available
Freezing Point: data not available
Volatile Organic Compounds (VOC): data not available
Autoignition temp.: data not available
Solubility in water: data not available

X. Stability and Reactivity:

Stability: Stable under normal conditions.

Conditions/materials to avoid: Data not available.

Hazardous Decomposition: Data not available.

Hazardous polymerization: Will not occur.

XI. Toxicological Information:

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Routes of Exposure:

Skin Exposure: May cause skin irritation. May be harmful if absorbed through skin.

Eye Exposure: May cause eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membrane and upper respiratory tract.

Ingestion: May be harmful if swallowed.

Toxicity Information on hazardous Ingredient: **Kathon (0.5%), CAS#55965-84-9**

LD50 Mouse Oral: 60 mg/kg LD50 Rat Oral: 53 mg/kg

XII. Ecological Information:

Ecological Information: No data available.

XIII. Disposal Considerations:

Dispose of in accordance with federal, state and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

XIV. Transport Information:

DOT: Proper Shipping Name: None.

This substance is considered Non-Hazardous for transport.

IATA: Proper Shipping Name: None.

This substance is considered Non-Hazardous for air transport.

XV. Regulatory Information:

EU: Ingredient Kathon CAS# 55965-84-9 Annex I Listed; Index #: 613-167-00-5

0.5% Kathon concentration classification: Xi: Irritant. R36/38-43-52/53

R36/38: Wear suitable protective clothing, gloves and eye/face protection

R43: May cause sensitization by skin contact.

RS3: May cause long-term adverse effects in the aquatic environment.

OSHA: No known hazards.

Canadian DSL: Not Listed.

SARA 302, 313: Not Listed.

SARA 311/312: Not Listed.

Massachusetts Right To Know: Not Listed. **Pennsylvania Right To Know:** Not Listed.

New Jersey Right To Know: Not Listed. **California Prop. 65:** Not Listed.

XVI. Other Information:

This product is not intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and shall be used only as a guide. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.

Material Safety Data Sheet (MSDS) for 20X LumiGLO® and 20X Peroxide



I. Identification:

Product name: 20X LumiGLO® and 20X Peroxide

Product Catalog: 7003

CAS number: None

Manufacturer Supplier: Cell Signaling Technology
 3 Trask Lane
 Danvers, MA 01923 USA
 1-978-867-2300 TEL
 1-978-867-2400 FAX
 1-978-578-6737 Emergency TEL

II. Composition/Information on Ingredients:

Hazardous Reagent:	Percent	CAS#
Dimethyl sulfoxide	≥20%	67-68-5

This product is For Research Use Only. According to 29 CFR 1910.1200(d), mixtures with hazardous ingredients at less than <1% and carcinogens at less than < 0.1% are considered non-hazardous.

III. Hazard Identification:

CAUTION: This product is not for use in humans. It is intended for research purposes only. To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been established.

Emergency Overview: Irritant. Irritating to eyes, respiratory system, skin.

Potential Health Effects:

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Eye Contact: May cause eye irritation.

Skin Contact: May be harmful if absorbed through skin. Prolonged or repeated contact may cause skin irritation.

Ingestion: May be harmful if swallowed.

IV. First Aid Measures:

Inhalation: Remove to fresh air. If breathing is difficult, get medical attention.

Ingestion: If person is conscious, wash out mouth with water. Get medical attention.

Skin exposure: Wash skin with soap and water. If irritation develops or persists, get medical attention.

Eye exposure: Immediately flush eyes water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: N/A

Autoignition Temperature: N/A

Explosion: N/A

Fire extinguishing media: water spray, dry chemical, alcohol foam, or carbon dioxide.

Firefighting: wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes. May emit toxic fumes under fire conditions.

VI. Accidental Release Measures:

Wear appropriate personal protective equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contaminated absorbent to a closed chemical waste container for disposal. Wash spill site after material has been picked up for disposal.

VII. Handling And Storage:

Store at 4°C in tightly closed container.

Avoid inhalation of vapor or mist. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid prolonged or repeated exposure.

VIII. Exposure Controls/Personal:

Ventilation System: a system of local and/or general exhaust is recommended.

Skin Protection: wear compatible chemical resistant gloves and protective clothing.

Eye protection: wear protective safety glasses or chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

IX. Physical And Chemical Properties:

Appearance: clear faint yellow colored liquid
Odor: data not available
pH: data not available
Boiling Point: >100 °C/212 °F (water)
Melting or Freezing Point: <0 °C/32 °F (water)
Flash Point: data not available
Volatile Organic Compounds (VOC): data not available
Autoignition temp.: data not available
Solubility (water): miscible in water

X. Stability and Reactivity:

Stability: Stable under normal conditions.

Conditions to avoid: strong oxidizing agents, strong acids, strong bases.

Hazardous Decomposition: carbon monoxide, carbon dioxide.

Hazardous polymerization: will not occur.

XI. Toxicological Information:

Acute toxicity: data not available. Chronic exposure: data not available

Potential Health Effects:

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.

Skin: May be harmful if absorbed through skin. Causes skin irritation.

Eyes: Causes eye irritation.

Ingestion: Harmful if swallowed.

Toxicity Data on Hazardous ingredient Dimethyl Sulfoxide, CAS#67-68-5

RTCS: P48210000

LD50 Oral rat 14,500 mg/kg

LC50 Inhalation rat 4 h 40250 ppm

LD50 Dermal rabbit > 5,000 mg/kg

XII. Ecological Information:

Ecological Information: No data available.

XIII. Disposal Considerations:

Dispose of in accordance with federal, state and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

XIV. Transport Information:

D.O.T. Proper Shipping Name: None. This substance is considered non-hazardous for transport.

IATA Proger Shipping Name: None. This substance is considered non-hazardous for air transport.

XV. Regulatory Information:

EU: Not classified

OSHA: Ingredient Dimethyl Sulfoxide, CAS#67-68-5: Combustible Liquid, Target Organ Effect

Canadian DSL Listed; Ingredient Dimethyl Sulfoxide, CAS#67-68-5

SARA 302, 313 Ingredients Not Listed

SARA 311/312; Ingredient Dimethyl Sulfoxide, CAS#67-68-5: Fire Hazard, Chronic Health Hazard.

Massachusetts Right To Know: Ingredients Not Listed

Pennsylvania Right To Know: Ingredient Dimethyl Sulfoxide, CAS#67-68-5

New Jersey Right To Know: Ingredient Dimethyl Sulfoxide, CAS#67-68-5

California Prop. 65: Ingredients Not Listed.

XVI. Other Information:

This product is for research use only and is not intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for safe use of this product in a laboratory setting by experienced personnel. The burden of safe use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and shall be used only as a guide. Cell Signaling Technology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.