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

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).

Quantity	Cap Color
2 slides	
2 gaskets	
2 sheets	
15 ml	White
5 ml	Red
15 ml	Blue
300 µІ	White
300 µІ	Brown
30 ml	Clear
	2 slides 2 gaskets 2 sheets 15 ml 5 ml 15 ml 300 µl

*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
ĺ	6	Akt	Thr308	Phosphorylation
1	7	Akt	Ser473	Phosphorylation
	8	AMPKlpha	Thr172	Phosphorylation
ĺ	9	S6 Ribosomal Protein	Ser235/236	Phosphorylation
	10	mTOR	Ser2448	Phosphorylation
	11	HSP27	Ser78	Phosphorylation
ĺ	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

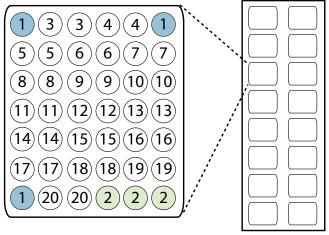


Figure 1. Target map of the PathScan® Intracellular Signaling Array Kit (Fluorescent Readout) #7744.

U.S. Patent No. 5,675,063 DyLight is a trademark of Thermo Fisher Scientific Inc. and its subsidiaries.

Applications Key:	W —Western	IP —Imm	unoprecipitation	IHC—	-Immunohistochen	nistry ChIP—	Chromatin Immu	unoprecipitation	IF—Immunofluorescence	F —Flov	w cytometry	E-P —ELISA-Peptide
Species Cross-Rea	ctivity Key:	H —human	M —mouse	R —rat	Hm —hamster	Mk-monkey	Mi-mink	C —chicken	Dm—D. melanogaster X—	-Xenopus	Z —zebrafish	B —bovine
Dg—dog Pg—pig Sc—S. cerevisiae All—all species expected Species enclosed in parentheses are predicted to react based on 100% sequence homology.												

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 phoshphorylation 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.

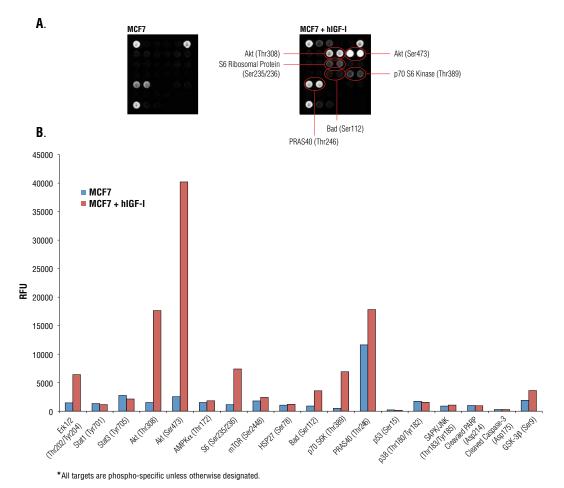
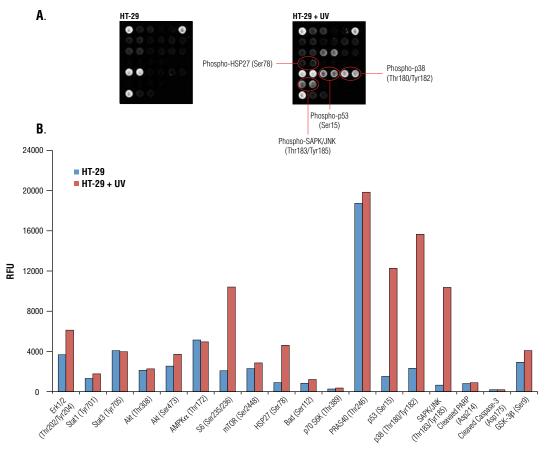


Figure 2. MCF7 cells were grown to 80% confluency and then serum starved overnight. Cells were either untreated or treated with Human Insulin-like Growth Factor I (hIGF-I) #8917 (100 ng/ml, 20 min). Cell extracts were prepared and analyzed using the PathScan® Intracellular Signaling Array Kit (Fluorescent 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.





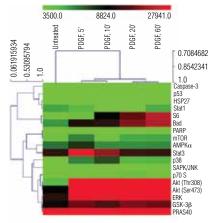
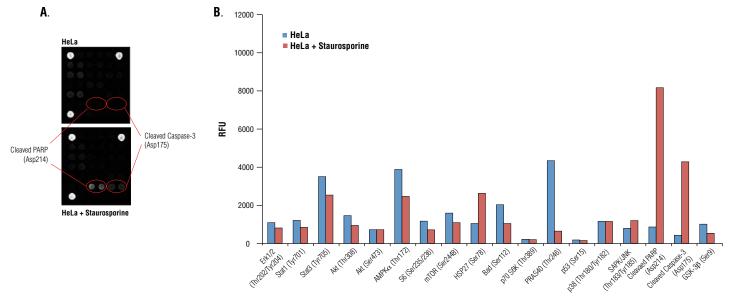


Figure 5. NIH/3T3 cells were grown to 85% confluency and then serum starved overnight. Cells were treated with Human Platelet-Derived Growth Factor BB (hPDGF-BB) #8912 (100 ng/ml) for the indicated time periods and cell extracts were prepared and analyzed using the PathScan® Intracellular Signaling Array 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 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 PathScar® 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.



*All targets are phospho-specific unless otherwise designated.

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.

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

LI-COR® is a trademark of LI-COR Biosciences.

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^{*}All targets are phospho-specific unless otherwise designated.

PathScan® Antibody Array Kit (Fluorescent Readout) Protocol

Preparing Cell Lysates

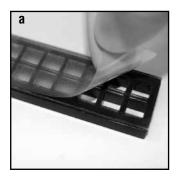
- 1. Thaw 1X Cell Lysis Buffer #7018 and mix thoroughly. Supplement Cell Lysis Buffer with phenylmethylsulfonyl fluoride (PMSF) to a final concentration of 1 mM, or a cocktail of protease inhibitors (not included). Keep lysis buffer on ice.
- Remove media and wash cells once with ice-cold 1X PBS.
- Remove 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.
- 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.
- Immediately before performing the assay, dilute lysates to 0.2 1.0 mg/ml in Array Diluent Buffer. Set aside on ice.

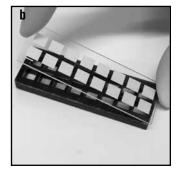
Assay Procedure

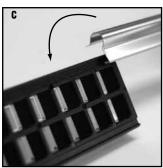
- 1. Bring glass slides and blocking buffer to room temperature before use.
- 2. Prepare 1X Array Wash Buffer by diluting 20X Array Wash Buffer in deionized
 - Dilute 1mL of 20X Array Wash Buffer with 19 ml of deionized water. Label as 1X Array Wash Buffer.
- 3. Prepare 1X Detection Antibody Cocktail as follows:
 - For running only 1 slide: Dilute 150uL 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.
- 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.

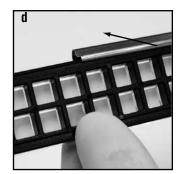
- 8. Decant well contents by gently flicking out the liquid into a sink or other appropriate waste receptacle. Add 100 µl 1X Array Wash Buffer to each well and incubate for 5 minutes at room temperature on an orbital shaker. Repeat three more times. Decant well contents.
- 9. Add 75 µl 1X Detection Antibody 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.

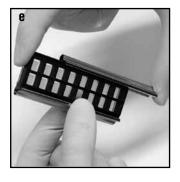
DyLight™ is a registered trademark of Thermo Fisher Scientific Inc. and its subsidiaries.













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 Steptavidin 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

allention.

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.

I. Identification:

Product name: PatiScari Intracellular Signaling Antibody Array Kit Product Catalog: 7744, 7232 Kits Manufacturer Supplier: Cell Signaling Technology 3 Tiask Lane Damers. MA 01923 USA 978-867-2000 TEL 978-867-2000 TEL 978-878-72400 FAX

II. Composition/Information: Substance Name: PathScan® Intracellular Signaling

Substance Name: PathScan[®] Intracellular Signaling Artibody Array Kit CASR: None
This product is For Research Use Only. According to 29 CFR 1910.1200(d), mixtures with hazardoss ingredients all sets Than 1-5% and carricongers all sets Than 4-01% are considered non-hazardous. Please refer to the individual material safety data sheets for hazard information specific bit of components.

• Array Sidies MSDS.
• PathScan[®] Capation FIT KE Loss Patter (17) (/CST27118) MSDS.

- Array Slides MSUS
 PathScare® Sandwich ELISA Lysis Buffer (1X) (CST#7018) MSDS
 Array Blocking Buffer MSDS
 Array Diluent Buffer MSDS
 Array Wash Buffer MSDS

- Parlay wash bullet msbs
 Detection Antibody Cocktail MSDS
 HIRP-linked Streptavidin MSDS (Kit 7323 only)
 DyLight 680®-linked Steptavidin MSDS (Kit 7744 only)
 20X LumiGLO & 20X Peroxide (CST#7003) MSDS

III. Hazard Identification:

Not expected to produce significant adverse health effects when the recommon 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

Eve exposure: Immediately flush eves 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

Firefighting: War protective clothing and self-contained breathing apparatus to

contact with skin and eyes.

Specific Hazard: None

VI. Accidental Release Measures: Wear appropriate personal protective equipment as indicated in Section VIII. Basorb 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:

VIII - XIII. Refer to individual MSDS for kit components for Sections 8-13 infi tion: Exposure Controls/Personal Protection, Physical and Chemical Properties, Stability 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. Irritart.
Risk Phrases: Irritant. Irritaling 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 quide for set 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 to believed to be accurate but is not necessaryly all-inclusives and shall be used only as a guide. Cell Signating Technology, Inc., shall not be held liable for any damage resulting from the handling of or from condract with the above portaining to a guide.

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



I. Identification: Product name: PathScan® Sandwich |
Product Catalog: 7018
CAS#: n/a (not applicable to mixtures)

t cell signaling technology 3 Trask Lane Darivers, 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.

Percent (%w/v)	CAS#	Hazard
1%	9002-93-1	Yes
0.89%	13472-36-1	No
0.88%	7647-14-5	No
0.32%	1185-53-1	No
<0.11%	7681-49-4	No
<0.04%	64-42-5	No
<0.04%	6381-92-6	No
0.03%	819-83-0	No
<0.02%	13721-39-6	No
<0.01%	103476-89-7	No
>96%	7732-18-5	No
	0.89% 0.88% 0.32% <0.11% <0.04% <0.04% 0.03% <0.01%	1% 902-93-1 0.89% 13472-96-1 0.89% 7647-14-5 0.32% 1185-53-1 -0.11% 7681-49-4 -0.04% 64-2-5 -0.03% 819-83-0 -0.00% 13721-39-6 -0.01% 103476-837-

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 vomilting. Get medi-

cal 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. Autologilition Temperature: No data available. Explosion: No data available. Explosion: No data available. Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent contact

g VI. Accidental Release Measures: Wear appropriate personal p equipment as indicated in Section VIII. Absorb liquid with an absorbent material. Transfer contain nated 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 lightly 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:	ciear iiquiu
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: storog oxidizing agents, strong acids, strong bases.
Hazardous Decomposition: carbon monoxide, carbon dioxide.
Hazardous polymerization: data not available.

XI. Toxicological Information:

Potential Health Effects: Inhalation: May be harmful if inhaled. Causes respiratory tract irritation. Skim: May be harmful if absorbed through skin. Causes skin irritation. Eyes: Causes speci 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 federal, state and local environmental regulati 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

XV. Regulatory Information:

Hazardous Ingredient Triton X100 (CAS# 9002-93-1)
OSHA: Harmful by ingestion, Irritant.

DGL Lised
SARA 302, 313 Not Lised
SARA 302, 313 Not Lised
SARA 31 (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

regil in lower Listed, custional regil, do not Lised 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 for serve as quide for set use of this product in a laboratory set-ting by experienced presonnel. The busiden of sale use of this material rests entirely with the user. The above information is believed to be counted but in ort onescally eli-inclusive and shall be used only as a guide. Cell Signating Technology, Inc., shall not be held table for any damage resulting time the handling of of time contact with the base perioduct.

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

I. Identification:

I. Identification:

Product name: PlaScar[®] Antibody Array Glass/Mitocellulose Slides (with immobilized antibodies)

Product Catalog: 174, 72.28 ktc.orgonomotology

Manufacturer Supplier: Cel Signaling Technology

3 Tasak Lane

Damers. MA 01923 U.S.

97.65.76.00 TEA

97.65.76.76.73 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 connertrations 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 haza

IV. First Aid Measures:

TV. FIRST AID INCESSITES:
Inhalation: Remove to fresh air. It breathing is difficult, get medical attention.
Ingestion: It person is conscious, wash out mouth with water. Cet medical attention.
Skin exposure: Wash skin with soap and water. If irritation develops or persists, get medical

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

V. Fire Fighting Measures:

Plash Point: Not applicable. Autoignition Temperature: Not applicable.

Specific Hazard: None.

Explosion: Not applicable.

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

Fireflighting: 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. Ascorb 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 (tume hood) and general exhaust is recommended.

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

Eve protection: Wear chemical safety goggles. Maintain emergency eyewash and shower in word cases.

IX. Physical And Chemical Properties

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

X. Stability and Reactivity:

Stability: Stable.

Conditions/materials to avoid: Data not available.

Hazardous Decomposition: Data not available. Hazardous polymerization: Should not occur under normal condition of storage and use

XI. Toxicological Information:

physical, and toxicological properties have not

Routes of Exposure:
Skin Exposure: Data not available.
Eye Exposure: Data not available.
Inhalation: Data not available.
Ingestion: Data not available.

XII. Ecological Information: Data not available.

XIII. Disposal Considerations: Dispose of in accordance with federa

XIV. Transport Information:

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

XV. Regulatory Information:

EU: Not classified.

OSHA: Not listed.

Canadian DSL: Not Listed.

SARA 302, 313: Not Listed.

SARA 311/312: Not Lis

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:

XVI. Other Information:

This product is not instead for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for sale use of this product in a laboratory setting, by experienced personnel. The burden of sale use of this material rest 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 Signating Technology, Inc., shall not be held faible for any damage resulting from the landing of or from contract with the above portaining for the familing of or firm contract with the above portaining for the familing of or firm contract with the above portaining for the familing of or firm contract with the above portaining for the familing of or firm contract with the above portaining for the familing of or firm contract with the above portaining for the families of the families

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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

3 Irask 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:

Routes of Exposure:

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: Inhabition: Remove to Iresh air. If breshing is difficult, get medical attention. Ingestion: It person is conscious, weath out mouth with water. Get medical attention. Skin exposure: Wash skin with soap and water. If irritation develops or persists, get medical

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.

Abunganism surprisms and a septisms of the Explosion: Not applicable. Fire extinguishing media: Water spray, dry chemical, foam, or carbon dioxide. Fireflighting: 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 e thoroughly after handling. Avoid prolonged or repeated expo VIII. Exposure Controls/Personal:

Ventilation System: A system of local (time 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

IX. Physical And Chemical Properties

pH: Boiling Point: Melting Point: data not available Freezing Point: data not available Volatile Organic Compounds (VOC): data not available data not available Solubility in water: soluble in water

X. Stability and Reactivity:

Stability: Stable.

Conditions/materials to avoid: Data not available.

Hazardous Decomposition: Data not available.

Hazardous polymerization: should not occur under normal condition of storage and use.

XI. Toxicological Information:
To the best of our knowledge, the chemical, physical, and

sical, and toxicological properties have not been

thoroughly investigated.

Potential Health Effects: No known significant effects of critical hazards.

Routes of Exposure:

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.

XII. Ecological Information: No data available XIII. Disposal Considerations: Dispose of in accordance with federal,

XIV. Transport Information:
D0T: 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:

OSHA: Not listed.
Canadian DSL: Not Listed
SARA 302, 313: Not Liste

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:

XVI. Other Information:

This product is not intereded for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a quide for sale use of this product in a laboratory setting is experienced personnel. The burden of sale use of this metaric lates entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and shall be use only as a quide. Cell Signating fechology, (inc. shall not be held liable for any damage resultin from the handling of or from contact with the above product.

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I. Identification:

Product name: PathScan® Antibody Array Diluent Buffer Product Catalog: 7744, 7223 Kit Component Manufacturer Supplier: Cell Signaling Technology 3 Trask Lane Danyers, MA 01923 USA 978-967-2300 TEA 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

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.

DMR: NO NORMAL PROPERTY AND A NORMAL PROPERT upper respiratory tract. Ingestion: May be harmful if swallowed

IV. First Aid Measures:

IV. FIRST AID INCASURES:
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

Eve exposure: Immediately flush eves water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

riasn roint: Not applicable.

Autoignition Temperature: Not applicable.

Explosion: Not applicable.

Fire extraction:

Explosion: Not applicable.

Fire extinguishing media: Water spray, dry chemical, alcohol foam, or carbon di Fireflighting: Wear protective clothing and self-contained breathing apparatus to pr 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 absorbert material. Transfer contaminated absorbert 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 (time hood) and general exhaust is recommended.

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

Eve protection: Wear chemical safety goggles. Maintain emergency eyewash and shower in work orace.

IX. Physical And Chemical Properties

Appearance: Odor: data not availabl data not available pH: Boiling Point: data not available data not available unds (VOC): 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:

nd toxicological properties have not

Routes of Exposure:
Skin Exposure: May case 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 spiratory tract. on: 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: No data available

XIII. Disposal Considerations: Dispose of in accordance with federal,

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 Kalmon CAS# 55565-64-9 Annex IL Listed: Index. # 613-167-00-5
0.0% Kalmon connectration classification: X: Irribart. 1856:69-43-5263
1836;68: Was suitable protective clothing, gloves and synface protection
1843: Way cause suitable protection effects in the aquatic environment.
0944: Way cause large-term adverse effects in the aquatic environment.
0944: Way forces resident the control of the cont

Canadian DSL: Not Listed. SARA 302, 313: Not Listed. SARA 311/312: Not Listed.

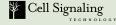
Massachusetts Right To Know: Not Listed. Pennsylvania Right To Know: Not Listed.

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 it concause, it is intended to see see a guide for seal use of this product in a laboratory setting it experienced personnel. The burden of sale use of this material rests entirely with the user. The above information is believed to be accurate but is not necessarily all-inclusive and also 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 premating the control and the thing of the form contact with the above premating the control and the distribution of the control with the above premating the control and the thing the control of the co

CAS#

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

3 Trask Lane Danvers, MA 01923 USA 978-867-2300 TEL 978-867-2400 FAX 978-578-6737 EMERGENCY TEL

II. Composition/Information:

non-hazardous

Bovine Saline 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 hazardus. EU: Ingredient Not (3%): XI: Infant. R36/38-43-52/53

EU: imptitione neuence year or produce of Exposure:

Skin Exposure: May case 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:

IN. I ISL AND INICASUITES:
Inhalation: Remove to fresh air. If breathing is difficult, get medical attention.
Ingestion: It person is conscious, wash out mouth with water. Cet 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 Autologilition Temperature: Not applicable. Explosion: Not applicable. Explosion: Not applicable. Fire extinguishing media: Water spray, dry chemical, foam, or carbon dioxide. Firefighting: Wear protective circlining and self-contained breathing apparatus to pre-contact with skin and exes. Specific Hazard: None.

VI. Accidental Release Measures: Wear appropriate perso protective equipment as indicated in Section VIII. Absorb liquid with an absorbent ma 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.

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

VIII. Exposure Controls/Personal:

VIII. EXPOSUITE CONTROLS FERSONIA.

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 Eye protect

IX. Physical And Chemical Properties

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

Routes of Exposure:
Skin Exposure: May case skin irritation. May be harmful if absorbed through skin.
Eye Exposure: May case eye irritation.
Inhalation: May be harmful if inhaled. Material may be irritating to mucous membrane and upper 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/kq

XII. Ecological Information: No data available.

XIII. Disposal Considerations: Dispose of in accordance with fed 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: X: Irritant. R58/38-43-52/53
R58/38: Wher suitable protective Clothing, gloves and eyeface protection
R43: May cause sensitization by skin contact.

R53: 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:

XVI. Other Information:

This product is no intended for use in humans. To the best of our knowledge, this document is accurate. It is intended to serve as a guide for sale use of this product in a bloodarry setting by experienced personnel. The burden of side use of this product in a bloodarry setting by experienced personnel. The burden of side use of this material rest-certifye with the eutre had we information is believed to be accurate but in not necessarily all-inclusive and shall be used nowly as a guide. Cell Signaling Technology, for., shall not be held flable for any damage resulting from the headings of or from contact with the above product.

I. Identification:

Product name: PathScan® Antibody Array Wash Buffer Product Catalog:7744, 7323 Kit Component rer Supplier: Cell Signaling Technology 3 Trask Lane Danvers, MA 01923 USA 978-867-2900 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 hearzfous ingredients at less than < 1% and carcinogens at less than < 0.1% are consider non-heazerfous.

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

III Hazard Identification:

No known hazards.

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

IV. First Aid Measures:
Inhalation: Remove to fresh air it 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. It irritation develops or persists, get medical Eye exposure: Immediately flush eyes water for at least 15 minutes. Get medical attention

V. Fire Fighting Measures:

This Politic Not applicable.

Autoignition Temperature Not applicable.

Explosion: Not applicable.

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

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

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

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

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

Fire actinguishing media: Water spray, dry chemical, alcohol foam, or carbon dioxide. VI. Accidental Release Measures: Wear appropriate personal

ACCEASE. INCASSILINES War 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 (tune hood) and general exhaust is recommendation. We are compatible chemical resistant gloves and protective clothing. Eye protection: Wear chemical safety goggles. Maintain emergency eyewash and sho work area.

IX. Physical And Chemical Properties

Appearance: Odor: data not available pH: Boiling Point: data not available Melting Point:
Freezing Point:
Volatile Organic Compounds (VOC): 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:

Routes of Exposure:
Skin Exposure: May case skin irritation. May be harmful if absorbed through skin.
Eye Exposure: May cause yel 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

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:

OSHA: Not classified.

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 so ruse in humans. To the best of our knowledge, this document is a courzule. It is intended so reave as a guide bot a few as the product in a laboratory setting by experienced personnel. The burden of sale use of this netarial rests entirely with the user. The above incomparison of the sale in the s

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



I Identification: Product name: PathScan® Antibody Array HRP-linked Streptavidin Product Catalog: 7323 Kit component CAS®: None

facturer 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, with
the current knowledge of the supplier and in the concentrations applicable, are classified
hazardous to health or the environment and hence require reporting in this section.

III. Hazard Identification: na: Not considered nazardous. Ential Health Effects: No known significant effects of critical hazards.

Routes of Exposure:

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

Eve exposure: Immediately flush eves water for at least 15 minutes. Get medical attention.

V. Fire Fighting Measures:

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion: Not applicable.

Expression. For approache:
Fire extinguishing media: Water spray, dry chemical, foam, or carbon dioxide.
Firefighting: Wear protective clothing and self-contained breathing apparatus to prevent

VI. Accidental Release Measures: Wear appropriate pers 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 (fune hood) and general exhaust is recommended.

Skin Protection: Wear compatible beneinal resistant glowes and protective clothing.

Fig. profection: Wear chemical safety goggles. Maintain emergency eyewash and shower in water the exercise of the profession of t

IX. Physical And Chemical Properties Appearance: Odor: colorless liquid uoor: pH: Boiling Point: Metting Point: Freezing Point: Volatile Organic Compounds (VOC): Autoignition temp.:

X. Stability and Reactivity: Stability: Stable.

Conditions/materials to avoid: Data not available.

Hazardous Decomposition: Data not available. Hazardous polymerization: should not occur under normal condition of storage and use XI. Toxicological Information:
To the best of our knowledge, the chemical, physical, and toxico

Potential Health Effects: No known significant effects of critical hazards.

Potential Hearin Littlets. Yo Moorn again and a Routes of Exposure: Skin Exposure: No known significant effects of critical ha 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.

XII. Ecological Information: Data not available. XIII. Disposal Considerations: Dispose of in accordance with federal, et al. and Incal environmental regulations. This product is not considered hazardous waste.

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: OSHA: No known hazards. Canadian DSL: 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 conduct is not intended for use in humans. To the best of our knowledge, this document is This product is not intended for use in humans. To the best of our knowledge, this document is a courable. It is intended to serve as a guide for seal use of this product in a laboratory settling by experienced personnel. The burden of safe use of this material rests entirely with the user. The above intromation is to believed to be accurate but is not necessity all inclusives and datable be used only as a guide. Cell Signating Technology, Inc., shall not be held falsible for any damage resulting from the handling of ar from conditive with the above personal course.

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



I. Identification:

Product name: Plascam Antibody Array DyLight 880%-linked Steptavidin Product Catalog: 774 Kiz Component Manufacturer Supplier: Cell Signaling Technology 3 Task Jane Danvers. M. d 1923 USA 978-887-2000 TEL 978-887-2000 TEL 978-878-7200 FEX 978-578-5737 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 carchingers 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

TII. 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: brigerider Kathori (10.5%). Irritant. R96/38-4-52/53
Routes of Exposure:

Exposure: ure: May case 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: It person is conscious, such out mouth with water. Get medical attention.
Skin exposure: Wash skin with soap and water. If irritation develops or persists, get medical

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.

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

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

VII. Handling And Storage:

Stora 4°C in lightly closed container. On otherable vapor. Avoid contact with eyes, skin,

and collision. Week theremaked with a few few-office. A few did not the contact of and clothing. Wash thoroughly after handling. Avoid pro

VIII. Exposure Controls/Personal: Ventilation System: A system of local (fume hood) and gener

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

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

IX. Physical And Chemical Properties

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

X. Stability and Reactivity:

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

Routes of Exposure

Noutes of Exposure:

Skin Exposure: May case 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 upone receivable test.

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: No data available.

XIII. Disposal Considerations: Dispose of in accordance with federal state and local environmental regular 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 evaluations is considered Non-Hazardous for air transport.

XV. Regulatory Information:
EU: Ingodient Kathon C&F 55965-84-9 Annex IL Islach Index # 613-167-00-5
-0.5% Kathon concentration classification: X; Infrast. RSG,68-43-62/53
RSG,68: Wers suitable protective coloning, gloves and syntax protection
RSZ. May cause Intog-1erm advesses effects in the aquatic environment.
OSM: No Income Academics.

Candidan USE: NO LISEOL.
SARA 302, 313: Vol Listed.
SARA 311,312: 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. 55: 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 litterded to serve as a guide for sale use of this product in a laboratory setting by experienced personnel. The brurden of sale use of this material rest 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 Fechnology, Inc., shall not be held liable for any damage resulting from the handling of or from contact with the above product.

#7003 MSD 20X LumiGLO® and 20X Peroxide

Material Safety Data Sheet (MSDS) for



I. Identification:

Product name: 20X LumiGLO® and 20X Peroxide Product Catalog: 7003 CAS number: None Manufacturer Supplier: Cell Signaling Technology

Cert signaling recliniology 3 Trask Lane Darivers, 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: Dimethyl sulfoxide Percent CAS# ≤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

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: Inhabation: May be harmful if inhaled. May cause respiratory tract irritation. Fey 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

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

V. Fire Fighting Measures:

Expression. Ny.

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

Fireflighting, wear protective clothing and self-contained breathing apparatus to prevent contact with skin and eyes. May emit toxic furnes 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 fo 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 Prolection: wear compatible chemical resistant gloves and protective clothing.

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

IX. Physical And Chemical Properties:

Boiling Point >100°C/212"F (water) <0"C/32'F (water) Melting or Freezing Point: Flash Point: Volatile Organic Compounds (VOC): data not available data not available

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 RTECS: PV6210000 LD50 Oral art 14,500 mg/kg LD50 Inhatation at 4 h 40250 ppm LD50 Dermal rabbit > 5,000 mg/kg

XII. Ecological Information: No data available.

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

XIV. Transport Information:

e: None. This substance is considered non-hazardous for

transport.

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

XV. Regulatory Information:

EU: Not classified

OSH4: hignedient Dimethyl Sulfoxide, CAS#67-86-5: Combustible Liquid, Target Organ Effect
Canadian DSL: Lister: Impredere Dimethyl Sulfoxide, CAS#67-86-5

SANA 202: 315 ingedients Not Listed.
SANA 202: 315 ingedients Not Listed.
SANA 202: 315 ingedient Dimethyl Sulfoxide, CAS#67-86-5: Fire Hazard, Chronic Health
Hazard.

Hazard.

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-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 accusale. It is intended to serve as a guide for sale use of this product in a faboratiny settling by experienced personnel. The burden of sale use of this material resist entirely with the user. The above intermediation is believed to be accusate but is re-necessarily all-inclusive and shall be used only as quide. Cell Signaling Technology, lac., shall not be held liable for any damage resulting from the handling of or from contact with the above product.