

# PathScan® RTK Signaling Antibody Array Kit (Chemiluminescent Readout)

✓ 1 Kit  
(16 multiplexed assays)

**Orders** ■ 877-616-CELL (2355)  
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**Web** ■ www.cellsignal.com

rev. 06/23/15

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

## Species Cross-Reactivity: H

**Description:** The PathScan® RTK Signaling Antibody Array Kit (Chemiluminescent Readout) is a slide-based antibody array founded upon the sandwich immunoassay principle. The array kit allows for the simultaneous detection of 28 receptor tyrosine kinases and 11 important signaling nodes, when phosphorylated at tyrosine or other residues. Target-specific capture antibodies have been spotted in duplicate onto nitrocellulose-coated glass slides. Each kit contains two 8-pad slides, allowing the user to test up to 16 samples. Cell lysate is incubated on the slide followed by a biotinylated detection antibody cocktail. Streptavidin-conjugated HRP and LumiGLO® Reagent are then used to visualize the bound detection antibody by chemiluminescence. An image of the slide can be captured with either a digital imaging system or standard chemiluminescent film. The image can be analyzed visually or the spot intensities quantified using array analysis software.

**Specificity/Sensitivity:** Cell Signaling Technology's PathScan® RTK Signaling Antibody Array Kit detects the indicated RTKs and signaling nodes only when phosphorylated at tyrosine or specified residues (see Array Target Map). No significant crossreactivity has been observed between targets, with the exception of some crossreactivity of the FLT3 antibody with phosphorylated EphB3. In addition, Stat1 (Tyr701) and Stat3 (Tyr705) may be detected when phosphorylated at other tyrosine sites within the proteins. This kit is optimized for cell lysates diluted to a total protein concentration between 0.2 and 1 mg/ml (see Figure 4). All capture antibodies have been validated for human targets. Although this kit has not been tested with mouse lysates, it is expected that many capture antibodies will crossreact in murine systems.

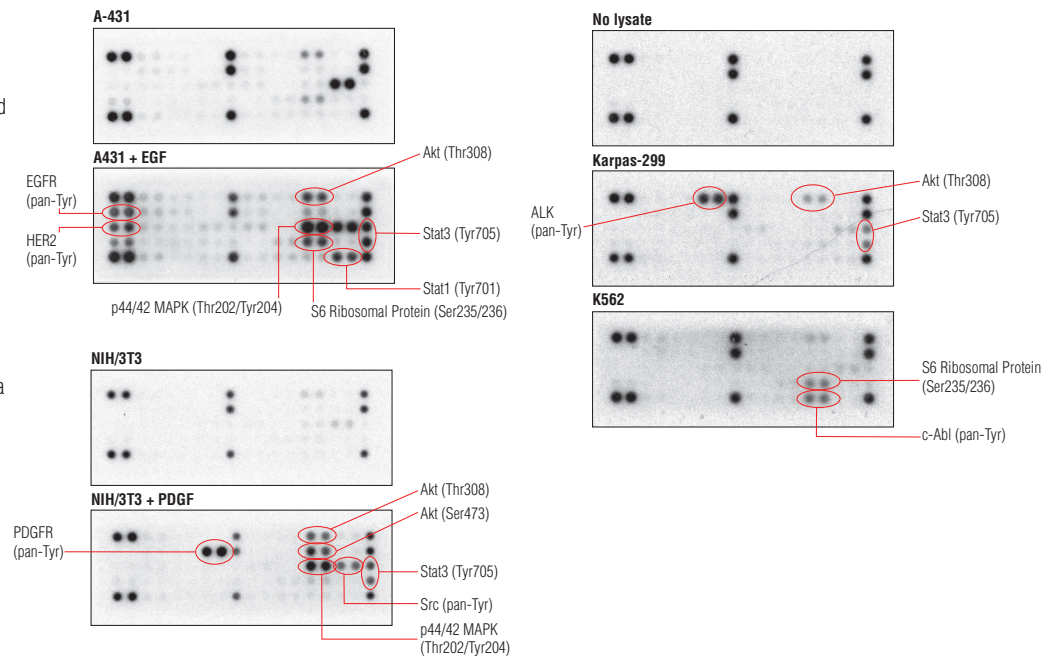
**Background:** Receptor Tyrosine Kinases (RTKs) are a family of cell surface receptors that signal primarily through tyrosine phosphorylation events (1). RTKs trigger a wide range of downstream signaling cascades, including the PI3K/Akt, MAPK and Jak/Stat pathways. These pathways control basic cellular functions such as division, growth, metabolism, differentiation, migration and survival. Dysregulation of RTK signaling has been implicated in a large number of cancers (2), making RTKs popular targets for pharmaceutical intervention.

## Background References:

- Schlessinger, J. (2000) *Cell* 103, 211-25.
- Blume-Jensen, P. and Hunter, T. (2001) *Nature* 411, 355-65.

Products Included	Quantity	Cap Color
Array Slides	2 slides	
Multi-Well Gasket	2 gaskets	
Sealing Tape	2 sheets	
Chemiluminescent Development Folder	2 folders	
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 HRP-linked Streptavidin	300 µl	Clear
20X LumiGLO® Reagent A #7003	5 ml	Brown
20X Peroxide Reagent B #7003	5 ml	Clear
*Cell Lysis Buffer #9803	15 ml	Clear

\*Kit should be stored at 4°C with the exception of 10X Cell Lysis Buffer, which is stored at -20°C (packaged separately).



**Figure 1.** Screening of a panel of cell lines using the PathScan® RTK Signaling Antibody Array Kit (Chemiluminescent Readout) #7982 reveals various phosphorylated RTKs and signaling nodes. A431 cells were starved for 24 hours, then treated with 100 ng/ml EGF #8916 for 3 minutes at 37°C. NIH/3T3 cells were starved for 24 hours, then treated with 100 ng/ml PDGF #9909 for 5 minutes at 37°C. Karpas-299 and K562 cells were lysed without starvation or treatment. The array images were captured using chemiluminescent film, with 2-5 second exposure times.

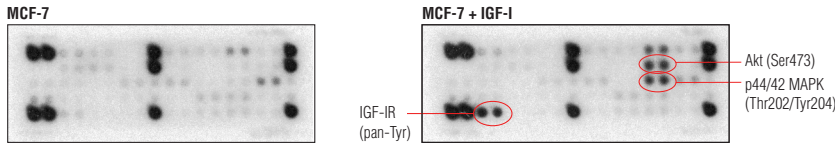
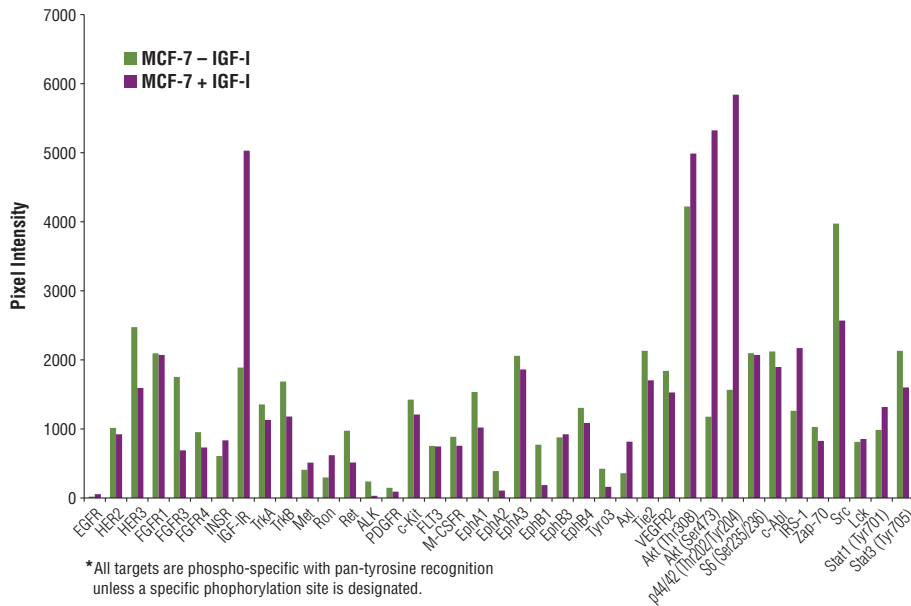


Figure 2. Treatment of MCF-7 cells with IGF-I stimulates phosphorylation of IGF-IR at tyrosine residues, Akt at Ser473 and p44/42 MAPK at Thr202/Tyr204 as detected by the PathScan® RTK Signaling Antibody Array Kit (Chemiluminescent Readout) #7982. MCF-7 cells were starved for 24 hours, then treated with 100 ng/ml IGF-I #3093 for 5 minutes at 37°C. The chemiluminescent film image (lower panel) and the quantification of that image (upper panel) are shown. The chemiluminescent array images were captured following 2-5 second film exposures.

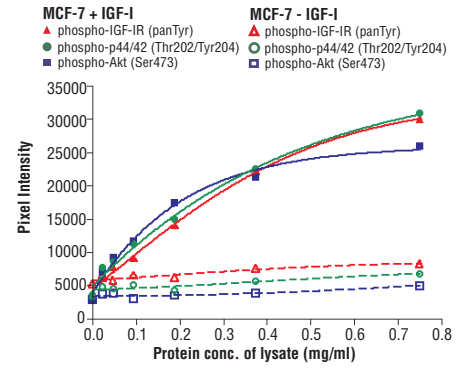
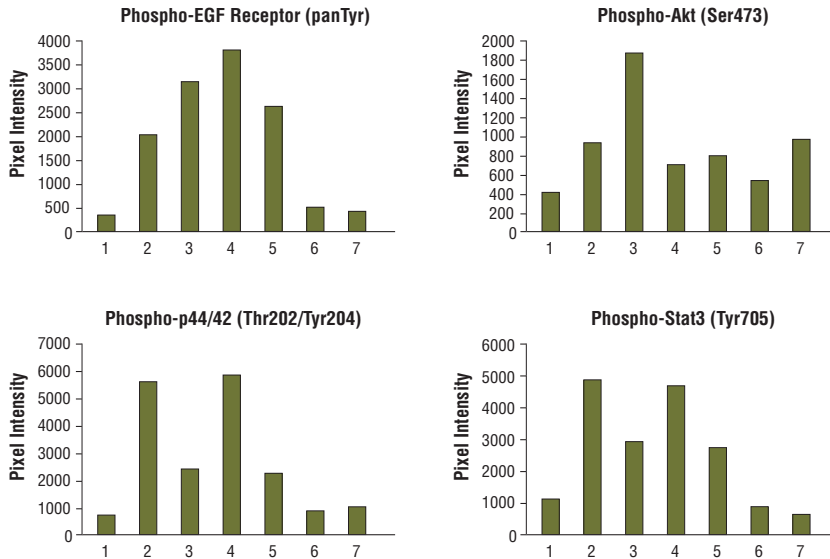


Figure 4. The relationship between lysate protein concentration from untreated and IGF-I treated MCF-7 cells and the pixel intensities of phospho-IGF-IR (pan-Tyr), phospho-Akt (Ser473) and phospho-p44/42 (Thr202/Tyr204) is shown. MCF-7 cells were starved for 24 hours, then treated with 100 ng/ml IGF-I #3093 for 5 minutes at 37°C.



1. No Treatment
2. EGF (5 min)
3. EGF (40 min)
4. Wortmannin + EGF (5 min)
5. Wortmannin + EGF (40 min)
6. Gefitinib + EGF (5 min)
7. Gefitinib + EGF (40 min)

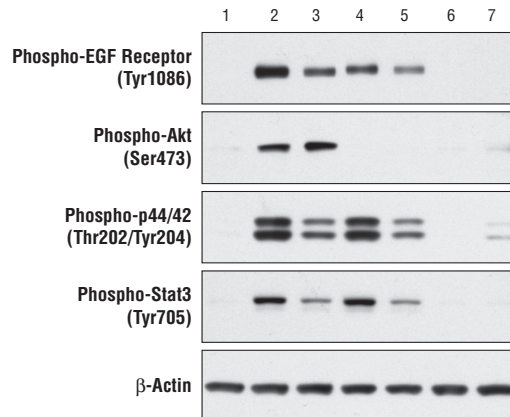


Figure 3. Treatment of A431 cells with EGF stimulates phosphorylation of EGFR, Akt, p44/42 MAPK and Stat3 as detected by the PathScan® RTK Signaling Antibody Array Kit (Chemiluminescent Readout) #7982. A431 cells were starved for 24 hours and treated with 100 ng/ml EGF #8916 for 5 or 40 minutes. In some cases, cells were treated with either 1 μM wortmannin #9951 for 1 hour before or 1 μM gefitinib for 2 hours before EGF stimulation. Array image pixel intensities obtained from a digital imager are shown in the top figure, while western blots are shown in the bottom figure.

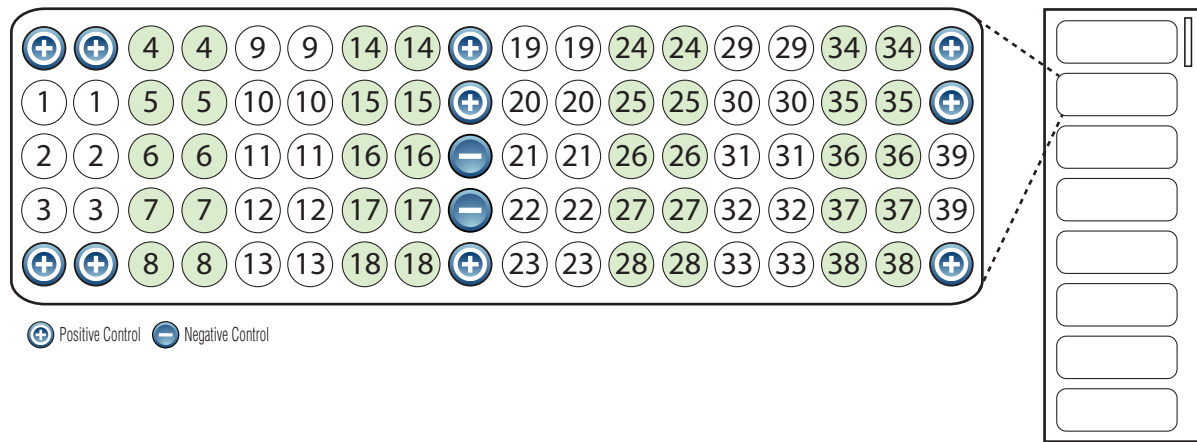


Figure 5. Target map of the PathScan® RTK Signaling Antibody Array Kit (Chemiluminescent Readout)

### Receptor Tyrosine Kinases

Target	Phosphorylation Site	Family	
1	EGFR/ErbB1	pan-Tyr	EGFR
2	HER2/ErbB2	pan-Tyr	EGFR
3	HER3/ErbB3	pan-Tyr	EGFR
4	FGFR1	pan-Tyr	FGFR
5	FGFR3	pan-Tyr	FGFR
6	FGFR4	pan-Tyr	FGFR
7	InsR	pan-Tyr	Insulin R
8	IGF-1R	pan-Tyr	Insulin R
9	TrkA/NTRK1	pan-Tyr	NGFR
10	TrkB/NTRK2	pan-Tyr	NGFR
11	Met/HGFR	pan-Tyr	HGFR
12	Ron/MST1R	pan-Tyr	HGFR
13	Ret	pan-Tyr	Ret
14	ALK	pan-Tyr	LTK
15	PDGFR	pan-Tyr	PDGFR
16	c-Kit/SCFR	pan-Tyr	PDGFR
17	FLT3/Fik2	pan-Tyr	PDGFR
18	M-CSFR/CSF-1R	pan-Tyr	PDGFR
19	EphA1	pan-Tyr	EphR
20	EphA2	pan-Tyr	EphR
21	EphA3	pan-Tyr	EphR
22	EphB1	pan-Tyr	EphR
23	EphB3	pan-Tyr	EphR
24	EphB4	pan-Tyr	EphR
25	Tyro3/Dtk	pan-Tyr	Axl
26	Axl	pan-Tyr	Axl
27	Tie2/TEK	pan-Tyr	Tie
28	VEGFR2/KDR	pan-Tyr	VEGFR

### Signaling Nodes

Target	Phosphorylation Site	Family	
29	Akt/PKB/Rac	Thr308	Akt
30	Akt/PKB/Rac	Ser473	Akt
31	p44/42 MAPK (ERK1/2)	Thr202/Tyr204	MAPK
32	S6 Ribosomal Protein	Ser235/236	RSK
33	c-Abl	pan-Tyr	Abl
34	IRS-1	pan-Tyr	IRS
35	Zap-70	pan-Tyr	Zap-70
36	Src	pan-Tyr	Src
37	Lck	pan-Tyr	Src
38	Stat1	Tyr701	Stat
39	Stat3	Tyr705	Stat

## PathScan® Antibody Array Kit (Chemiluminescent Readout) Protocol

### A Preparing Cell Lysates

1. Thaw 10X Cell Lysis Buffer #9803 and mix thoroughly. Prepare 1X Cell Lysis Buffer by diluting 10X Cell Lysis Buffer in deionized water. Supplement 1X Cell Lysis Buffer with phenylmethylsulfonyl fluoride (PMSF) to a final concentration of 1 mM. Keep 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.

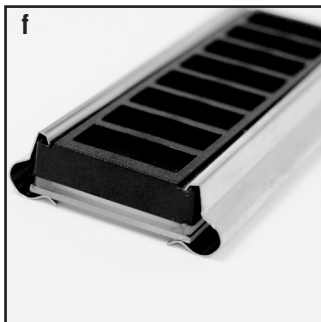
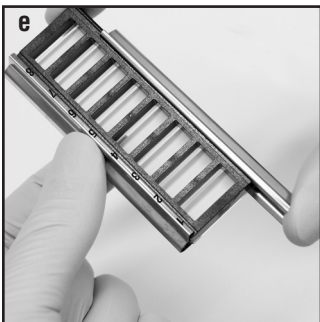
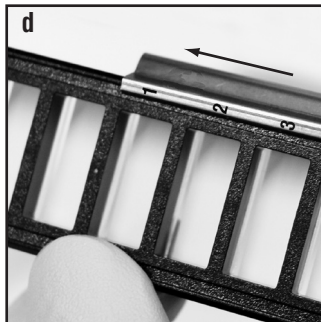
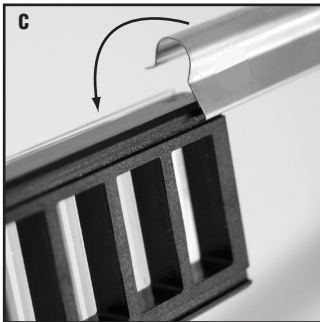
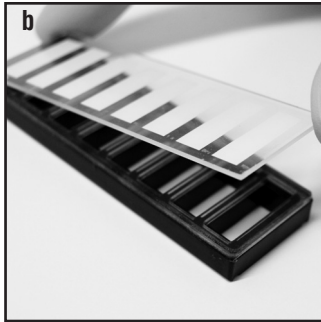
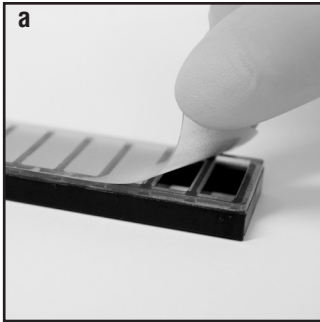
### B Assay Procedure

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. Keep at room temperature. Dilute 1 mL of 20X Array Wash Buffer with 19 mL of deionized water. Label as 1X Array Wash Buffer.
3. Prepare 1X Detection Antibody Cocktail as follow:  
For running only **1 slide**: Dilute 150 µL 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. \*Keep on ice.
4. Prepare 1X HRP-linked Streptavidin as follow:  
For running only **1 slide**: Dilute 150 µL of 10X HRP-linked Streptavidin with 1350 µL of Array Diluent Buffer.  
For running **2 slides**: Dilute 300 µL of 10X HRP linked Streptavidin with 2700 µL of Array Diluent Buffer. \*Keep on ice.
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 nitro-cellulose 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 150 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 at any time during the assay.
7. Decant Array Blocking Buffer by gently flicking out the liquid into a sink or other appropriate waste receptacle. Add 150 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 200 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 150 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 200 µl (1X) Array Wash Buffer as in step 8.
11. Add 150 µl (1X) HRP-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 200 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 briefly with 10 ml (1X) Array Wash Buffer.
15. Dilute and combine LumiGLO® and Peroxide reagents immediately before use (to make 10 ml of a 1X solution, combine 9 ml deionized water with 0.5 ml of 20X LumiGLO® and 0.5 ml of 20X Peroxide).
16. Decant Array Wash Buffer and cover slide with LumiGLO®/Peroxide reagent.
17. Transfer slide to chemiluminescent development folder, ensuring that it is still covered by LumiGLO®/ Peroxide reagent (add a small amount on top of the slide).
18. Immediately capture an image of the slide using a digital imaging system capable of detecting chemiluminescent signals. If desired, quantify spot intensities using commercially available array image analysis software. Alternatively, chemiluminescent film may be used. Expose film for 2-30 seconds using even and light pressure on the top of the development cassette (do not fasten the cassette clamps) to avoid squeezing out the LumiGLO®/ Peroxide reagent. Develop the film using an automated film developer.  
**Note:** If both slides are being used, it is not recommended to expose them simultaneously in the same development cassette. In this case, leave the second slide in the wash buffer (step 12) while proceeding with steps 13-18 using the first slide. After the first slide is finished, proceed with steps 13-18 using the second slide and freshly diluted LumiGLO®/Peroxide reagent.

LumiGLO® is a registered trademark of Kirkegaard & Perry Laboratories.

# #7982





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

### I. Identification:

**Product name:** PathScan® RTK Signaling Antibody Array Kit  
**Product Catalog:** 7949, 7982 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® RTK 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
- Cell Lysis Buffer (CST#9803) MSDS
- Array Blocking Buffer MSDS
- Array Diluent Buffer MSDS
- Array Wash Buffer MSDS
- Detection Antibody Cocktail MSDS
- HRP-linked Streptavidin MSDS (Kit 7982 only)
- Dylight 680®-linked Streptavidin MSDS (Kit 7949 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.

### I. Identification:

**Product name:** PathScan® RTK Signaling Antibody Array Kit  
**Product Catalog:** 7949, 7982 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® RTK 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
- Cell Lysis Buffer (CST#9803) MSDS
- Array Blocking Buffer MSDS
- Array Diluent Buffer MSDS
- Array Wash Buffer MSDS
- Detection Antibody Cocktail MSDS
- HRP-linked Streptavidin MSDS (Kit 7982 only)
- Dylight 680®-linked Streptavidin MSDS (Kit 7949 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.

## 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:** 7949, 7982 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

<b>Appearance:</b>	solid
<b>Odor:</b>	data not available
<b>pH:</b>	data not available
<b>Boiling Point:</b>	data not available
<b>Melting Point:</b>	data not available
<b>Freezing Point:</b>	data not available
<b>Volatile Organic Compounds (VOC):</b>	data not available
<b>Autoignition Temp.:</b>	data not available
<b>Solubility in water:</b>	data not available

### 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 toxicological properties have been thoroughly investigated.

**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 federal, state and local 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:

**EU:** Not classified.  
**OSHA:** Not listed.  
**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.

### I. Identification:

**Product name:** Cell Lysis Buffer (10X)  
**Product Catalog:** 9803  
**CAS number:** Not applicable to mixtures  
**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 Phone

### II. Composition/Information on Ingredients:

**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.  
**Hazardous Reagent:** 20X LumiGLO

Ingredient	Percent	CAS#
Triton X-100 (polyethylene glycol octylphenol ether)	1%	9002-93-1

### 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:** Harmful by ingestion. Irritant.  
**Potential Health Effects:**  
**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.  
**Eye Contact:** Causes eye irritation. Risk of damage to eyes.  
**Skin Contact:** May be harmful if absorbed through skin. Causes skin irritation.  
**Ingestion:** Harmful if swallowed.

### IV. First Aid Measures for hazardous ingredient: Triton X-100 (polyethylene glycol octylphenol ether):

**Inhalation:** Remove to fresh air. If breathing is difficult, get medical attention.  
**Ingestion:** DO NOT INDUCE VOMITING. If person is conscious, wash out mouth with water. Get medical attention.  
**Skin Contact:** Wash skin with soap or mild detergent and water for at least 15 minutes. If irritation develops or persists, get medical attention.  
**Eye contact:** Immediately flush eyes water for at least 15 minutes. Get medical attention.

### V. Fire Fighting Measures:

**Flash Point:** data not available  
**Autoignition Temperature:** data not available  
**Explosion:** data not 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. May emit toxic fumes under fire conditions.

### VI. Accidental Release Measures:

Wear appropriate personal protective equipment as indicated in Section 8. 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.

### 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.

### 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

<b>Appearance:</b>	colorless liquid
<b>Odor:</b>	data not available
<b>pH:</b>	data not available
<b>Boiling Point:</b>	data not available
<b>Melting or Freezing Point:</b>	data not available
<b>Flash Point:</b>	data not available
<b>Volatile Organic Compounds (VOC):</b>	data not available
<b>Autoignition Temp.:</b>	data not available
<b>Solubility (water):</b>	Soluble in water

### X. Stability and Reactivity:

**Stability:** Stable under ordinary conditions.  
**Conditions/materials 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.

### 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:

D.O.T. 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:** Ingredient Triton X100, CAS#9002-93-1. Harmful by ingestion, Irritant  
**Canadian DSL:** Listed. Ingredient Triton X100, CAS#9002-93-1  
**SARA 302, 313:** Ingredients Not Listed.  
**SARA 311/312:** Ingredient Triton X100, CAS#9002-93-1. Acute Health Hazard  
**Massachusetts Right To Know:** Ingredients Not Listed.  
**Pennsylvania Right To Know:** Ingredient Triton X100, CAS#9002-93-1  
**New Jersey Right To Know:** Ingredient Triton X100, CAS#9002-93-1  
**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.

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



### I. Identification:

**Product name:** PathScan® Antibody Array Blocking Buffer  
**Product Catalog:** 7949, 7982 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:**  
**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.

### IX. Physical And Chemical Properties

**Appearance:** colorless liquid  
**Odor:** odor  
**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:** 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 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, state and local 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:

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 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 Diluent Buffer



### I. Identification:

**Product name:** PathScan® Antibody Array Diluent Buffer  
**Product Catalog:** 7949, 7982 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.

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 Detection Antibody Cocktail



### I. Identification:

**Product name:** PathScan® Antibody Array Detection Antibody Cocktail  
**Product Catalog:** 7949, 7982 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 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 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.

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



### I. Identification:

**Product name:** PathScan® Antibody Array Wash Buffer  
**Product Catalog:** 7949, 7982 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:

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 material have not been established.

### 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:

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.

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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:** 7982 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:**  
**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.

## IX. Physical And Chemical Properties

**Appearance:** colorless liquid  
**Odor:** odorless  
**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:** 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 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:

**XIII. Disposal Considerations:** Dispose of in accordance with federal, state and local 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:

**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 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  
 RTECS: PV8210000  
 LD50 Oral rat 14,500 mg/kg  
 LC50 Inhalation rat 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 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 Proper 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.