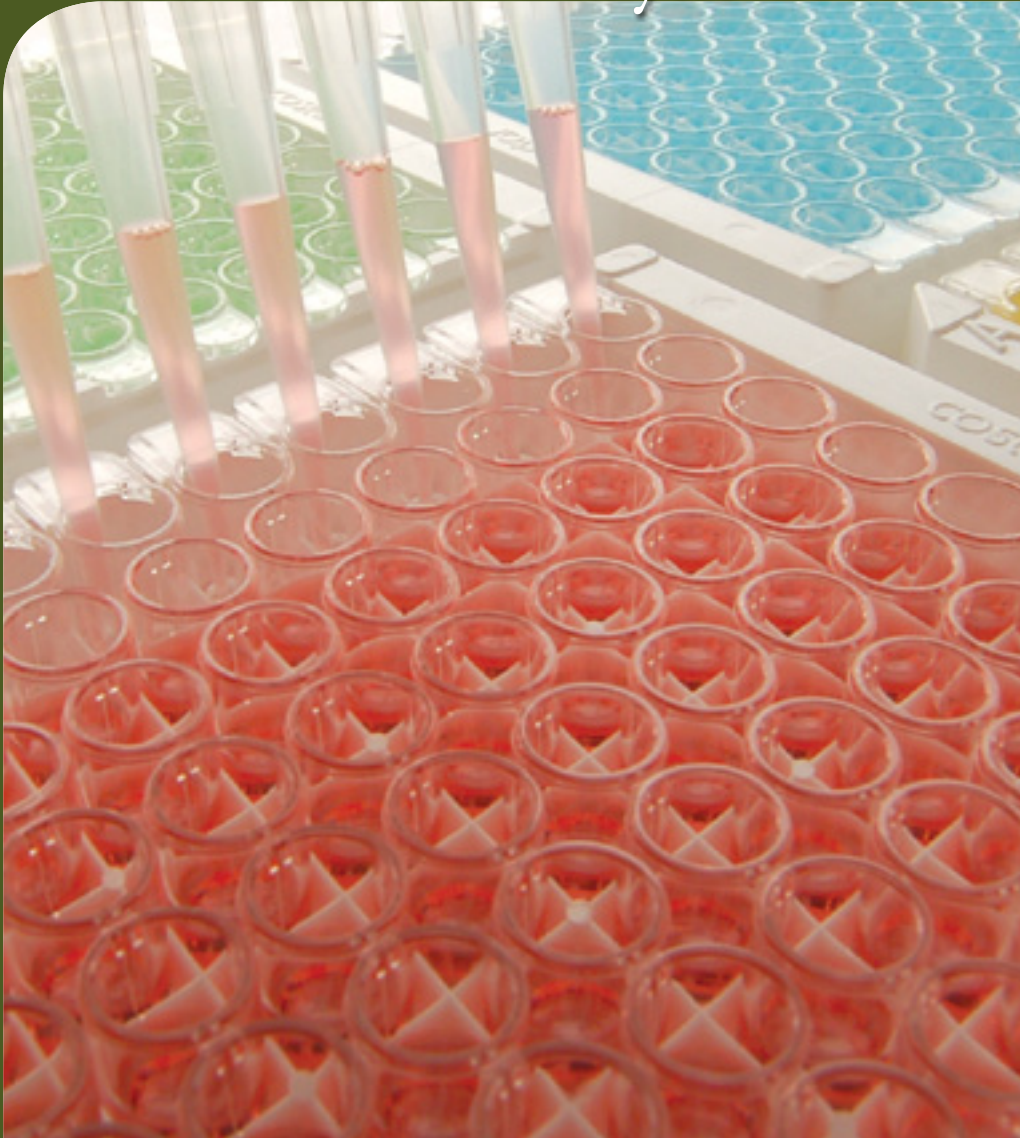




Cell Signaling  
TECHNOLOGY®

# PathScan® ELISA Products and Cellular Analysis Tools



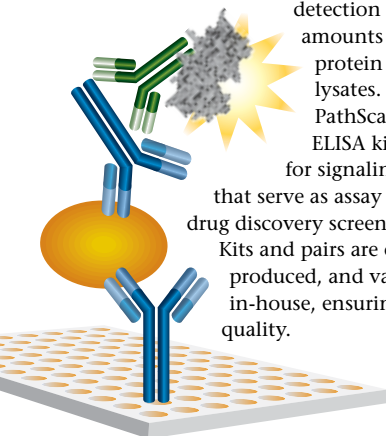
[www.cellsignal.com](http://www.cellsignal.com)

UNPARALLELED PRODUCT QUALITY, VALIDATION, AND TECHNICAL SUPPORT

# PathScan® Sandwich ELISA Kits

Cell Signaling Technology (CST) has applied its antibody expertise to identify antibody pairs with optimal activity in solid phase sandwich enzyme-linked immunosorbent assays (ELISA). These assays enable the

detection of low amounts of target protein from cell lysates. Over 185 PathScan® Sandwich ELISA kits are available for signaling proteins that serve as assay endpoints in drug discovery screening campaigns. Kits and pairs are developed, produced, and validated in-house, ensuring the highest quality.



- » PathScan® Sandwich ELISA Kits (both Colometric and Chemiluminescent) contain all necessary components for detection of endogenous levels of key signaling molecules. Matched phospho and total protein ELISA kits are available for many targets.
- » PathScan® Multi-Target ELISA Kits examine several important and well-characterized signaling events in a single assay.
- » PathScan® Sandwich ELISA Antibody Pairs provide scientists with an economical alternative to our complete ELISA kits.
- » PathScan® ELISA Control Cell Extracts provide the appropriate positive and negative controls, and also allow the standardization of signal obtained from different plates.
- » Custom ELISA products allow researchers the option of different detection methods and plate formats. Convenient bulk packaging is available upon request.



## Companion Products for PathScan® ELISA Kits

- » BSA #9998
- » Cell Lysis Buffer (10X) #9803
- » Phosphate Buffered Saline (PBS-20X) #9808
- » Phosphate Buffered Saline with Tween 20 (PBST-20X) #9809
- » STOP Solution #7002
- » TMB Substrate #7004

## XP® Monoclonal Antibodies

*eXceptional Performance™*

XP® Monoclonal Antibodies are a line of high quality rabbit monoclonal antibodies exclusively available from Cell Signaling Technology. Products labeled with XP have been carefully selected based on superior performance in all approved applications. XP Monoclonal Antibodies are generated using XMT®, a proprietary monoclonal technology allowing more comprehensive screening and the identification of XP monoclonal antibodies.

- eXceptional specificity**
- + eXceptional sensitivity**
- + eXceptional stability and reproducibility**
- = eXceptional Performance™**

# PathScan® Sandwich ELISA Products

Target	Colorimetric Sandwich ELISA Kits	Chemiluminescent Sandwich ELISA Kits	Antibody Pairs	Multi-Target Kits	ELISA Control Cell Extract
Phospho-4E-BP1 (Thr37/Thr46)	#7216		#7854		
4E-BP1	#7179				
Phospho-Acetyl CoA Carboxylase (Ser79)	#7986				
Acetyl-CoA Carboxylase	#7996				
β-Actin	#7880		#7881		
Phospho-AMPKα (Thr172)	#7959		#7955		
Phospho-Akt (Thr308)	#7252	#7135	#7144	Cell Growth #7239	#7989
Phospho-Akt1 (Ser473)	#7160	#7134	#7143	Cell Growth #7239 Signaling Nodes #7272	#7988
Akt1	#7170	#7132	#7142	Cell Growth #7239 Signaling Nodes #7272	#7989
Phospho-Akt2 (Ser474)	#7048				
Phospho-Akt2 (Ser474) (mouse preferred)	#7932				
Akt2	#7046				
Akt2 (mouse preferred)	#7930				
Phospho-Akt3 (Ser472) (mouse preferred)	#7942				
Akt3 (mouse preferred)	#7934				
Phospho-ALK (Tyr1586)	#7159				
Phospho-ALK (Tyr1604)	#7324	#7020			
ALK	#7322	#7084			
Phospho-ATF-2 (Thr71)	#7185				#7989
Phospho-Aurora A (Thr288)	#7114		#7115		
Aurora A	#7116		#7117		
Axl (pan p-Tyr)	#7042				
Axl	#7040				
Phospho-Bad (Ser112)	#7182		#7842	Apoptosis #7105	#7989
Bad	#7162		#7840	Apoptosis #7105	#7988
β-Catenin	#7308		#7309		
E-Cadherin	#7886		#7887		
Cleaved Caspase-3 (Asp175)	#7190			Apoptosis #7105	
Phospho-cdc2 (Tyr15)	#7176		#7838		
Phospho-Chk1 (Ser317)	#7870				#7989
Chk1	#7872		#7873		
Phospho-Chk2 (Thr68)	#7037				
Chk2	#7045		#7090		
Phospho-c-Jun (Ser63)	#7145	#7027	#7141		
c-Jun	#7150	#7028	#7314		
Phospho-DDR1 (panTyr)	#7863				
DDR1	#7845				
Phospho-EGFR (Tyr845)	#7189				
Phospho-EGFR (Tyr1068)	#7240				
Phospho-EGFR (Tyr1173)	#7187				
EGFR	#7250				
Phospho-eIF2α (Ser51)	#7948				#7988
eIF2α	#7952				#7988
Phospho-eIF4E (Ser209)	#7938				
eIF4E	#7940				
Phospho-eNOS (Ser1177)	#7980				
Phospho-Erk1 (Thr202/Tyr204)	#7315		#7278		
Phospho-Erk1/2 (Thr202/Tyr204)	#7177		#7246	Cell Growth #7239 MAP Kinase #7274	
Erk 1/2	#7050				
Phospho-Fit3 (panTyr)	#7761				
Phospho-Fit3 (Tyr591)	#7206	#7021			
Fit3	#7202				
GFP	#7878		#7879		
Phospho-HER2 (panTyr)	#7968				
Phospho-HER2 (Tyr1221/1222)	#7148		#7817		
HER2	#7310				
Phospho-HER3 (panTyr)	#7890				

# PathScan® Sandwich ELISA products *continued*

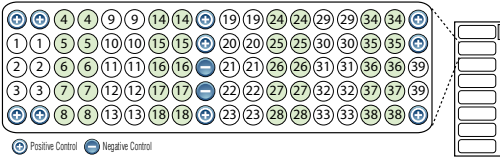
Target	Colormetric Sandwich ELISA Kits	Chemiluminescent Sandwich ELISA Kits	Antibody Pairs	Multi-Target Kits	ELISA Control Cell Extract
HER3	#7888				
Acetyl-Histone H2A	#7233				
Acetyl-Histone H2B	#7178				
Acetyl-Histone H2B (Lys5)	#7218				
Acetyl-Histone H2B (Lys20)	#7222				
Acetyl-Histone H3	#7232		#7209		
Acetylated Histone H3 (Lys9)	#7121				
Acetylated Histone H3 (Lys18)	#7122				
Mono-Methyl Histone H3 (Lys4)	#7123				
Di-Methyl-Histone H3 (Lys4)	#7124				
Tri-Methyl Histone H3 (Lys4)	#7125				
Pan-Methyl Histone H3 (Lys9)	#7864				
Di-Methyl Histone H3 (Lys9)	#7862				
Tri-Methyl Histone H3 (Lys27)	#7866				
Di-Methyl Histone H3 (Lys36)	#7868				
Phospho-Histone H3 (Ser10)	#7155		#7207		
Histone H3	#7253				
Acetyl-Histone H4	#7238				
Acetyl-Histone H4 (Lys8)	#7224				
Acetyl-Histone H4 (Lys12)	#7228				
Phospho-HSP27 (Ser78)	#7290				
Phospho-HSP27 (Ser82)	#7152				
HSP27	#7295				
Phospho-IGF1 Receptor (Tyr1131)	#7302		#7820		
Phospho-IκBα (Ser32)	#7355		#7343	Inflammation #7276	
IκBα	#7360		#7831		
Phospho-IKKα (Ser176/180)	#7073				
Total-IKKα	#7078				
Phospho-IKKβ (Ser177/181)	#7080				
iNOS	#7097				
Phospho-Insulin Receptor β (panTyr)	#7082				
Phospho-Insulin Receptor β (Tyr1146)	#7254		#7827		
Phospho-Insulin Receptor β (Tyr1150/1151)	#7258		#7828		
Phospho-Insulin Receptor β (Tyr1345)	#7326		#7823		
Insulin Receptor β	#7067				
Phospho-IRS-1 (panTyr)	#7133		#7347		
Phospho-IRS-1 (Ser302)	#7283		#7284		
Phospho-IRS-1 (Ser307)	#7287		#7288		
Phospho-IRS-1 (Ser612)	#7332				
IRS-1	#7328				
Phospho-IRS-2 (panTyr)	#7860		#7861		
IRS-2	#7884		#7885		
Phospho-c-Jun (Ser63)	#7145	#7027			
c-Jun	#7150	#7028			
Phospho-c-Kit (panTyr)	#7231		#7294		
Phospho-c-Kit (Tyr719)	#7298		#7299		
c-Kit	#7197				
Phospho-LAT (Tyr191)	#7936		#7937		
Phospho-Lck (Tyr505)	#7941		#7993		
Phospho-MEK1 (Ser217/221)	#7175	#7029	#7211	Signaling Nodes #7272 MAP Kinase #7274	#7988
MEK1	#7165	#7030	#7215	MAP Kinase #7274	
Phospho-Met (panTyr)	#7333		#7334		
Phospho-Met (Tyr1003)	#7241				
Phospho-Met (Tyr1234/1235)	#7227		#7229		
Phospho-Met (Tyr1349)	#7896				
Met	#7242				
Phospho-mTor (Ser2448)	#7976				
mTor	#7974				
Phospho-NF-κB p65 (Ser536)	#7173		#7834	Inflammation #7276 Signaling Nodes #7272	

Target	Colormetric Sandwich ELISA Kits	Chemiluminescent Sandwich ELISA Kits	Antibody Pairs	Multi-Target Kits	ELISA Control Cell Extract
NF-κB p65	#7174		#7836	Inflammation #7276	#7988
iNOS	#7097				
Cleaved Notch1 (Val1744)	#7194				
Notch1	#7245				
p21 WAF1/CIP1	#7167		#7856		
Phospho-p38 (Thr180/Tyr182)	#7946			MAP Kinase #7274 Inflammation #7276 Signaling Nodes #7272	
Acetyl-p53	#7236		#7848		
Phospho-p53 (Ser15)	#7365		#7846	Apoptosis #7105	
p53	#7370		#7844	Apoptosis #7105	
Phospho-p70 S6 Kinase (Thr389)	#7063	#7153	#7053		
p70 S6 Kinase	#7038		#7039		
Phospho-p90 Rsk1 (Ser380)	#7965				
p90 Rsk1	#7966				
Cleaved PARP (Asp214)	#7262		#7858	Apoptosis #7105	
Phospho-PDGFR α/β (panTyr)	#7235		#7307		
Phospho-PDGFR α (Tyr849)	#7296		#7317		
PDGFR α	#7318		#7264		
Phospho-PDGFR β (Tyr751)	#7345		#7826		
Phospho-PTEN (Ser380)	#7285				
PTEN	#7882		#7883		
Phospho-Ret (panTyr)	#7034				
Ret	#7032				
Phospho-Ros (panTyr)	#7093				
Ros	#7091				
Phospho-RSK1 (Ser380)	#7965				
RSK1	#7966				
Phospho-S6 Ribosomal Protein (Ser235/236)	#7205		#7201	Cell Growth #7239	#7988
S6 Ribosomal Protein	#7225		#7203	Cell Growth #7239	#7988
Phospho-SAPK/JNK1/2/3 (Thr183/Tyr185)	#7325	#7849	#7217	MAP Kinase #7274 Inflammation #7276	#7989
SAPK/JNK1/2/3	#7330	#7869	#7219	MAP Kinase #7274	#7989
Phospho-Smad2 (Ser465/467)	#7348				
Smad2	#7244				
Phospho-Src (Tyr416)	#7953		#7963		
Src	#7984		#7992		
Phospho-Stat1 (Tyr701)	#7234				
Phospho-Stat3 (Tyr705)	#7300	#7149	#7146	Signaling Nodes #7272 Inflammation #7276	
Phospho-Stat3 (Ser727)	#7995				
Stat3	#7305				
Phospho-Stat5 (Tyr694)	#7113		#7281		
Phospho-Survivin (Thr34)	#7193				
Survivin	#7169				
Phospho-Syk (panTyr)	#7928		#7929		
Phospho-Syk (Tyr525/526)	#7970				
Phospho-TrkA (Tyr490)	#7210				
Phospho-TrkA (Tyr674/675)	#7212				
TrkA	#7208				
Phospho-TrkB (panTyr)	#7108				
Phospho-TrkB (Tyr516)	#7111				
Phospho-TrkB (Tyr706/707)	#7118				
TrkB	#7106				
α-Tubulin	#7944		#7945		#7989
Acetyl-Tubulin	#7204				
Phospho-VEGFR-2 (Tyr1175)	#7335		#7842		
VEGFR-2	#7340		#7825		
Phospho-Zap-70 (Tyr319)	#7171		#7852		
Zap-70	#7172		#7850		

# PathScan® RTK Signaling Antibody Array Kits

These kits offer the user the opportunity to monitor a multitude of targets simultaneously with minimal sample requirements. The PathScan® RTK Signaling Antibody Array Kits are slide-based antibody arrays founded on the sandwich immunoassay principle. These kits include all necessary reagents for either fluorescent or chemiluminescent detection.

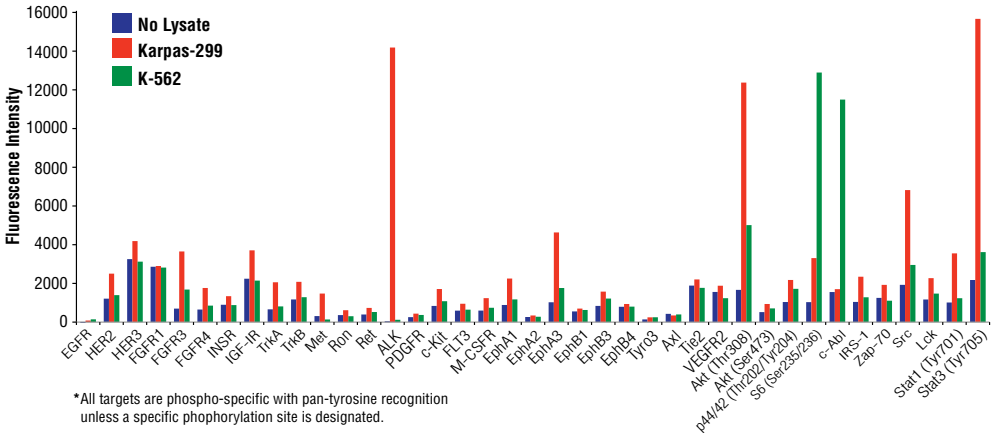
- » Arrays are produced and optimized in-house, incorporating the highest quality antibodies and ensuring results you can trust.
- » Arrays allow the analysis of phosphorylation levels of 39 proteins per assay, saving valuable time and reagents.
- » Arrays are designed to detect RTKs and key intracellular signaling molecules, allowing the most comprehensive readout of downstream signaling events.
- » Technical support is provided by the same scientists who developed and produce the product, allowing us to provide a thorough, fast, and accurate response.
- » The option of chemiluminescent readout allows convenient and easy detection by conventional chemiluminescent film without specialized instrumentation.



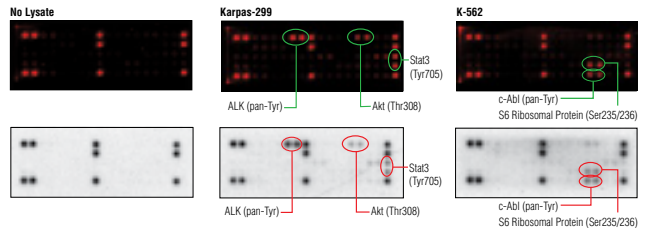
Each kit contains two 8-pad slides, allowing the user to test up to 16 samples. Each pad is spotted in duplicate with 39 target-specific capture antibodies, biotinylated protein (positive control), and nonspecific IgG (negative control). Following incubation with sample lysate, a biotinylated secondary antibody cocktail recognizes captured protein targets. Sample readout can be performed by either chemiluminescent or fluorescent detection.

## PathScan® Antibody Array Kits currently offered

- #7982 PathScan® RTK Signaling Antibody Array Kit (Chemiluminescent Readout)
- #7949 PathScan® RTK Signaling Antibody Array Kit (Fluorescent Readout)



Screening of Karpas-299 and K-562 cell lines using the PathScan® RTK Signaling Antibody Array Kits reveals various phosphorylated RTKs and signaling nodes. The fluorescent readout (middle panel) and the corresponding quantification (upper panel) were obtained using PathScan® RTK Signaling Antibody Array Kit (Fluorescent Readout) #7949. The chemiluminescent readout (lower panel) was obtained using PathScan® RTK Signaling Antibody Array Kit (Chemiluminescent Readout) #7982 and chemiluminescent film.



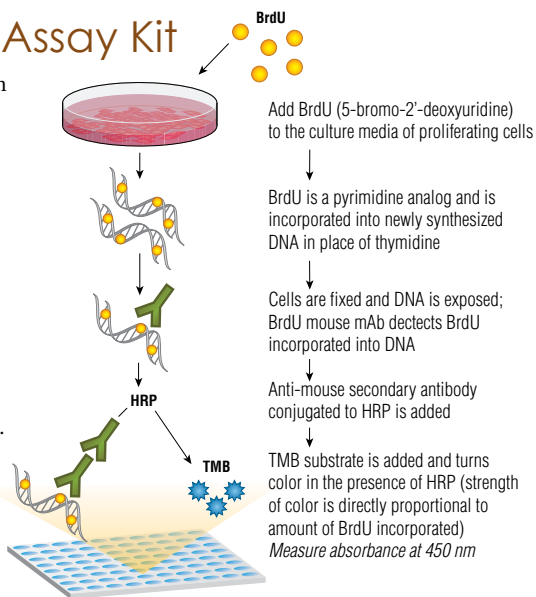
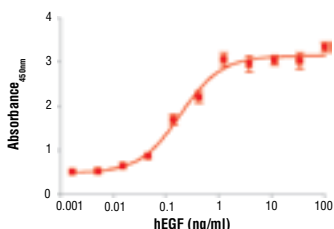
# Cellular Analysis Tools

## BrdU Cell Proliferation Assay Kit

The BrdU Cell Proliferation Assay Kit #6813 from Cell Signaling Technology (CST) is a plate-based immunoassay that provides a straight forward means of assaying fundamental cellular activity. This CST™ kit offers an accurate, sensitive, and direct readout of cell division unattainable with viability dyes.

### Advantages of the CST™ BrdU Cell Proliferation Assay Kit include:

- » Ability to interface with microplate environment, allowing higher throughput.
- » Elimination of the need for microscopy, yielding results without specialized equipment.
- » Elimination of the need for radioactive isotope labeling, providing a safer and simpler protocol.



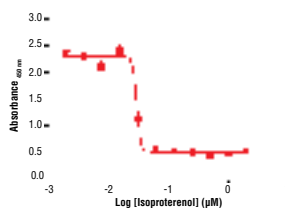
< Treatment of MCF7 10A cells with Human Epidermal Growth Factor (hEGF) #8916 increases cell proliferation as detected by BrdU Cell Proliferation Assay Kit #6813. MCF7 10A cells were seeded at  $1 \times 10^4$  cells/well in a 96-well plate and incubated overnight. Cells were then starved in serum free medium overnight. hEGF was added to the plate and cells were incubated for 24 hours. Finally, 10  $\mu$ M BrdU was added to the plate and cells were incubated for 4 hours.

## Cyclic AMP and GMP Assay Kits

CST now offers new Cyclic AMP and Cyclic GMP Assay Kits to measure the activation of many G protein coupled receptors (GPCRs). Both kits are immunoassays based on competitive binding.

In the Cyclic AMP XP® Assay Kit #4339, cAMP in the sample of interest competes with a fixed amount of cAMP-HRP conjugate provided in the kit for the binding to a cAMP-XP® rabbit monoclonal antibody that is pre-coated on the assay plate. Because of the competitive nature of this assay, the magnitude of the absorbance is inversely proportional to the quantity of cAMP in the sample.

The highest quality XP® monoclonal antibodies employed in the assay ensure the greatest possible sensitivity and specificity.



Treatment of 293 cells with isoproterenol increases the cAMP concentration as detected by Cyclic AMP XP® Assay Kit #4339. 293 cells were seeded at  $3 \times 10^4$  cells/well in a 96-well plate and incubated overnight. Cells were pretreated with 0.5 mM IBMX for 30 minutes prior to isoproterenol treatment (3 minutes) and lysed with 1X Cell Lysis Buffer #9803. The absorbance values (left) and percentage of activity (right) are shown above. The percentage of activity is calculated as follows: % activity =  $100 \times [(A - A_{\text{basal}}) / (A_{\text{max}} - A_{\text{basal}})]$ , where A is the absorbance of the sample,  $A_{\text{max}}$  is the absorbance at maximum stimulation (i.e., high isoproterenol concentration), and  $A_{\text{basal}}$  is the absorbance at basal level (no isoproterenol).

### Enzymatic Immunoassays

#4339 Cyclic AMP XP® Assay Kit

#4360 Cyclic GMP XP® Assay Kit

### Other Cellular Analysis Tools

#9860 Senescence  $\beta$ -Galactosidase Staining Kit



**Cell Signaling**  
TECHNOLOGY®

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## ANTIBODIES AND RELATED REAGENTS FOR SIGNAL TRANSDUCTION RESEARCH

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