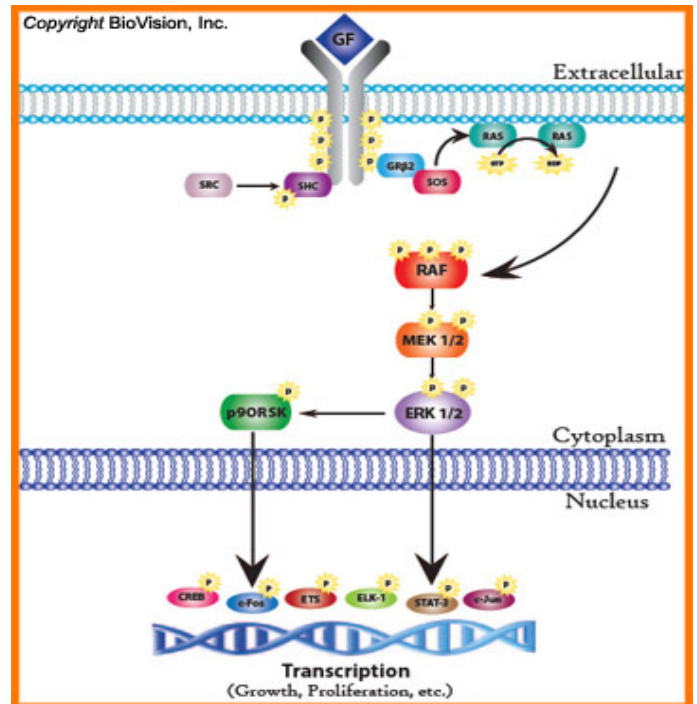


MAPK Pathway

Mitogen-activated protein kinases (MAPK) are proteins that are serine/ threonine specific kinases which are activated by a wide range of stimuli including proinflammatory cytokines, growth factors, mitogens, osmotic stress, heat shock etc. These proteins function in a signaling cascade are activated upon ligand binding to a cell surface receptor activating several MAP/ER kinases, which in turn phosphorylate their respective substrates. These events thereby regulate various cellular activities, such as gene expression, mitosis, differentiation, proliferation, and cell survival/ apoptosis. Upon the extracellular mitogen binding to the ligand, Ras a GTPase exchanges GDP for GTP. This in turn initializes a cascade activating MAP3K (Raf) which in turn activates MAP2K which activates MAPK. This MAPK can activate a number of transcription factors which control key processes in the cell.



For example epidermal growth factor (EGF) binds the EGFR which activates the tyrosine kinase activity of the EGFR (receptor). Grb2 and SH2 domain containing proteins recognize phosphorylated residues along with a guanine nucleotide exchange factor SOS, and binds to the EGFR. GDP is then swapped for GTP which binds Ras to make it active. Ras activates Raf which can phosphorylate and activate MEK1 and MEK2 which in turn activate MAPK. MAPK regulates a number of transcription factors including c-myc, CREB, C-Fos etc. All these regulate expression of a number of genes involved in apoptosis, differentiation, cancer etc. Defects in the regulation of this pathway can lead to uncontrolled growth in cells, leading to cancer. Over the last decade, important advances have been made in developing novel agents that modulate key proteins in this pathway culminating in the approval by the FDA of Sorafenib (Nexavar®) for the treatment of advanced renal carcinoma. Therapeutic advances in this area should continue for many years to come.

Assay Kits

Product Name	Cat. No.	Size
ERK (Human) ELISA Kit	E4317	100 assays
ERK1 (Human) ELISA Kit	E4314	100 assays
Phospho-ERK1/2 (Thr202/Tyr204) Translocation Assay Kit (Cell-Based)	K696	50 assays
ERK2 (Human) ELISA Kit	E4315	100 assays
JNK Activity Assay Kit, KinaseSTAR	K431	40 assays
JNK Activity Screening Kit, KinaseSTAR	K430	40 assays
Phospho-p38 MAPK (Thr180+Tyr182) Translocation Assay Kit (Cell-Based)	K965	100 assays

155 S. Milpitas Blvd, Milpitas, CA 95035

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Toll Free: 800-891-9699 (US Only)



Antibodies

Product Name	Cat. No.	Size
Phospho-ASK 1 (Ser83) Ab	A1251	100 µl
Phospho-ASK1 (Ser83) Ab	A1241	100 µl
ASK1/MAPKKK5 Ab	3128	100 µg
cdc/Rac Blocking Peptide	3080BP	50 µg
cdc42/Rac Ab	3080	30 µg, 100 µg
Phospho-c-Jun (Ser73) Ab	3502	100 µg
c-Jun Ab	3009	30 µg, 100 µg
c-Jun Ab	3702	100 µg
Phospho EEF2K (Ser366) Ab	A1947	100 µl
Elk-1 Ab	3387	100 µg
Phospho-Elk-1 Ab	3388	100 µg
Phospho ER-alpha (Ser167) Ab	A1948	100 µl
Anti-Phospho-ERK1/2 (Thr202/Tyr204) Ab	A1589	100 µg
Phospho-Erk1/2 Ab	3441	100 µg
Erk2 Ab	3442	100 µg
Erk5 Ab	3397	100 µg
Phospho-ERK8(Thr175+Tyr177) Ab	A1737	100 µl
Anti-FGFR3 Ab	A1630	100 µl
Anti-FGFR4 Ab	A1631	100 µl
Phospho Histone H3 (Ser10) Ab	A1943	100 µl
IL-1 alpha Ab	5125	30 µg, 100 µg
IL-1 beta Ab	5128	30 µg, 100 µg
IL-1 beta Ab	5129	30 µg, 100 µg
IRAK-4 Ab	3580	100 µg
JIK Ab	3784	100 µl
JIP-1 Ab	3664	30 µg, 100 µg
Phospho-JKK1/SEK1/MKK4 Ab	3478	100 µg
JNK Ab	3701	30 µg, 100 µg
Phospho-JNK/SAPK Ab	3589	100 µg
MAPKAPK-2 Ab	3100	30 µg, 100 µg
Phospho-MAPKAPK-2 Ab	3434	100 µg
Phospho-MAPKAPK5 (Thr182) Ab	A1716	100 µl
Mek1/2 Ab	3518	100 µl
Phospho-Mek1/2 Ab	3519	100 µl
Anti-MEK2 (KO Validated) Ab	A2124	100 µl
MKK3 Ab	3285	100 µg
MLK3 Ab	3430	100 µg
Anti-MLK4 Antibody	A1410	100 µl
Phospho-MNK1 (Thr250) Ab	A1159	100 µl
Anti-NGFR Ab	A1650	100 µl
NIK Antibody	3193R	30 µg, 100 µg
NIK Ab	3193	100 µg
Phospho p38 (Tyr323) Ab	A1984	100 µl

Antibodies

Product Name	Cat. No.	Size
p38 MAP Kinase Ab	3114	30 µg, 100 µg
p38 MAP Kinase Blocking Peptide	3114BP	50 µg
Anti-Phospho-p38 MAPK (Thr180/Tyr182) Rabbit Monoclonal Ab	A1127	50 µl
p42/44 MAPK Ab	3542	100 µg
p44/42 MAPK (Erk1/2) Ab	3085R	30 µg, 100 µg
p70 S6 Kinase Ab	3485	100 µg
Phospho-p70 S6 Kinase Ab	3505	100 µg
PAK1 Ab	3248	100 µg
Phospho PAK2 (Ser20) Ab	A1940	100 µl
PAK2 Ab	3443	30 µg, 100 µg
PAK2 Blocking Peptide	3443BP	50 µg
PAK3 Ab	3686	30 µg, 100 µg
PAK3 Blocking Peptide	3686BP	50 µg
Phospho PAK4 (Ser474) Ab	A1973	100 µl
PAK4 Ab	3444	30 µg, 100 µg
PAK4 Blocking Peptide	3444BP	50 µg
PAK5/PAK7 Ab	3928	30 µg, 100 µg
PAK6 Ab	3927	30 µg, 100 µg
PAK6 Blocking Peptide	3927BP	50 µg
PDGF-BB Ab	5488	30 µg, 200 µg
PDGF-BB Ab	5489	30 µg, 100 µg
Anti-PEA15 Ab	A1175	100 µl
Phospho-PTK2 (Tyr397) Ab(8F7)	A1028	100 µg
Phospho-PYK2(Tyr580) Ab	A1735	100 µl
Phospho-Raf Ab	3504	100 µg
Raf1 Ab	3116	30 µg, 100 µg
RIP Ab	3279	30 µg, 100 µg
RSK2 Ab	3546	100 µg
SEK1/MKK4/JKK1 Ab	3871	30 µg, 100 µg
SPHKAP Ab	6656	30 µg, 100 µg
Phospho SRC Family (Tyr416) Ab	A1946	100 µl
Phospho STAT1 (Tyr701) Ab	A1944	100 µl
TAB1 Ab	3682	100 µg
TANK Polyclonal Ab	3348	30 µg, 100 µg
TAOK1 Ab	3776R	30 µg, 100 µg
TAOK1 Ab	3776	100 µl
TNF-alpha Ab	3053R	30 µg, 100 µg
TNF-beta Ab	5345	100 µg
TRAF6 Ab	3566R	30 µg, 100 µg
TTP Ab	3551	30 µg, 100 µg

Enzymes

Product Name	Cat. No.	Size
ASK1, Active	7710	5 µg
CD40Ligand/TRAP, human recombinant	4014	10 µg, 50 µg, 1 mg
CD40Ligand/TRAP, murine recombinant	4015	25 µg, 100 µg, 500 µg, 1 mg
c-Jun (1-79)-GST Fusion Protein	7001	100 µg
ERK1, Active	7741	5 µg
IGF-I, human recombinant	4119	100 µg, 1 mg, 5 mg, 10 mg, 20 mg, 50 mg, 1 g
IL-1 alpha, human recombinant	4125	10 µg, 50 µg, 1 mg
IL-1 alpha, murine recombinant	4126	10 µg, 50 µg, 1 mg
IL-1 alpha, rat recombinant	4127	10 µg, 1 mg
IL-1 beta, human recombinant	4128	10 µg, 50 µg, 1 mg
IL-1 beta, rat recombinant	4130	10 µg, 50 µg, 1 mg
MAPKAPK2, Active	7737	5 µg
MAPKAPK3, Active	7755	5 µg
NGF-beta, human recombinant	4303	20 µg, 1 mg
NGF-beta, human recombinant	4303R	20 µg, 100 µg, 1 mg
NGF-beta, murine recombinant	4304	5 µg, 20 µg, 100 µg, 1 mg
p38alpha, Active	7756	5 µg
p38beta, Active	7763	5 µg, 100 µg
P38delta, Active	7754	5 µg
PAK4, Active	7707	5 µg
PAK7, Active	7727	5 µg
PDGF-AA, human recombinant	4482	10 µg, 50 µg, 1 mg
PDGF-AA, murine recombinant	4483	10 µg, 1 mg
PDGF-AB, human recombinant	4485	10 µg, 50 µg, 1 mg
PDGF-BB, human recombinant	4488	10 µg, 50 µg, 1 mg
PDGF-BB, murine recombinant	4489	10 µg, 50 µg, 1 mg
PDGFR beta, Active	7770	5 µg
RAF1, Active	7726	5 µg, 100 µg
RSK1, Active	7721	5 µg
RSK2, Active	7768	5 µg
RSK3, Active	7774	5 µg
TNF-alpha, murine recombinant	1051	10 µg, 50 µg, 1 mg
TNF-alpha, rat recombinant	1052	10 µg, 50 µg, 1 mg
TNF-beta, human recombinant	4345	20 µg, 1 mg

Chemical Activators

Product Name	Cat. No.	Size	CAS No.
Anisomycin	1549	10 mg	22862-76-6

Proteins

Product Name	Cat. No.	Size
CSK, Active	7722	5 µg
FAK2/PYK2B, Human Recombinant	P1416	10 µg, 50 µg
Human CellExp™ FGFR1/CD331, human recombinant	7421	20 µg, 100 µg
Human CellExp™ FGFR4/CD334, human recombinant	7422	20 µg, 100 µg
Human CellExp™ FGFR4/CD334, Mouse Recombinant	P1375	10 µg, 50 µg
GRK5, Active	7709	5 µg
JNK1, Active	7757	5 µg, 100 µg
Human CellExp™ KITLG /SCF, mouse recombinant	7483	10 µg

MAP Kinase/MEK Inhibitors

Product Name	Cat. No.	Size	CAS No.
APS-2-79	B1696	5 mg, 25 mg	2002381-31-7
ARRY-797	B2462	1 mg, 5 mg	1036404-17-7
AZD8330	B1693	5 mg, 25 mg	869357-68-6
BAY 43-9006 (Tosylate)	1594	25 mg, 100 mg	475207-59-1
BI-847325	B1589	5 mg, 25 mg	1207293-36-4
BIX02188	B1328	5 mg, 25 mg	334949-59-6 (or 1094614-84-2)
BIX02189	2670	1 mg, 5 mg	1094614-85-3
CC-90003	B2419	1 mg, 5 mg	1621999-82-3
Cobimetinib	B1689	5 mg, 25 mg	934660-93-2
EZSolution™ Cobimetinib	B2489	5 mg	934660-93-2
DEL-22379	B1680	5 mg, 25 mg	181223-80-3
Doramapimod	1954	5 mg, 25 mg	285983-48-4
EZSolution™ Doramapimod, Sterile-filtered	B2254	5 mg	285983-48-4
EZSolution™ SB 203580	1786	1 mg	152121-47-6
FR180204	B1683	5 mg, 25 mg	865362-74-9
GDC-0623	B1690	5 mg, 25 mg	1168091-68-6
GDC0994	B1629	5 mg, 25 mg	1453848-26-4
Gibberellic acid	B2234	1 g, 5 g	77-06-5
GSK-1120212	1960	1 mg, 5 mg	871700-17-3
GSK-2118436 mesylate	2800	5 mg, 25 mg	1195768-06-9
10Z-Hymenialdisine	2212	250 µg, 1 mg	82005-12-7
Losmapimod	B2728	5 mg, 25 mg	585543-15-3
LY2228820	B1702	5 mg, 25 mg	862507-23-1
PathwayReady™ MAP Kinase Signaling Inhibitor Panel	K862	7 inhibitors	Mutiple
MEK-162	2254	5 mg, 25 mg	606143-89-9
Pamapimod	B1700	1 mg, 5 mg	449811-01-2
PD 169316	B1703	5 mg, 25 mg	152121-53-4
EZSolution™ PD 98059	1783	5 mg	167869-21-8

MAP Kinase/MEK Inhibitors

Product Name	Cat. No.	Size	CAS No.
PD 98059	1666	5 mg	167869-21-8
PD-0325901	1643	2 mg, 5 mg, 25 mg	391210-10-9
EZSolution™ PD-0325901, Sterile-Filtered	1990	1 ml	391210-10-9
EZSolution™ PD184352	1871	1 mg	212631-79-3
PD184352	1585	1 mg, 5 mg, 25 mg	212631-79-3
PD318088	B1697	1 mg, 5 mg	391210-00-7
Pimasertib	B1698	5 mg, 25 mg	1236699-92-5
Refametinib	B1889	5 mg, 25 mg	923032-37-5
RWJ-67657	B2098	5 mg, 25 mg	215303-72-3
SB 202190	2493	5 mg, 25 mg	152121-30-7
SB 203580	1712	1 mg, 5 mg	152121-47-6
SB-242235	B2273	5 mg, 25 mg	193746-75-7
SCH772984	B1682	5 mg, 25 mg	942183-80-4
Skepinone-L	B1110	1 mg, 5 mg	1221485-83-1
SKF-86002	2894	5 mg, 25 mg	72873-74-6
SL327	B1694	5 mg, 25 mg	305350-87-2
TAK-715	B1701	5 mg, 25 mg	303162-79-0
TAK-733	2460	5 mg, 25 mg	1035555-63-5
7,3',4'-Trihydroxyisoflavone	1886	25 mg, 100 mg	485-63-2
U0126	1668	5 mg	109511-58-2
UM-164	B2246	5 mg, 25 mg	903564-48-7
VRT752271	B1679	5 mg, 25 mg	869886-67-9
VX-11e	B1681	5 mg, 25 mg	896720-20-0
VX-702	1598	1 mg, 5 mg	745833-23-2
VX-745	2812	5 mg, 25 mg	209410-46-8
XMD17-109	B1685	5 mg, 25 mg	1435488-37-1
XMD8-92	B1684	5 mg, 25 mg	1234480-50-2
ZM 336372	1789	1 mg, 5 mg	208260-29-1

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