



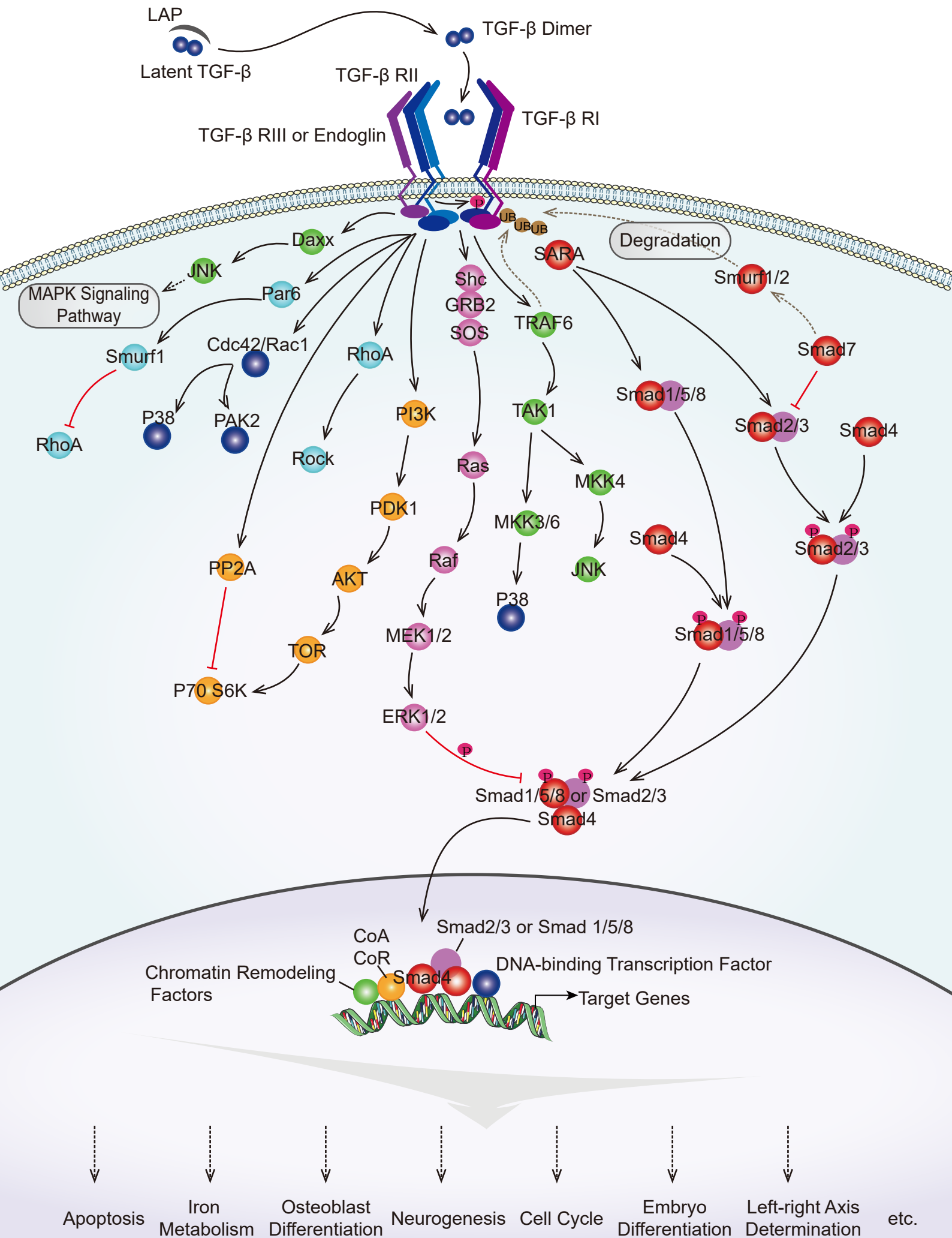
Featured TGF- β Signaling Pathway Related Protein Products

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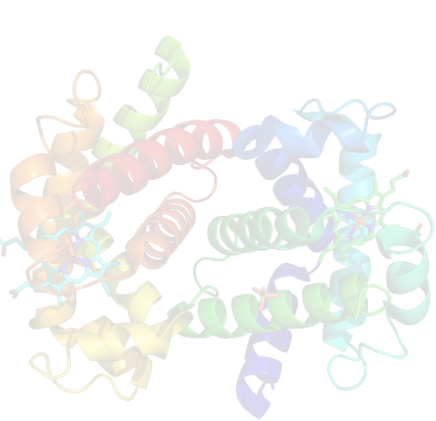
TGF-beta Signaling Pathway



TGF- β Signaling Pathway

The TGF- β superfamily consists of over 30 structurally related members. The proteins encoded by TGF- β superfamily genes are processed to produce mature peptides by proteolytic cleavage. The TGF- β superfamily signaling begins with the secretion of TGF- β ligand peptides. These peptides are dimerized into homodimers or heterodimers and are secreted from the cell. Secreted dimers bind to their respective type I and type II serine/threonine kinase receptors and elicit transcriptional responses through phosphorylation of the receptors-regulated Smad proteins (R-Smads). In vertebrates, the type I receptors for bone morphogenetic proteins (BMPs) phosphorylate Smad1 or the closely related Smad5 and Smad8; whereas the type I receptors for TGF- β s, Activins and Nodal signal through Smad2 and Smad3. Phosphorylated R-Smads form heteromeric complexes with a common Smad, Smad4, and translocate into the nucleus to regulate target gene expression. Diverse nuclear DNA binding proteins interact with R-Smad/Smad4 complexes in the nucleus, mediating cell type-specific responses to TGF- β signaling.

TGF- β superfamily signaling can be regulated at different levels, including the ligand, the receptors and the Smad. At the level of the Smad, the linker region of R-Smad is phosphorylated by mitogenactivated protein kinase (MAPK), resulting in the inhibition of nuclear accumulation of Smad complexes. There are also 2 intracellular inhibitory Smads: Smad 6 which inhibits BMP signaling and Smad 7 which inhibits TGF- β signaling.



Featured Protein Products Related to TGF- β Signaling Pathway

Group	Cat.No.	Product Name	Tag	Species	Source
TGFB1	TGFB1-014H	Recombinant Human TGFB1 Protein		Human	CHO
	TGFB1-363H	Recombinant Human TGFB1 Protein, His & Avi-tagged, Biotinylated	His & Avi	Human	HEK293
	TGFB1-119H	Recombinant Human Transforming Growth Factor, Beta 1, GST-tagged	GST	Human	E.coli
	TGFB1-219H	Recombinant Human TGFB1, MlgG2a Fc-tagged	Fc	Human	CHO
	TGFB1-706H	Recombinant Human TGFB1 Protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
TGFB2	TGFB2-015H	Recombinant Human TGFB2 Protein		Human	CHO
	TGFB2-228H	Recombinant Human TGFB2 Protein, His-tagged	His	Human	E.coli
TGFB3	TGFB3-018H	Recombinant Human TGFB3 Protein		Human	CHO
	TGFB3-104HG	GMP Recombinant Human TGFB3 Protein		Human	Insect Cell
	TGFB3-12H	Recombinant Human TGFB3, His-tagged	His	Human	E.coli
TGFR1	TGFR1-1495H	Recombinant Human TGFR1 (Active), GST-tagged	GST	Human	Sf9 Insect Cell
	TGFR1-39H	Recombinant Human TGFR1 (T204D), GST-tagged	GST	Human	Sf9 Insect Cell
	TGFR1-589H	Recombinant Human TGFR1 Protein, His-tagged	His	Human	E.coli
	TGFR1-701H	Recombinant Human TGFR1 Protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
	TGFR1-83H	Recombinant Human TGFR1 protein, Flag-tagged, Biotinylated	Flag	Human	Insect Cell
TGFR2	TGFR2-377H	Recombinant Human TGFR2 Protein (Met1-Gln166), His-tagged	His	Human	Insect Cell
	TGFR2-151H	Recombinant Human TGFR2, Fc Chimera	Fc	Human	HEK293
	TGFR2-159H	Recombinant Human TGFR2 Protein, Fc tagged	Fc	Human	HEK293
	TGFR2-1684H	Recombinant Human Transforming Growth Factor, Beta Receptor II (70/80kDa)	N/A	Human	NSO
TGFR3	TGFR3-193H	Recombinant Human TGFR3		Human	NSO

Group	Cat.No.	Product Name	Tag	Species	Source
TGFBR3	TGFBR3-698H	Recombinant Human TGFBR3, His-tagged, Biotinylated	His	Human	Human Cell
DAXX	DAXX-1182H	Recombinant Human DAXX Protein (1-233 aa), GST-tagged	GST	Human	E.coli
	DAXX-2352H	Recombinant Human DAXX Protein, GST-tagged	GST	Human	Wheat Germ
JNK	JNK-211H	Recombinant Human JNK, GST-tagged	GST	Human	E.coli
MAPK8	MAPK8-554H	Recombinant Human Mitogen-Activated Protein Kinase 8, GST-tagged	GST	Human	E.coli
	MAPK8-612H	Recombinant Human Mitogen-activated Protein Kinase 8, His-tagged	His	Human	Insect Cell
	MAPK8-751H	Recombinant Human Mitogen-activated Protein Kinase 8	N/A	Human	E.coli
	MAPK8-781H	Recombinant Human MAPK8, GST tagged	GST	Human	Insect Cell
MAPK9	MAPK9-1052H	Recombinant Human Mitogen-Activated Protein Kinase 9, GST-Tagged	GST	Human	Sf9 Insect Cell
	MAPK9-1266H	Recombinant Human Mitogen-Activated Protein Kinase 9, His-tagged	His	Human	Insect Cell
	MAPK9-155H	Recombinant Human MAPK9 protein, His/MBP-tagged	His/MBP	Human	E.coli
MAPK10	MAPK10-154H	Recombinant Human MAPK10 protein, His/MBP-tagged	His/MBP	Human	E.coli
	MAPK10-27604TH	Recombinant Human MAPK10		Human	E.coli
	MAPK10-339H	Recombinant Human MAPK10, GST-tagged, Active	GST	Human	Sf9 Insect Cell
	MAPK10-691H	Recombinant Human Mitogen-activated Protein Kinase 10, GST-His	His/GST	Human	S.frugiperda
SMURF1	SMURF1-45H	Recombinant Human SMURF1 protein, GST-tagged	GST	Human	E.coli
	SMURF1-467H	Recombinant Human SMURF1, FLAG-tagged	Flag	Human	Sf9 Insect Cell
SMURF2	SMURF2-1714H	Recombinant Human SMURF2 Protein (1-748 aa), His-tagged	His	Human	Yeast
	SMURF2-138H	Recombinant Human SMURF2, GST-tagged	GST	Human	E.coli
	SMURF2-468H	Recombinant Human SMURF2, FLAG-tagged	Flag	Human	Sf9 Insect Cell
RHOA	RHOA-1182H	Recombinant Human RHOA Protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293

Group	Cat.No.	Product Name	Tag	Species	Source
RHOA	RHOA-34H	Recombinant Human RHOA protein, GST-tagged	GST	Human	E.coli
	RHOA-3975H	Recombinant Human RHOA, His tagged	His	Human	Insect Cell
CDC42	CDC42-0934H	Recombinant Human CDC42 Protein, GST-Tagged	GST	Human	Wheat Germ
	CDC42-0936H	Recombinant Human CDC42 Protein, GST-pstS1-Tagged	GST-pstS1	Human	Wheat Germ
	CDC42-2634H	Recombinant Human CDC42 protein, His-tagged	His	Human	E.coli
RAC1	RAC1-191H	Recombinant Human RAC1(Q61L), His-tagged	His	Human	E.coli
	RAC1-192H	Recombinant Human RAC1, GST-tagged	GST	Human	E.coli
	RAC1-194H	Recombinant Human RAC1 protein, His-tagged	His	Human	E.coli
	RAC1-445H	Recombinant Human RAC1 Protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
AIMP2	AIMP2-2030H	Recombinant Human AIMP2 Protein (1-320 aa), His-tagged	His	Human	E.coli
PAK2	PAK2-1282H	Recombinant Human p21 Protein (Cdc42/Rac)-Activated Kinase 2, GST-tagged	GST	Human	Insect Cell
	PAK2-30670TH	Recombinant Human PAK2		Human	E.coli
	PAK2-721H	Recombinant Human PAK2, GST-His	GST	Human	Sf9 Insect Cell
	PAK2-767H	Recombinant Human PAK2 Protein, His-tagged	His	Human	E.coli
PPP2R2C	PPP2R2C-2762H	Recombinant Human PPP2R2C Protein (1-447 aa), His-Myc-tagged	His/Myc	Human	Insect Cell
	PPP2R2C-1917H	Recombinant Human PPP2R2C, GST-tagged	GST	Human	E.coli
	PPP2R2C-27932TH	Recombinant Human PPP2R2C		Human	Wheat Germ
RPS6KB1	RPS6KB1-195H	Recombinant Human RPS6KB1, GST-tagged	GST	Human	Sf9 Insect Cell
	RPS6KB1-23H	Recombinant Human RPS6KB1 protein, His-tagged, Unactive	His	Human	Insect Cell
RPS6KB2	RPS6KB2-2437H	Recombinant Human RPS6KB2, His-tagged	His	Human	E.coli
	RPS6KB2-360H	Recombinant Human RPS6KB2 protein, His/MBP-tagged	His/MBP	Human	E.coli

Group	Cat.No.	Product Name	Tag	Species	Source
RPS6KB2	RPS6KB2-377H	Recombinant Human RPS6KB2, GST-tagged, Active	GST	Human	Sf9 Insect Cell
ROCK1	ROCK1-1480H	Recombinant Human ROCK1 (Active), GST-tagged	GST	Human	Sf9 Insect Cell
	ROCK1-574H	Recombinant Human ROCK1, GST-tagged	GST	Human	Sf9 Insect Cell
	ROCK1-76H	Recombinant Human ROCK1 protein, Flag-tagged, Biotinylated	Flag	Human	Insect Cell
ROCK2	ROCK2-1879H	Recombinant Human ROCK2 Protein, His-tagged	His	Human	Insect cells
	ROCK2-1878H	Recombinant Human ROCK2 protein, His & T7-tagged	His/T7	Human	E.coli
	ROCK2-26H	Recombinant Human ROCK2 protein, GST-tagged	GST	Human	Insect Cell
	ROCK2-672H	Recombinant Human ROCK2 protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
PIK3CA	PIK3CA&PIK3R1-150H	Recombinant Human PIK3CA(E545K)/PIK3R1 protein, His-tagged, Active	His	Human	Insect Cell
	PIK3CA&PIK3R1-153H	Recombinant Human PIK3CA/PIK3R1 protein, GST-tagged, Active	GST	Human	Insect Cell
	PIK3CA/PIK3R1-631H	Recombinant Human PIK3CA/PIK3R1, FLAG-tagged	Flag	Human	Sf9 Insect Cell
PIK3CB	PIK3CB&PIK3R2-156H	Recombinant Human PIK3CB/PIK3R2 protein, His-tagged, Active	His	Human	Insect Cell
	PIK3CB/PIK3R1-632H	Recombinant Human PIK3CB/PIK3R1, FLAG-tagged	Flag	Human	Sf9 Insect Cell
	PIK3CB-620H	Recombinant Human PIK3CB	His	Human	Mammalian Cell
PIK3CD	PIK3CD-1727H	Recombinant Human PIK3CD protein, His & T7-tagged	His/T7	Human	E.coli
	PIK3CD-1896H	Recombinant Human Phosphoinositide-3-Kinase, Catalytic, Delta Polypeptide, His-tagged	His	Human	Sf9 Insect Cell
	PIK3CD-52H	Recombinant Human PIK3CD, GST-tagged	GST	Human	Sf9 Insect Cell
PIK3CG	PIK3CG-158H	Recombinant Human PIK3CG protein, His-tagged, Active	His	Human	Insect Cell
	PIK3CG-55H	Recombinant Human PIK3CG, GST-tagged	GST	Human	Sf9 Insect Cell
PDK1	PDK1-124H	Recombinant Human PDK1 Protein, GST-tagged	GST	Human	Insect cells

Group	Cat.No.	Product Name	Tag	Species	Source
PDK1	PDK1-824H	Recombinant Human PDK1 Protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
	PDK1-904H	Recombinant Human PDK1, His tagged	His	Human	Insect Cell
AKT1	AKT1-14H	Recombinant Human AKT1 Protein, His-tagged	His	Human	Insect Cell
	AKT1-336H	Recombinant Human AKT1 Protein, His & Strep-tagged	His & Strep	Human	HEK293
	AKT1-101H	Recombinant Human AKT1, GST-tagged	GST	Human	Sf9 Insect Cell
	AKT1-155H	Recombinant Human AKT1 protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
	AKT1-30H	Recombinant Human AKT1 protein, Flag-tagged, Biotinylated	Flag	Human	Insect Cell
AKT2	AKT2-102H	Recombinant Human AKT2, GST-tagged, Active	GST	Human	Sf9 Insect Cell
	AKT2-163H	Recombinant Human AKT2, Active, His-tagged	His	Human	Sf9 Insect Cell
	AKT2-248H	Recombinant Human AKT2 Protein, His & GST-tagged	His/GST	Human	Insect Cell
	AKT2-31H	Recombinant Human AKT2 protein, Flag-tagged, Biotinylated	Flag	Human	Insect Cell
AKT3	AKT3-131H	Recombinant Human AKT3, GST tagged	GST	Human	Insect Cell
	AKT3-165H	Recombinant Human AKT3, Active, His-tagged	His	Human	Sf9 Insect Cell
	AKT3-308H	Recombinant Human AKT3 protein, His/MBP-tagged	His/MBP	Human	E.coli
RORC	RORC-5893H	Recombinant Human RORC protein, His-tagged	His	Human	E. coli
	RORC-02H	Recombinant Human RORC Protein, GST-tagged	GST	Human	Insect Cell
	RORC-16H	Recombinant Human RORC protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
SHC1	SHC1-2654H	Recombinant Human SHC1, GST-tagged	GST	Human	E.coli
	SHC1-30065TH	Recombinant Human SHC1, His-tagged	His	Human	E.coli
SHC3	SHC3-1277H	Recombinant Human SHC3 protein, His & GST-tagged	His/GST	Human	E.coli
	SHC3-2655H	Recombinant Human SHC3, GST-tagged	GST	Human	E.coli

Group	Cat.No.	Product Name	Tag	Species	Source
SHC4	SHC4-2656H	Recombinant Human SHC4, GST-tagged	GST	Human	E.coli
GRB2	GRB2-127H	Recombinant Human GRB2 protein, T7/His-tagged	T7/His	Human	E.coli
	GRB2-13520H	Recombinant Human GRB2, GST-tagged	GST	Human	E.coli
	GRB2-435H	Recombinant Human GRB2 protein, His-tagged	His	Human	HEK293F
KRAS	KRAS-358H	Recombinant Human KRAS Protein, His-tagged	His	Human	E. coli
	KRAS-163H	Recombinant Human KRAS protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
	KRAS-4888H	Recombinant Human KRAS Protein, GST-tagged	GST	Human	Wheat Germ
ERAS	ERAS-1261H	Recombinant Human ERAS Protein (3-230 aa), His-tagged	His	Human	E.coli
	ERAS-3440H	Recombinant Human ERAS Protein, GST-tagged	GST	Human	Wheat Germ
MRAS	MRAS-1335H	Recombinant Human Muscle RAS Oncogene Homolog, His-tagged	His	Human	E.coli
	MRAS-5533H	Recombinant Human MRAS Protein, GST-tagged	GST	Human	Wheat Germ
	MRAS-703H	Recombinant Human MRAS (Q71L) Protein, His-tagged	His	Human	E.coli
	MRAS-885H	Recombinant Human MRAS	His	Human	Mammalian Cell
NRAS	NRAS-165H	Recombinant Human NRAS protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
	NRAS-30411TH	Recombinant Human NRAS Protein		Human	E.coli
	NRAS-447H	Recombinant Human NRAS Protein, His-tagged	His	Human	E.coli
	NRAS-6106H	Recombinant Human NRAS Protein, GST-tagged	GST	Human	Wheat Germ
RAF1	RAF1-1123H	Recombinant Human RAF1 Protein, GST-tagged	GST	Human	E.coli
	RAF1-413H	Recombinant Human RAF1 Protein (Ser306-Phe648), His-GST-tagged	His/GST	Human	Insect Cell
	RAF1-169H	Recombinant Human RAF1 protein, His-tagged	His	Human	Insect Cell
	RAF1-552H	Recombinant Human RAF1, MYC/DDK-tagged	MYC/DDK	Human	HEK293

Group	Cat.No.	Product Name	Tag	Species	Source
MAP2K1	MAP2K1-1033H	Recombinant Human Mitogen-Activated Protein Kinase Kinase 1, GST-tagged	GST	Human	Sf9 Insect Cell
	MAP2K1-1035H	Recombinant Human Mitogen-Activated Protein Kinase Kinase 1, His-tagged	His	Human	Sf9 Insect Cell
	MAP2K1-167H	Recombinant Human v protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
	MAP2K1-62H	Recombinant Human MAP2K1 protein, Flag-tagged, Biotinylated	Flag	Human	Insect Cell
ERK1	ERK1-12538H	Recombinant Human ERK1, His-tagged	His	Human	E.coli
MAPK1	MAPK1-2008H	Recombinant Human MAPK1 Protein, GST-tagged	GST	Human	E.coli
	MAPK1-27H	Biotinylated Recombinant Human ERK2, His-tagged	His	Human	E.coli
	MAPK1-385H	Recombinant Human MAPK1 Protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
TRAF6	TRAF6-3144H	Recombinant Human TRAF6 Protein, His-tagged	His	Human	E.coli
	TRAF6-3146H	Recombinant Human TRAF6 Protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
	TRAF6-3147H	Recombinant Human TRAF6 Protein, His-SUMO-tagged	His-SUMO	Human	E.coli
	TRAF6-31603TH	Recombinant Human TRAF6 protein, GST-tagged	GST	Human	Wheat Germ
MAP3K7	MAP3K7-30308TH	Recombinant Human Human MAP3K7		Human	
	MAP3K7-82H	Recombinant Human MAP3K7 protein, Flag-tagged, Biotinylated	Flag	Human	Insect Cell
	TAK1-TAB1-440H	Recombinant Human TAK1-TAB1, GST-tagged, Active	GST	Human	Sf9 Insect Cell
MAP2K4	MAP2K4-17H	Recombinant Human MAP2K4 Protein, GST-tagged	GST	Human	E.coli
	MAP2K4-105H	Recombinant Human MAP2K4, His-tagged	His	Human	Sf9 Insect Cell
	MAP2K4-304H	Recombinant Human MAP2K4 protein, His/MBP-tagged	His/MBP	Human	E.coli
	MAP2K4-394H	Recombinant Human MAP2K4 Protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
SMAD1	SMAD1-12H	Recombinant Human SMAD1, MYC/DDK-tagged	MYC/DDK	Human	HEK293

Group	Cat.No.	Product Name	Tag	Species	Source
SMAD1	SMAD1-160H	Recombinant Human SMAD1 Protein, His-tagged	His	Human	E.coli
	SMAD1-2799H	Recombinant Human SMAD1, GST-tagged	GST	Human	E.coli
SMAD5	SMAD5-162H	Recombinant Human SMAD5 Protein, His-tagged	His	Human	E.coli
	SMAD5-2800H	Recombinant Human SMAD5, GST-tagged	GST	Human	E.coli
SMAD9	SMAD9-1914H	Recombinant Human SMAD9 Protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
	SMAD9-234H	Recombinant Human SMAD9, GST-tagged	GST	Human	E.coli
	SMAD9-302H	Recombinant Human SMAD9 Protein, His/GST-tagged	His/GST	Human	E.coli
SMAD2	SMAD2-118H	Recombinant Human SMAD2 protein, T7/His-tagged	T7/His	Human	E.coli
	SMAD2-1915H	Recombinant Human SMAD2 Protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
	SMAD2-294H	Recombinant Human SMAD2 protein, GST-tagged	GST	Human	E.coli
	SMAD2-324H	Recombinant Human SMAD2 protein, His/MBP-tagged	His/MBP	Human	E.coli
	SMAD2-392H	Recombinant Human SMAD Family Member 2, His-tagged	His	Human	Insect Cell
SMAD3	SMAD3-1918H	Recombinant Human SMAD3 Protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
	SMAD3-295H	Recombinant Human SMAD3 protein, GST-tagged	GST	Human	E.coli
	SMAD3-304H	Recombinant Human SMAD3 Protein, His-tagged	His	Human	E.coli
SMAD4	SMAD4-1095H	Recombinant Human SMAD Family Member 4, GST-tagged	GST	Human	E.coli
	SMAD4-217H	Recombinant Human SMAD4 protein, His-tagged	His	Human	E.coli
	SMAD4-31193TH	Recombinant Human SMAD4		Human	E.coli
SMAD7	SMAD7-1912H	Recombinant Human SMAD7 Protein, MYC/DDK-tagged	MYC/DDK	Human	HEK293
	SMAD7-29105TH	Recombinant Human SMAD7		Human	Wheat Germ