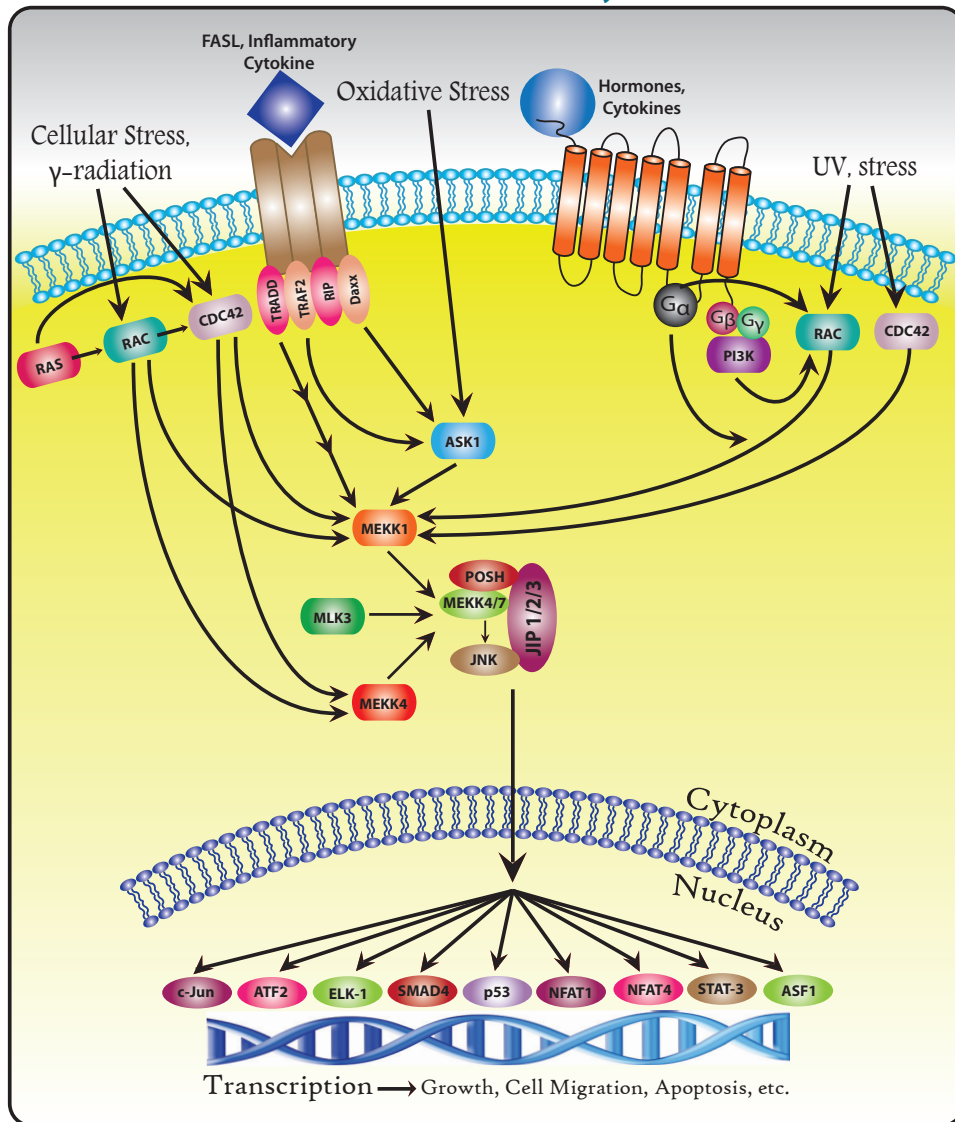


## JNK/SAPK Signaling

c-Jun N-terminal kinases (JNKs) are also referred to as stress-activated kinases (SAPKs). JNK/SAPKs are involved in proliferation, apoptosis, motility, metabolism and DNA repair. Dysregulation can contribute to many diseases related to neurodegeneration, chronic inflammation, birth defects, cancer, ischemia/reperfusion injury, as well as, obesity and insulin-resistant diabetes. There are three JNK genes (JNK1, JNK2, JNK3). JNK1 and JNK2 are ubiquitously expressed while JNK3 is restricted to brain, heart and testes. The TXY motif in the activation loop of each JNK is dually phosphorylated by specific MAPK kinases (MKKs).

The inhibition of JNKs in metabolic regulation may offer a therapeutic benefit for obesity-induced insulin resistance. The insulin receptor phosphorylates tyrosine residues on insulin receptor substrate 1 (IRS1). The phosphorylated IRS1 functions as a complex scaffolding protein which recruits numerous signaling proteins in the control of insulin signaling and metabolic regulation. JNKs are activated by high fat diet and obesity, in part due to the elevated levels of TNF $\alpha$  and IL-1. The activated JNKs phosphorylate IRS1 at S307 and this results in reduced insulin receptor catalyzed phosphorylation of IRS1. However, studies have suggested that the reduced phosphorylation of S307 correlates with improved insulin sensitivity. Consequently, JNK1 may be an important target in the treatment of obesity and type II diabetes. This is consistent with findings that a cell permeable JNK inhibitory peptide was able to maintain insulin sensitivity in the obese mouse model.

### JNK/SAPK Pathway



**Assay Kits**

Name	Cat. #
KinaseSTAR™ JNK Activity Screening Kit	K430-40
KinaseSTAR™ JNK Activity Assay Kit	K431-40

**Antibodies**

Name	Cat. #
Phospho-ATF-2 Antibody	3359-100
ASK1/MAPKKK5 Antibody	3128-100
BAFF Antibody	3203-100
cdc/Rac Blocking Peptide	3080BP-50
cdc42/Rac Antibody	3080-100
CIKS/Act1 Antibody	3314-100
CREB Antibody	3360R-100
Elk-1 Antibody	3387-100
Erk1/2 MAPK Antibody	3085-100
Phospho-Erk1/2 Antibody	3441-100
Erk5 Antibody	3397-100
Fas Ligand Antibody (Clone I-6060)	3330-100
GCK (Glucokinase) Antibody	3153-100
GCK (Glucokinase) Antibody	3154-100
IRAK-4 Antibody	3580-100
JIK Antibody	3784-100
JIP-1 Antibody	3664-100
JLP Antibody	3736-100
JNK Antibody	3701-100
JNK Activated Cell Lysate	7032-1
JNK Negative Control Cell Lysate	7031-1
c-Jun antibody	3009-100
c-Jun Antibody	3702-100
Phospho-c-Jun (Ser73) Antibody	3502-100
MAPKAPK-2 Antibody	3100-100
MAPKAPK-2 Blocking Peptide	3100BP-50
MKK3 Antibody	3285-100
MLK3 Antibody	3430-100
p38 MAP Kinase Antibody	3114-100
Phospho-p38 MAPK Antibody	3438-100
p42/44 MAPK Antibody	3542-100
NIK Antibody	3193R-100
PAK2 Antibody	3443-100
PAK3 Antibody	3686-100
PAK4 Antibody	3444-100
Phospho-JKK/SEK1/MKK4 Antibody	3478-100
Phospho-JNK/SAPK Antibody	3589-100
Phospho-MAPKAPK-2 Antibody	3434-100
Phospho-MSK1 Antibody	3278-100
RIP Antibody	3279-100
TAB1 Antibody	3682-100

**Proteins/Enzymes**

Name	Cat. #
JNK1, Active	7757-5, 100
c-Jun (1-79)-GST Fusion Protein	7001-100
MAPKAPK2, Active	7737-5
MAPKAPK3, Active	7755-5

**JNK Inhibitors**

Name	Cat. #
BAY 43-9006	1594-25, 100
Doramapimod	1954-5, 25
L-JNK Peptide Inhibitor I	7011-50
L-JNK11 Negative Control Peptide	7021-50
PathwayReady™ MAP Kinase Signaling Inhibitor Panel	K862-7
PD 98059	1666-5
EZSolution™ PD 98059	1783-5
PD-0325901	1643-2, 5, 25
PD184352	1585-1, 5, 25
EZSolution™ PD184352	1871-1
SB 203580	1712-1, 5
EZSolution™ SB 203580	1786-1
SP600125	1669-5
U0126	1668-5
VX-702	1598-1, 5

**JNK/SAPK Activator**

Name	Cat. #
Anisomycin	1549-10