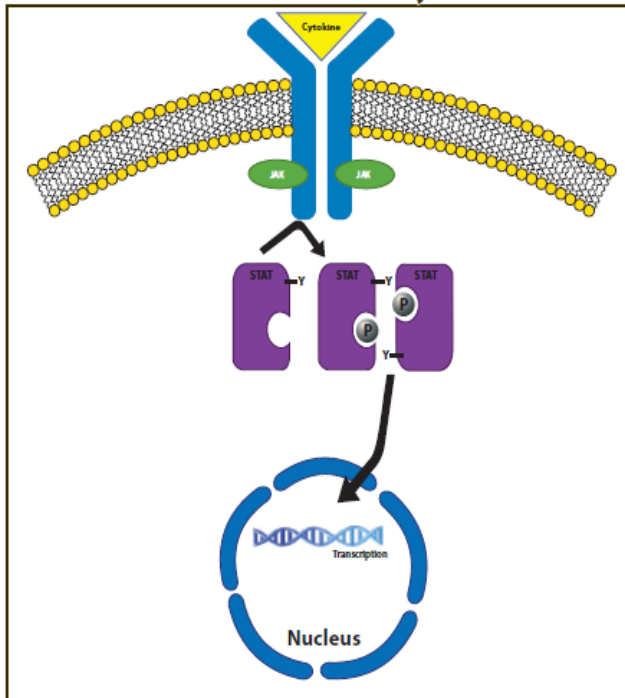


JAK/STAT Signaling

JAK/STAT Pathway



The JAK/STAT signaling pathway transmits a signal from outside the cell eventually resulting in DNA transcription and activity in the cell. Leptin (a product of the obese gene) can induce a cascade of events through its receptor (LRb; also known as Ob-Rb or the long isoform) and the JAK/STAT pathway. Significantly, Leptin mediated signaling through the JAK2/STAT3 pathway affects appetite and has been implicated in various carcinomas. Constitutively associated with the LRb is the Janus kinase 2 (JAK2) whose association and subsequent activation requires the so called Box 1 proline-rich motif found on all LRb receptors. Upon leptin binding, the receptor homodimerizes bringing two JAK2 in proximity to allow trans-phosphorylation of the JAK2's which activates them and leads to their phosphorylation of the receptor which creates binding opportunities for proteins that possess phosphotyrosine-binding SH2 domains. The signal transducer and activator of transcription (STAT) proteins possess such SH2 domains. Hence STAT3 recruitment

via its SH2 domains results in STAT3 phosphorylation followed by its dimerization and translocation to the nucleus. Within the nucleus, STAT3 can bind promoters and affect expression of DNA sequences which control basic cell functions such as cell growth, differentiation and death. In addition, the activated JAK2 phosphorylates and activates numerous other STATs and proteins, such as IRS-1, PI3K and Akt. This LRb/JAK2/STAT3 signaling pathway is widely expressed in the brain and can control appetite by affecting the production of the anorexigenic peptide α -MSH. Obesity also greatly influences the risk of many common forms of cancer with hepatocellular carcinoma exhibiting the highest relative-risk (4.52X) increase for obese men compared with all the cancers studied. Studies have shown that treatment with leptin increased the proliferation of HepG2 and Huh7 cells and involved the activation of STAT3, PI3K, Akt and Erk via JAK2. Temporally, studies demonstrated that JAK2/STAT3 activation followed leptin treatment and was upstream of PI3K, Akt and ERK phosphorylation. In addition, leptin was found to increase the migration capability of hepatocellular carcinoma cells and correlated with JAK2/STAT3 activation demonstrated by using the JAK/STAT inhibitor AG490.

Assay Kits

Product Name	Cat. No.	Size
GM-CSF (human) ELISA Kit	K4772	100 assays
STAT3 (Human) ELISA Kit	K4201	100 assays

Antibodies

Product Name	Cat. No.	Size
GH (Growth Hormone) Ab	5769	30 μ g, 100 μ g
GM-CSF Ab	5100	30 μ g, 100 μ g

155 S. Milpitas Blvd, Milpitas, CA 95035

T: 408-493-1800 F: 408-493-1801

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

Antibodies

Product Name	Cat. No.	Size
GM-CSF Ab	5101	30 µg, 100 µg
IFN gamma Ab	5117	100 µg
Phospho-IGFIR (Tyr980) Ab	A1040	100 µg
IL-1 beta Ab	5128	30 µg, 100 µg
IL-1 beta Ab	5129	30 µg, 100 µg
IL-12p40 Ab	5732	30 µg, 100 µg
IL-13 Ab	5164	100 µg
IL-13 Ab	5165	100 µg
IL-13 Ab	5165R	30 µg, 100 µg
IL-2 Ab	5131	30 µg, 100 µg
IL-2 Ab	5133	30 µg, 100 µg
IL-3 Ab	5134	30 µg, 100 µg
IL-6 Ab	5143	30 µg, 100 µg
IL-6 Ab	5144	100 µg
IL-6 Ab	5145	100 µg
IL-7 Ab	5148	30 µg, 100 µg
Leptin Ab	5366	30 µg, 100 µg
Leptin Ab	5367	30 µg, 100 µg
Leptin Ab	5368	30 µg, 100 µg
Leptin Receptor Ab	5582	100 µg
Anti-MEK2 (KO Validated) Ab	A2124	100 µl
Prolactin Ab	5688	30 µg, 100 µg
Prolactin Ab	5689	30 µg, 100 µg
Anti-SHP2 Ab (Clone# ARC0356)	A2128	100 µl
SOCS1 Ab	3861	30 µg, 100 µg
Anti-Src (KO Validated) Ab	A2123	100 µl
Stat1 Ab	3133R	30 µg, 100 µg
Anti- STAT1 Ab	A1215	100 µl
Phospho-Stat2 Ab	3469	100 µg
Stat2 Ab	3468R	30 µg, 100 µg
Phospho-STAT3 (Tyr704) Ab	A1039	100 µg
Phospho-Stat3 Ab	3474	100 µg
Stat3 Ab	3470R	30 µg, 100 µg
Anti-STAT3 Ab	A1670	100 µl
Stat4 Ab	3471R	30 µg, 100 µg
Phospho-Stat5 Ab	3475	100 µg
Stat5 Ab	3472	30 µg, 100 µg
Phospho-Stat6 Ab	3476	100 µg
Stat6 Ab	3473R	30 µg, 100 µg
TPO Ab	5352	30 µg, 100 µg
TPO Ab	5351R	30 µg, 100 µg

Proteins/Enzymes

Product Name	Cat. No.	Size
Human CellExp™ B7-2 /CD86, human recombinant	7496	10 µg, 50 µg
BMP-11/GDF-11, human recombinant	7155	10 µg, 50 µg
BMP-9/GDF-2, human recombinant	7154	10 µg, 50 µg
Cardiotrophin-1, Murine Recombinant	7121	10 µg, 50 µg
Human CellExp™ CD85J/LILRB1, human recombinant	7491	10 µg, 50 µg
EPO-alpha, human recombinant	4763	10 µg, 50 µg, 1 mg
EPO-alpha, human recombinant	4764	500 IU
GASP-1, human recombinant	7152	10 µg, 50 µg
GM-CSF, human recombinant	4100	10 µg, 100 µg, 1 mg
GM-CSF, murine recombinant	4101	10 µg, 100 µg, 1 mg
GM-CSF, rat recombinant	4102	10 µg, 100 µg, 1 mg
Gremlin-1, human recombinant	7159	10 µg, 50 µg
Growth Hormone, chicken recombinant	4771	50 µg, 500 µg
Growth Hormone, human recombinant	4769	100 µg, 500 µg, 1 mg, 5 mg
Growth Hormone, murine recombinant	4770	50 µg, 1 mg
IFN-alpha 1, human recombinant	4596	10 µg, 100 µg, 1 mg
Human CellExp™ IFN-alpha 2a, Human Recombinant	6458	10 µg, 50 µg
IFN-alpha 2a, human recombinant	4594	20 µg, 100 µg, 1 mg
Human CellExp™ IFN-alpha 2b, Human Recombinant	6459	10 µg, 50 µg
IFN-alpha 2b, human recombinant	4595	20 µg, 100 µg, 1 mg
IFN-beta, human recombinant	4860	10 µg, 50 µg, 1 mg
Human CellExp™ IFN-gamma, human recombinant	7271	10 µg
IFN-gamma, human recombinant	4116	20 µg, 100 µg, 1 mg
IFN-gamma, murine recombinant	4117	20 µg, 100 µg, 1 mg
IFN-gamma, rat recombinant	4118	20 µg, 100 µg, 1 mg
Human CellExp™ IGF1R/CD221, human recombinant	7490	10 µg, 50 µg
Human CellExp™ IL-10, Human Recombinant	6466	10 µg, 50 µg
IL-11, human recombinant	4158	10 µg, 50 µg, 1 mg
IL-11, murine recombinant	4159	10 µg, 50 µg, 1 mg
Human CellExp™ IL-12, Human Recombinant	6467	10 µg, 50 µg
IL-12, human recombinant	4161	10 µg, 100 µg
IL-12p40, human recombinant	4732	10 µg, 50 µg, 1 mg
IL-12p80, Human Recombinant	7104	10 µg, 50 µg
IL-13, human recombinant	4164	10 µg, 50 µg, 1 mg
IL-13, murine recombinant	4165	10 µg, 50 µg, 1 mg
IL-13, rat recombinant	4166	10 µg, 1 mg
Human CellExp™ IL13RA2/CD213, human recombinant	7489	20 µg, 100 µg
Human CellExp™ IL-15, human recombinant	7273	10 µg
IL-16, murine recombinant	4174	10 µg, 50 µg, 1 mg
Human CellExp™ IL-17A, Human Recombinant	6468	10 µg, 50 µg
IL-17A, Mouse Recombinant	7105	10 µg, 50 µg
IL-17B, Human Recombinant	7106	10 µg, 50 µg
IL-17D, Human Recombinant	7107	10 µg, 50 µg
IL-17F, human recombinant	4176F	25 µg, 100 µg, 1 mg

Proteins/Enzymes

Product Name	Cat. No.	Size
Human CellExp™ IL-17F, Human Recombinant	6469	10 µg, 50 µg
Human CellExp™ IL-1beta, Human Recombinant	6460	10 µg, 50 µg
IL-2 Receptor α, Human Recombinant	7100	10 µg, 50 µg
Human CellExp™ IL-2, Human Recombinant	6461	10 µg, 50 µg
Human CellExp™IL-2, Human Recombinant	P1385	10 µg, 50 µg
IL-2, human recombinant	4131	10 µg, 50 µg, 1 mg
IL-2, murine recombinant	4132	20 µg, 100 µg, 1 mg
IL-2, rat recombinant	4133	20 µg, 100 µg, 1 mg
Human CellExp™ IL-22, human recombinant	7272	10 µg
Human CellExp™ IL-28B, Human Recombinant	6472	10 µg, 50 µg
Human CellExp™ IL-29, Human Recombinant	6473	10 µg, 50 µg
Human CellExp™ IL-3, Human Recombinant	6462	10 µg, 50 µg
IL-3, human recombinant	4134	10 µg, 50 µg, 1 mg
IL-3, murine recombinant	4135	10 µg, 50 µg, 1000 µg
IL-3, rat recombinant	4136	10 µg, 1 mg
IL-33, human recombinant	4193	10 µg, 50 µg, 1 mg
Human CellExp™ IL-34, Human Recombinant	7108	10 µg, 50 µg
IL-36RA, Human Recombinant	7109	10 µg, 50 µg
IL-36β, Human Recombinant	7110	10 µg, 50 µg
IL-36γ, Human Recombinant	7111	10 µg, 50 µg
Human CellExp™ IL-4 Rα, Human Recombinant	7101	10 µg, 50 µg
Human CellExp™ IL-4, Human Recombinant	6463	10 µg, 50 µg
IL-4, human recombinant	4137	10 µg, 50 µg, 1 mg
IL-4, murine recombinant	4138	10 µg, 50 µg, 1 mg
IL-4, rat recombinant	4139	10 µg, 50 µg, 1 mg
IL-5, human recombinant	4140	10 µg, 1 mg
IL-5, murine recombinant	4141	10 µg, 1 mg
Human CellExp™ IL-6 Rα, Human Recombinant	7102	10 µg, 50 µg
IL-6, human recombinant	4143	20 µg, 100 µg, 1 mg
IL-6, murine recombinant	4144	10 µg, 50 µg, 1 mg
IL-6, rat recombinant	4145	10 µg, 50 µg, 1 mg
Human CellExp™ IL-7, human recombinant	7274	10 µg
IL-7, human recombinant	4146	10 µg, 50 µg, 1 mg
IL-7, rat recombinant	4148	10 µg, 50 µg, 1 mg
Human CellExp™ IL7Ra/CD127, human recombinant	7492	10 µg, 50 µg
IL-9, Rat Recombinant	7103	10 µg, 50 µg
IP-10, murine recombinant	4201	25 µg, 100 µg, 1 mg
Human CellExp™ LEPR/CD295, human recombinant	7497	10 µg, 50 µg
Leptin Receptor, human recombinant	4582	10 µg, 50 µg, 1000 µg
Leptin, human recombinant	4366	200 µg, 1 mg, 5 mg, 10 mg
Leptin, murine recombinant	4367	200 µg, 1 mg, 5 mg
Leptin, rat recombinant	4368	200 µg, 1 mg, 5 mg
Human CellExp™ LIF, human recombinant	7267	10 µg
Human CellExp™ LIF, mouse recombinant	7268	10 µg

Proteins/Enzymes

Product Name	Cat. No.	Size
Neuropoietin, murine recombinant	7180	10 µg, 50 µg
Human CellExp™ PDGF-BB, human recombinant	7276	10 µg
Human CellExp™ PDGFRb/CD140b, human recombinant	7493	10 µg, 50 µg
PHPT1, human recombinant	P1181	10 µg, 50 µg
Prolactin Receptor, human recombinant	4989	20 µg, 1 mg
Prolactin Receptor, rat recombinant	4991	10 µg, 50 µg, 1 mg
Prolactin, human recombinant	4687	10 µg, 50 µg, 1 mg
Prolactin, murine recombinant	4688	10 µg, 50 µg, 1 mg
Prolactin, rat recombinant	4689	10 µg, 50 µg, 1 mg
Human CellExp™ SCARB2 /CD36L2 /LIMP2, human recombinant	7509	10 µg, 50 µg
STAT1 (His-tagged), human recombinant	7889	10 µg, 25 µg
Human CellExp™ TPO, Human Recombinant	6483	10 µg, 50 µg
TPO, human recombinant	4351	10 µg, 50 µg, 1 mg

JAK- Inhibitors

Product Name	Cat. No.	Size	CAS No.
ABT-494	B1947	5 mg, 25 mg	1310726-60-3
EZSolution™ ABT-494 (Upadacitinib)	B2486	5 mg	1310726-60-3
ASN-002 (GUSACITINIB)	B3318	5 mg, 25 mg	1425381-60-7
AT9283	2432	5 mg, 25 mg	896466-04-9
AZ-960	B2065	5 mg, 25 mg	905586-69-8
AZD1480	2315	1 mg, 5 mg	935666-88-9
AZD-4205	B3124	1 mg, 5 mg	2091134-68-6
EZSolution™ Baricitinib	B2480	5 mg	1187594-09-7
Baricitinib	2842	10 mg, 50 mg	1187594-09-7
Baricitinib phosphate	2841	10 mg, 50 mg	1187595-84-1
BBT-594	B2114	5 mg, 25 mg	882405-89-2
BMS-911543	2630	1 mg, 5 mg	1271022-90-2
CEP-33779	B2473	5 mg, 25 mg	1257704-57-6
EZSolution™ Cerdulatinib	B2482	5 mg	1198300-79-6
CHZ868	B2475	5 mg, 25 mg	1895895-38-1
CP-690550	1622	5 mg, 25 mg	477600-75-2
EZSolution™ CP-690550	B2478	5 mg	477600-75-2
CP-690550 citrate	9428	5 mg, 25 mg	540737-29-9
EZSolution™ Cyt387	B2483	5 mg	1229236-86-5
EZSolution™ Cyt387	B2484	5 mg	1056634-68-4
Cyt387	2316	1 mg, 5 mg	1056634-68-4
Decernotinib (VX-509)	B1260	5 mg, 25 mg	944842-54-0
EZSolution™ Decernotinib (VX-509)	B2621	5 mg	944842-54-0
EZSolution™ Fedratinib (TG101348)	B2487	5 mg	936091-26-8
EZSolution™ Filgotinib	B2481	5 mg	1206161-97-8
Filgotinib	2871	10 mg, 50 mg	1206161-97-8

JAK- Inhibitors

Product Name	Cat. No.	Size	CAS No.
GLPG0634 Analog	B1836	5 mg, 25 mg	1206101-20-3
INCB39110	B1894	5 mg, 25 mg	1334298-90-6
JAK Inhibitor, Pyridone 6	2534	500 µg, 1 mg	457081-03-7
DiscoveryPak™ JAK Inhibitors Set	S236	9 Inhibitors	Multiple
LY-2784544	B1914	5 mg, 25 mg	1229236-86-5
MS-1020	1911	1 mg	1255516-86-9
NVP-BSK805 dihydrochloride	B2200	1 mg, 5 mg	1942919-79-0
EZSolution™ Pacritinib	B2485	1 mg	937272-79-2
EZSolution™ Peficitinib	B2623	1 mg	944118-01-8
Peficitinib	B2474	1 mg, 5 mg	944118-01-8
EZSolution™ PF-03394197	B2479	5 mg	1208319-26-9
PF-03394197	2883	5 mg, 25 mg	1208319-26-9
EZSolution™ PF-04965842	B2622	5 mg	1622902-68-4
PF-04965842	B2470	5 mg, 25 mg	1622902-68-4
EZSolution™ Ruxolitinib	B2477	5 mg	941678-49-5
Ruxolitinib phosphate	B2631	5 mg, 25 mg	1092939-17-7
Ruxolitinib, Free base	2139	5 mg, 25 mg	941678-49-5
SAR-20347	B1290	5 mg, 25 mg	1450881-55-6
SB1317 (TG-02)	B3218	5 mg, 25 mg	1204918-72-8
TCS 21311	B2927	5 mg, 25 mg	1260181-14-3
TG-101209	B3220	5 mg, 25 mg	936091-14-4
TG101348	2314	1 mg, 5 mg	936091-26-8
Tyrphostin AG 490	1570	5 mg	133550-30-8
WHI-P131	1853	5 mg, 25 mg	202475-60-3
WHI-P154	2659	5 mg, 25 mg	211555-04-3
EZSolution™ WP1066	2546	5 mg	857064-38-1
WP1066	1809	5 mg, 25 mg	857064-38-1

STAT Inhibitors

Product Name	Cat. No.	Size	CAS No.
Cryptotanshinone	2429	5 mg, 25 mg	35825-57-1
Galiellactone	2623	100 µg, 500 µg	133613-71-5
PathwayReady™ JAK/STAT Signaling Inhibitor Panel	K864	8 inhibitors	Multiple
Lestaurtinib	1805	500 µg, 1 mg	111358-88-4
LLL12	1792	5 mg, 25 mg	N/A
Niclosamide	1826	100 mg, 500 mg	50-65-7
Pimozide	1887	50 mg, 250 mg	2062-78-4
SH-4-54	B1637	5 mg, 25 mg	1456632-40-8
STA-21	2626	250 µg, 1 mg	28882-53-3
Stat3 Activation Inhibitor, SPI	1813	2 mg	N/A
EZSolution™ Stat3 Inhibitor I, S3I-201	2541	5 mg	501919-59-1
Stat3 Inhibitor I, S3I-201	1775	5 mg, 25 mg	501919-59-1
STAT3 Inhibitor, C188-9	B2386	5 mg, 25 mg	432001-19-9

STAT Inhibitors

Product Name	Cat. No.	Size	CAS No.
Stat3 Peptide Inhibitor, Cell-Permeable	1778	1 mg, 5 mg	N/A
Stat5 Inhibitor	9484	1 mg, 5 mg	285986-31-4
Stattic	2625	5 mg, 25 mg	19983-44-9
EZSolution™ Stattic, Sterile-filtered	B2241	5 mg	19983-44-9

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