

## Product datasheet for **RR208420**

### Stk11 (NM\_001108069) Rat Tagged ORF Clone

#### Product data:

Product Type: Expression Plasmids  
 Product Name: Stk11 (NM\_001108069) Rat Tagged ORF Clone  
 Tag: Myc-DDK  
 Symbol: Stk11  
 Synonyms: Lkb1  
 Vector: pCMV6-Entry (PS100001)  
 E. coli Selection: Kanamycin (25 ug/mL)  
 Cell Selection: Neomycin  
 ORF Nucleotide Sequence: >RR208420 representing NM\_001108069  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTGTAAACGACTCACTATAGGGCGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGATCGCC**

ATGGACGTGGCTGACCCAGCCGTTGGGCTGTTCCCCGAGGGCGAGCTAATGTCGGTGGGCATGGACA  
 CCTTCATCCACCGCATCGACTCCACCGAGGTGATCTACCAGCCGCGCCGCAAGCGCGCAAGCTCATCGG  
 CAAGTACCTGATGGGGACCTGCTCGGGGAGGGCTCGTACGGCAAGGTGAAGGAGGTGCTGGACTCCGAG  
 ACCTTATGCCGCAAGGCGGTCAAGATCCTCAAGAAGAAAAAGCTGCGCAGGATCCCAATGGCGAGGCCA  
 ACGTCAAGAAGGAGATCCAGCTGCTGCGCGGGCTGCGGCATCGGAATGTGATCCAGCTTGTGGATGTGCT  
 GTACAATGAGGAGAAGCAGAAGATGTATATGGTATGGAGTACTGCGTGTGTGGCATGCAGGAGATGCTG  
 GACAGTGTGCCAGAGAAGCGCTTCCCCGTGTGCCAAGCTCATGGTACTTCCGCCAGCTGATTGACGGCC  
 TGGAGTACCTACACAGCCAGGGCATTGTTCAACAAGGACATCAAGCCGGGCAACCTGCTCCTCACCACAA  
 TGGCACACTCAAGATCTCCGACCTCGGTGTTGCCGAGGCCTTGCACCCTTTCGCTGTGGATGACACCTGC  
 CGGACCAGCCAGGGCTCCCCAGCCTTCCAGCCTCCAGAGATTGCCAATGGACTGGACACCTTTTCAGGTT  
 TCAAGGTGGACATCTGGTCAGCTGGGGTCACACTCTACAACATCACCACGGGCTGTACCCATTTGAGGG  
 GGACAATATCTACAAGCTCTTTGAGAACATCGGGAGAGGGGACTTACCATCCCTTGTGACTGCGCTCCA  
 CCACTCTCTGACCTACTCCGAGGGATGTTGGAGTACGAGCCAGCCAAGAGGTTCTCCATCCGACAGATTA  
 GACAGCACAGCTGGTTCGGAAGAAACACCCGCTGGCCGAGGCTCTTGTGCCTATCCCCCAAGTCCAGA  
 CACTAAGGACCGCTGGCGCAGCATGACCGTAGTGCCCTACCTGGAGGACCTGCATGGCCGTGCAGAGGAG  
 GAGGAGGACGAGGACTTGTGTTGACATTGAGGACGGCATCATCTATACCCAGGACTTACAGTGCCTGGAC  
 AGGTCCTGGAAGAGGAAGTGGGTCAGAATGGACAGAGCCACAGCCTGCCAAGGCTGTTTGTGTGAATGG  
 CACAGAGCCCCAGCTCAGCAGCAAGGTGAAGCCAGAAGGCCGGCCTGGCGTGCCAACCTGCACGCAAG  
 GTGTGCTCCAGCAACAAGATCCGCCGGCTCTCGGCTGCAAGCAGCAG

**ACGCGT**ACGCGGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT  
 ACAAGGATGACGACGATAAGGTTTAA



**Protein Sequence:** >RR208420 representing NM\_001108069  
 Red=Cloning site Green=Tags(s)

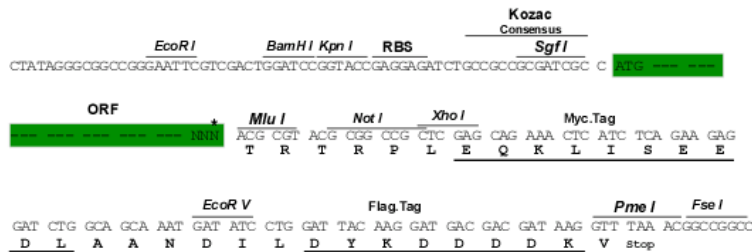
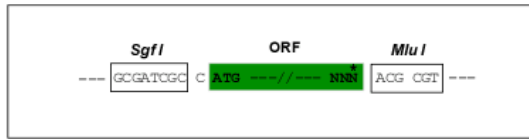
MDVADPQPLGLFPEGELMSVGMDFIHRIDSTEVYQPRRKRAKLI GKYLMDLLGEGSYGKVKVLDSE  
 TLCRRAVKILKKKLRIPNGEANVKKEIQLRRLRHRNVIQLVDVLYNEEKQKMYMMEYCVCGMQEML  
 DSVPEKRFVPCQAHGYFRQLIDGLEYLHSQGI VHKDIKPGNLLL TTNGTLKISDLGVAEALHPFAVDDTC  
 RTSQGSFAFPPEIANGLDTFSGFKVDIWSAGVTL YNIT TGLYPFEGDNIYKLFENIGRGDFTIPCDCAP  
 PLSDLLRGMLEYEPAKRFSIRQIRQHSWFRKKHPLAEALVPIPPSPDTKDRWSMTVVPYLEDLHGRAEE  
 EEDDLFDIEDGIIYTQDFTVPGQVLEEEVQNGQSHSLPKAVCVNGTEPQLSSKVKPEGRPGAANPARK  
 VCSSNKIRRLSACKQQ

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

**Restriction Sites:**  
**Cloning Scheme:**

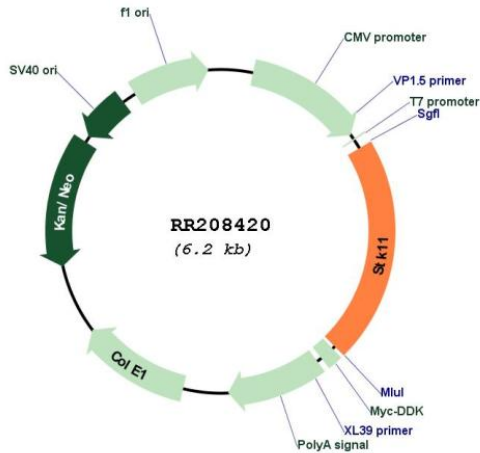
SgfI-MluI

Cloning sites used for ORF Shuttling:



\* The last codon before the Stop codon of the ORF

**Plasmid Map:**



**ACCN:** NM\_001108069

<b>ORF Size:</b>	1308 bp
<b>OTI Disclaimer:</b>	The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. <a href="#">More info</a>
<b>OTI Annotation:</b>	This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.
<b>Components:</b>	The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).
<b>Reconstitution Method:</b>	<ol style="list-style-type: none"><li>1. Centrifuge at 5,000xg for 5min.</li><li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li><li>3. Close the tube and incubate for 10 minutes at room temperature.</li><li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li><li>5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.</li></ol>
<b>RefSeq:</b>	<a href="#">NM_001108069.1</a> , <a href="#">NP_001101539.1</a>
<b>RefSeq Size:</b>	3120 bp
<b>RefSeq ORF:</b>	1311 bp
<b>Locus ID:</b>	314621
<b>UniProt ID:</b>	<a href="#">A0A0H2UI02</a>
<b>Cytogenetics:</b>	7q11
<b>MW:</b>	49.2 kDa

**Gene Summary:**

Tumor suppressor serine/threonine-protein kinase that controls the activity of AMP-activated protein kinase (AMPK) family members, thereby playing a role in various processes such as cell metabolism, cell polarity, apoptosis and DNA damage response. Acts by phosphorylating the T-loop of AMPK family proteins, thus promoting their activity: phosphorylates PRKAA1, PRKAA2, BRSK1, BRSK2, MARK1, MARK2, MARK3, MARK4, NUAK1, NUAK2, SIK1, SIK2, SIK3 and SNRK but not MELK. Also phosphorylates non-AMPK family proteins such as STRADA, PTEN and possibly p53/TP53. Acts as a key upstream regulator of AMPK by mediating phosphorylation and activation of AMPK catalytic subunits PRKAA1 and PRKAA2 and thereby regulates processes including: inhibition of signaling pathways that promote cell growth and proliferation when energy levels are low, glucose homeostasis in liver, activation of autophagy when cells undergo nutrient deprivation, and B-cell differentiation in the germinal center in response to DNA damage. Also acts as a regulator of cellular polarity by remodeling the actin cytoskeleton. Required for cortical neuron polarization by mediating phosphorylation and activation of BRSK1 and BRSK2, leading to axon initiation and specification. Involved in DNA damage response: interacts with p53/TP53 and recruited to the CDKN1A/WAF1 promoter to participate in transcription activation. Able to phosphorylate p53/TP53; the relevance of such result in vivo is however unclear and phosphorylation may be indirect and mediated by downstream STK11/LKB1 kinase NUAK1. Also acts as a mediator of p53/TP53-dependent apoptosis via interaction with p53/TP53: translocates to the mitochondrion during apoptosis and regulates p53/TP53-dependent apoptosis pathways. Regulates UV radiation-induced DNA damage response mediated by CDKN1A. In association with NUAK1, phosphorylates CDKN1A in response to UV radiation and contributes to its degradation which is necessary for optimal DNA repair (By similarity).[UniProtKB/Swiss-Prot Function]