## mTOR Substrates Antibody Sampler Kit

1 Kit (5 x 20 microliters)

<table>
<thead>
<tr>
<th>Product Includes</th>
<th>Product #</th>
<th>Quantity</th>
<th>Mol. Wt</th>
<th>Isotype/Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>mTOR (7C10) Rabbit mAb</td>
<td>2983</td>
<td>20 µl</td>
<td>289 kDa</td>
<td>Rabbit IgG</td>
</tr>
<tr>
<td>Phospho-p70 S6 Kinase (Thr389) (108D2) Rabbit mAb</td>
<td>9234</td>
<td>20 µl</td>
<td>70, 85 kDa</td>
<td>Rabbit IgG</td>
</tr>
<tr>
<td>Phospho-p70 S6 Kinase (Ser371) Antibody</td>
<td>9208</td>
<td>20 µl</td>
<td>70, 85 kDa</td>
<td>Rabbit IgG</td>
</tr>
<tr>
<td>Phospho-4E-BP1 (Thr37/46) (236B4) Rabbit mAb</td>
<td>2855</td>
<td>20 µl</td>
<td>15 to 20 kDa</td>
<td>Rabbit IgG</td>
</tr>
<tr>
<td>Phospho-mTOR (Ser2448) (D9C2) XP® Rabbit mAb</td>
<td>5536</td>
<td>20 µl</td>
<td>289 kDa</td>
<td>Rabbit IgG</td>
</tr>
<tr>
<td>Anti-rabbit IgG, HRP-linked Antibody</td>
<td>7074</td>
<td>100 µl</td>
<td></td>
<td>Goat</td>
</tr>
</tbody>
</table>

### For Research Use Only. Not for Use in Diagnostic Procedures.

**Description**

The mTOR Substrates Antibody Sampler Kit provides an economical means to evaluate the signaling of mTOR to downstream substrates including p70 S6 Kinase and 4E-BP1. The kit contains enough primary and secondary antibodies to perform two Western blot experiments per primary antibody.

**Storage**

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

**Background**

The mammalian target of rapamycin (mTOR, FRAP, RAFT) is a Ser/Thr protein kinase (1-3) that functions as an ATP and amino acid sensor to balance nutrient availability and cell growth (4,5). When sufficient nutrients are available, mTOR responds to a phosphatidic acid-mediated signal to transmit a positive signal to p70 S6 kinase and participate in the inactivation of the eIF4E inhibitor, 4E-BP1 (6). These events result in the translation of specific mRNA subpopulations. mTOR is phosphorylated at Ser2448 via the PI3 kinase/Akt signaling pathway and autophosphorylated at Ser2481 (7,8). mTOR plays a key role in cell growth and homeostasis and may be abnormally regulated in tumors. For these reasons, mTOR is currently under investigation as a potential target for anti-cancer therapy (9).

The regulatory associated protein of mTOR (Raptor) interacts with mTOR to mediate mTOR signaling to downstream targets (10,11). Raptor binds to mTOR substrates, such as 4E-BP1 and p70 S6 kinase, through their TOR signaling (TOS) motifs and is required for mTOR-mediated substrate phosphorylation (12,13). Binding of the FKBP12-rapamycin complex to mTOR inhibits mTOR-raptor interaction, which suggests a mechanism for the inhibition of mTOR signaling by rapamycin (14). This mTOR-raptor interaction and its regulation by nutrients and/or rapamycin are dependent on a protein called GβL (15). GβL is part of the rapamycin-insensitive complex between mTOR and rictor (rapamycin-insensitive companion of mTOR) and may mediate rictor-mTOR signaling to PKCα and other downstream targets (16). The rictor-mTOR complex has been identified as the previously elusive PDK2 responsible for the phosphorylation of Akt/PKB at Ser473, which is required for PDK1 phosphorylation of Akt/PKB at Thr308 and full activation of Akt/PKB (17).

### Background References


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