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ProductInformation

BAD, SOLUBLE
Mouse, Recombinant Expressed in *E. coli*

Product Number **B 1682**
Storage Temperature –20 °C

Product Description

Bad, soluble is produced from a DNA sequence encoding full-length mouse BAD with an N-terminal His-tag expressed in *E. coli*. The apparent MW of the recombinant protein on SDS-PAGE is 31 kDa. The product is suitable for use in kinase assays.

In multi-cell organisms the regulation of cell survival is crucial to normal physiology. This mechanism may be linked to excessive cell death or survival, which may play a role in a number of disease processes.[1] The ratio of anti- (Bcl-2, Bcl-$_x$L, Mcl-1, and A1) to pro- (Bax, Bak, Bcl-$_x$S, and Bad) apoptotic molecules dictates whether a cell will respond to a proximal apoptotic stimulus.[2,3]

Bad, initially identified by its interaction with Bcl-2 and Bcl-$_x$L, is a distant Bcl-2 family member. It bears only the most universally conserved amino acids within BH1 and BH2 domains, and lacks the typical hydrophobic C-terminal signal-anchor. The presence of Bad counters the anti-apoptotic effect of Bcl-$_{xL}$ or Bcl-2.[4] Bad interconnects signal transduction pathways from extracellular survival factors with the Bcl-2 intracellular checkpoint for cell death.

Bad is phosphorylated on two serine residues embedded in canonical 14-3-3 binding sites in response to a survival factor, IL-3.[2] Phosphorylated Bad does not bind Bcl-$_{xL}$ and is sequestered in the cytosol bound to 14-3-3, a specific phosphoserine-binding protein. The growth factors that promote cell survival activate the threonine kinase Akt which phosphorylates Bad causing suppression of apoptosis.[3] Substitution of the serine phosphorylation sites indicated that phosphorylation of Bad inactivated the molecule to promote cell survival.[5] Akt phosphorylates Bad *in vivo* and *in vitro* and blocks the Bad-induced death of primary neurons in a site specific manner.[1]

Reagent

Bad, soluble is supplied as 100 µg of enzyme in 500 µl PBS, 250 mM imidizole and 50% glycerol.

Storage/Stability

Stable for 1 year at –20 °C. For maximum recovery of the product centrifuge the original vial prior to removing the cap.

Product Profile

Purity: approx. 70% as determined by SDS-PAGE, visualized by coomassie stain.

References

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3. Oltvai, Z. N., et al., Cell, **74**, 609 (1993).
4. Yang, E., et al., Cell, **80**, 285 (1995).
5. Zha, J., *et a*l., Cell, **87**, 619 (1996).

LLK 8/01