TKD Peptide (Hsp70 Peptide)
Catalog# SIH-118A

Size: 1mg

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Product	**TKD Peptide (Hsp70 Peptide)**
Formula	**TKDNNLLGRFELSG**
MW	**1363**
Source/Host	**Synthetic**
Purity	**98%**
Solubility	**In aqueous solution**
Appearance	**Solid**
Storage and stability	**-20°C; 1 year+; shipped ambient**

Scientific Background

Hsp70 genes encode abundant heat-inducible 70-kDa hsps (hsp70s). In most eukaryotes hsp70 genes exist as part of a multigene family. They are found in most cellular compartments of eukaryotes including nuclei, mitochondria, chloroplasts, the endoplasmic reticulum and the cytosol, as well as in bacteria. The genes show a high degree of conservation, having at least 5O% identity (1). The N-terminal two thirds of hsp70s are more conserved than the C-terminal third. Hsp70 binds ATP with high affinity and possesses a weak ATPase activity which can be stimulated by binding to unfolded proteins and synthetic peptides (2). When hsc70 (constitutively expressed) present in mammalian cells was truncated, ATP binding activity was found to reside in an N-terminal fragment of 44 kDa which lacked peptide binding capacity. Polypeptide binding ability therefore resided within the Cterminal half (3). The structure of this ATP binding domain displays multiple features of nucleotide binding proteins (4).

Heat shock protein 70 has also been found to have a high degree of plasma membrane localization in tumour cell lines. This is correlated with increased sensitivity to lysis mediated by natural killer (NK) cells. The TKD peptide is a partial hsp70 sequence (TKDNNLLGRFELSG-aa. 450-463) and has identical effects on NK cells as full-length Hsp70 protein, being able to stimulate natural killer cells activity at equivalent concentrations to full-length Hsp70 protein (5). Incubation of peripheral blood lymphocyte cells with TKD plus low-dose interleukin 2 (IL-2) enhances the cytolytic activity of NK cells against Hsp70 membrane-positive tumors, in vitro and in vivo (6).

Selected References

1. 1. Boorstein W. R., Ziegelhoffer T. & Craig E. A. (1993) *J. Mol. Evol.*38(1): 1-17.
2. 2. Rothman J. (1989), *Cell 59:* 591 -601.
3. DeLuca-Flaherty *et al*. (1990) *Cell 62:* 875-887.
4. Bork P., Sander C. & Valencia A. (1992) *Proc. Nut1 Acad. Sci. USA* 89:7290-7294.
5. Multhoff G., *et al.* (2001) *Cell Stress Chaperones* 6 (4): 337-344.
6. Krause, S. W. *et al*. (2004) Clin. Cancer Res. 10(11): 3699-3707

Material Safety Data Sheet

This product is for *in vitro* research use only and is not intended for use in humans or animals

The below information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. StressMarq shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalogue for additional terms and conditions of sale.

Hazardous Ingredients

The physical, chemical and toxicological properties of these components have not been fully investigated. It is recommended that all laboratory personnel follow standard laboratory safety procedures when handling this product. Safety procedures should include wearing OSHA approved safety glasses, gloves and protective clothing. Direct physical contact with this product should be avoided.

Known Hazardous Components	CAS Number	Percent
None		

Physical Data

This product consists of powder shipped at ambient temperatures. The physical properties of this product have not been investigated thoroughly.

Fire and Explosion Hazard and Reactivity Data

NOT APPLICABLE

Toxicological Properties

May be harmful by inhalation, ingestion, or skin absorption. The toxicological properties of this product have not been investigated thoroughly. Exercise due caution.

Preventative Measures

Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.

Spill and Leak Procedures

Observe all federal, state and local environmental regulations.

- Wear protective equipment.
- Absorb on sand or vermiculite and place in closed containers for disposal.
- Dispose or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

First Aid Measures

- If swallowed, wash out mouth with water, provided person is conscious. Call a physician.
- In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. If a rash or other irritation develops, call a physician.
- If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.
- In case of eye contact, flush with copious amounts of water for at least 15 minutes while separating the eyelids with fingers. Call a physician.

Authorized: StressMarq Biosciences Inc.
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