



Product Specification Sheet

Muscle Actin protein

Cat. ACTB15-N	Purified Bovine Muscle Actin Protein	SIZE: 100 ug
Cat. ACTB15-N-1	Purified Bovine Muscle Actin Protein	SIZE: 1 mg

Actin and myosin are the two major cytoskeletal proteins implicated in cellular movements, secretion, phagocytosis, cytokinesis, exocytosis and chromosome movement. At least 6 actin isoforms have been identified by protein sequence analyses. Four actin isoforms represents the differentiation markers of muscle tissues. Actin isoforms are >90% conserved, except the N-terminal 18aa (50-60% homology).

In absence of salts, actin exists as a globular monomeric protein (G-actin). In presence of ATP, a divalent cation (Ca²⁺ or Mg²⁺) and high salts (KCl, NaCl or MgCl₂), the G-actin polymerizes to form a fibrous or filamentous actin (F-actin) which incorporates the cation and ATP. Dialysis of the F-actin solution against water reverses the polymerization.

Source of Protein

Prepared from the acetone powder of bovine skeletal muscle by the method of Spudich and Watt. A mol. wt of approximately 42-43kD based on sequence information of the rabbit muscle protein general similarity of actins across species and SDS electrophoresis.

Form & Storage

The bovine muscle acetone powder is extracted with buffer A (2mM Tris buffer, pH 8.0 containing .02mM ATP, 0.5mM, Beta-mercaptanol and 0.2mM CaCl₂). The filtrate is clarified by centrifugation, then the action is polymerized by addition of 50mM KCl and 2mM MgCl₂. The KCl concentration is then increase to 0.6M and the solution is stirred for 90 mins. The F-actin is then collected by centrifugation, resuspended in Buffer A and extensively dialyzed to convert to G-actin. Protein estimated by Biuret is approximately 90%.

The lyophilized powder can be reconstituted in original volume of water at 1-3mg/ml,). It can then be used or aliquoted for storage in small aliquots at -70oC or below

General References:

Carlier, M. F (JBC) 1991, Vol 266, 1-4; Merck Index, 12th Edition #137 (1996); Hinshaw, D. B et al, Arch. Biochem. Biophys. 288, 311-316 (1991); Small, J. V et al, J. Cell Science, 89, 21 (1988)

*This product is for in vitro research use only.

Related material available from ADI

Antibodies to Human Beta Actin (Polyclonal and Monoclonal)

ACTB15-N-1

70809A