# Insulin-like Growth Factor 1 Biotin

Catalog Number:
BG130-G00 (1 x 96 wells)
*For Research Use Only. Not for use in diagnostic procedures.*
*v. 1.0*

Eagle Biosciences, Inc.
20A Northwest Blvd., Suite 112, Nashua, NH 03063
Phone: 617-419-2019 Fax: 617-419-1110
www.EagleBio.com

**Biotinylated Human Insulin-like Growth Factor 1 (IGF-1)**

- **Quantity**:
  10 µg
- **Description**:
  Biotin- IGF-I is prepared by a selective biotinylation procedure that ensures full binding capacity to IGF-binding proteins-1 to 5. As in natural IGF-I, binding to IGFBP-6 is strongly reduced. Binding to antiserum PAA is not affected. Tested with our western-ligand blotting kit, in ELISA, in cross-linking experiments, in IHC and binding studies. The use of biotinylated IGF-I in experimental cell therapy has demonstrated that it is biologically active in-vitro and in vivo.
- **Formulation**
  Lyophilized from a solution of 0.5 ml TBS, pH 7.4, containing 10 µg of the biotinylated product. A preservative and a stabilizing protein of nonmammalian origin are added to ensure stability of the reconstituted product. Recommended dilution: 1: 100 to 1: 250 for western ligand blotting.
- **Storage**
  Store refrigerated upon arrival. The product is stable at 4 °C for at least two years. Reconstitute with 0.5 ml water and store aliquots frozen at - 20 °C. Avoid repeated freeze-thawing cycles.

**Application Notes**

Biotinylated IGF´s and analogs from IBT GmbH (formerly A. F. Schuetzdeller Biochemicals, AFSBIO) have been the first that have been commercially available. Our non-radioactive western ligand blotting kits have been on the market more than one year before the first scientific paper on this alternative, non-radioactive method has been published.

**Biotinylation Technology:**

We have developed our own biotinylation technology for IGF´s that is different from the published methods. Our technology permits biotinylation without loss of binding capacity to IGFBP´s or IGF antibodies.

**Stability**:

Though our biotinylated IGF´s are very stable in solution, we have shipped them in the past on dry ice to ensure maximum activity for our customers. This has increased shipping cost so we have decided to lyophilize our IGF´s. In this form we have kept them for three months at temperatures up to 35 °C without loss of activity. So they can be shipped now without dry ice at reduced freight cost.

For long term storage, we recommend to store the IGF's refrigerated after arrival. The reconstituted biotinylated IGF´s are stable for at least one year at a concentration of 20 µg/ml, if kept frozen at -20 °C, and at least for one month at 4 °C. We recommend to aliquot the reconstituted biotinylated IGF´s and to store them at a temperature of - 20 °C.

**Potential uses for biotinylated IGF´s:**

- **Western-ligand blotting:**
  We have tested our biotinylated IGF´s and analogs in western-ligand blotting. Chemiluminescent substrates as well as colorimetric ones have successfully been used. We also have developed our own buffer system, with buffers, that are stable for at least six months and give an excellent signal-to background ratio. Kits are available for human (bovine, sheep, donkey, pig, guinea pig, goat) IGFBP´s and mouse/rat IGFBP´s (see western-ligand blotting kit section in our price list). Analogs with reduced affinity to IGFBP´s have also reduced affinities in our western-ligand blot system.
- **Western-ligand blots with biotinylated IGF-I and analogs.**
  Biotinylated IGF-I binds to all six IGFBP´s, but binds to IGFBP-6 very weakly. For all IGF-I analogs at least weak signals have been obtained with IGFBP-1 to -5, but no signals were observed with IGFBP-6.
- **ELISA:**
  We have tested our biotinylated human IGF-I and IGF-II in a competitive ELISA format using our polyclonal antisera PAA1 and PAC1. Binding to the antibodies was not affected by biotinylation.
- **Immunoprecipitation/chromatography of IGFBP´s:**
  We have used our biotinylated human IGF-I and IGF-II in immunoprecipitation experiments. Binding of biotinylated IGF´s to Streptavidin may also be used to prepare media for affinity chromatography in a column format.
- **Cross-linking experiments:**
  We have started to develop methods using our biotinylated IGF´s for cross-linking experiments. The method is not fully developped, e.g. the washing procedure needs to be improved and the extraction procedure for proteins needs improvement, too. Preliminary results are available.
- **Immunohistochemistry:**
  We have started experiments with our biotinylated IGF´s for IHC with human cells fixed on slides. The results of histochemistry have not been examined systematically, but staining has been observed on the surface of the cells.
- **Flow cytometry:**
  The use of Biotin-Des (1-3) IGF-I in flow cytometry has been reported by Xu et al. (1995), Immunology 85, 394-399.

**References**


1.) Michael E. Davis*, Patrick C. H. Hsieh*, Tomosaburo Takahashi*, Qing Song, Shuguang Zhang, Roger D. Kamm, Alan J. Grodzinsky, Piero Anversa, and Richard T. Lee*: Local myocardial insulin-like growth factor 1 (IGF-1) delivery with biotinylated peptide nanofibers improves cell therapy for myocardial infarction. PNAS | May 23, 2006 | vol. 103 | no. 21 | 8155-8160

2.) Altmann et. al.: The relationships between leptin concentrations and body fat reserves in lambs are reduced by short-term fasting.Journal of Animal Physiology and Animal Nutrition 2006, Vol. 90, issue 9-10, p407 - 413.

3.) Bolos et al.: ORAL ADMINISTRATION OF A GSK3 INHIBITOR INCREASES BRAIN INSULIN-LIKE GROWTH FACTOR-I LEVELS. JBC Papers in Press. Published on March 29, 2010.

4.) Nishijima et al.: Neuronal Activity Drives Localized Blood-Brain-Barrier Transport of Serum Insulin-like Growth Factor-I into the CNS. Neuron 67, 834–846, September 9, 2010.

## Warranty Information

Eagle Biosciences, Inc. warrants its Product(s) to operate or perform substantially in conformance with its specifications, as set forth in the accompanying package insert. This warranty is expressly limited to the refund of the price of any defective Product or the replacement of any defective Product with new Product. This warranty applies only when the Buyer gives written notice to the Eagle Biosciences within the expiration period of the Product(s) by the Buyer. In addition, Eagle Biosciences has no obligation to replace Product(s) as result of a) Buyer negligence, fault, or misuse, b) improper use, c) improper storage and handling, d) intentional damage, or e) event of force majeure, acts of God, or accident.

Eagle Biosciences makes no warranties, either expressed or implied, except as provided herein, including without limitation thereof, warranties as to marketability, merchantability, fitness for a particular purpose or use, or non-infringement of any intellectual property rights. In no event shall the company be liable for any indirect, incidental, or consequential damages of any nature, or losses or expenses resulting from any defective product or the use of any product. Product(s) may not be resold, modified, or altered for resale without prior written approval from Eagle Biosciences, Inc.

For further information about this kit, its application or the procedures in this kit, please contact the Technical Service Team at Eagle Biosciences, Inc. at info@eaglebio.com or at 866-411-8023.