

Recombinant B18R

Type I interferon inhibitor - InvitroFit™

Catalog codes: inh-b18r, inh-b18r-5, inh-b18r-20

<https://www.invivogen.com/b18r>

For research use only

Version 23J26-AK

PRODUCT INFORMATION

Contents

Recombinant B18R is provided lyophilized and available in three quantities:

- 25 µg: inh-b18r
- 5 x 25 µg: inh-b18r-5
- 500 µg: inh-b18r-20

Note: This product is also available in bulk quantities. Please contact us.

Storage and stability

- B18R is provided lyophilized and shipped at room temperature. Upon receipt, store at -20°C.
- Upon resuspension, store at -20°C. Resuspended product is stable for 1 month at 4°C and for 1 year at -20°C when properly stored. Avoid repeated freeze-thaw cycles.

Quality Control

- Purity: ≥95% (SDS-PAGE)
- The biological activity has been validated using cellular assays.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

CHARACTERISTIC

Class: Recombinant protein

Species: Vaccinia Virus

Source: Chinese hamster ovary (CHO) cells

Tag: Hexahistidine (His6)

Molecular mass: ~38 - 50 kDa, depending on glycosylation state

Working concentration: 0.1 - 10 ng/ml

Tested applications: Inhibition of human type I interferon (IFN) signaling, modulation of mRNA transfection.

BACKGROUND

Among others, type I interferons (IFNs) are the first line of host defenses against viral infection¹. The B18R protein, encoded by the vaccinia virus, is a potent inhibitor of type I IFN-mediated signal transduction. Thus, it enables the virus replication and enhances its pathogenicity, by circumventing the establishment of host anti-viral state²⁻³. B18R acts as a soluble decoy receptor for type I IFNs (e.g. IFN- α , IFN- β ,...) of various species including pigs, mice, and humans². Due to this neutralizing feature, B18R is also used in protocols for epigenetic reprogramming increased cell viability during RNA transfection⁴.

1. Colamonici OR, et al., 1995. Vaccinia virus B18R gene encodes a type I interferon-binding protein that blocks interferon alpha transmembrane signaling. J Biol Chem. ;270(27):15974-8. 2. Kim YG, et al., 2017. Recombinant Vaccinia virus-coded interferon inhibitor B18R: Expression, refolding, and a use in a mammalian expression system with a RNA-vector. PLoS One. ;12(12):e0189308. 3. Alcamí A, et al., 2000. The vaccinia virus soluble alpha/beta interferon (IFN) receptor binds to the cell surface and protects cells from the antiviral effects of IFN. J Virol.;74(23):11230-9. 4. Warren L, et al., 2010. Highly efficient reprogramming to pluripotency and directed differentiation of human cells with synthetic modified mRNA. Cell Stem Cell.; 7(5):618-30.

PRODUCT DESCRIPTION

InvivoGen offers recombinant B18R, a potent decoy receptor of type I interferons (IFNs).

B18R successfully inhibits type I IFN-mediated signaling in HEK-Blue™ IFN- α/β cells stimulated with recombinant human IFNs. Also, it increases RNA-transfection efficacy (see validation data sheet).

InvivoGen's recombinant B18R protein is produced in Chinese hamster ovary (CHO) cells. This ensures protein glycosylation and *bona fide* 3D structure. It is provided in the InvitroFit™ grade: each lot is highly pure (≥95%) and functionally tested.

METHODS

Preparation of stock solution (100 µg/ml)

Note: Ensure you see the lyophilized pellet before resuspension.

1. Add 250 µl of H₂O to 25 µg of recombinant B18R and mix gently by pipetting until completely resuspended.
2. Use immediately or prepare aliquots and store at -20°C. Avoid freeze-thaw cycles.
3. Further dilutions can be prepared in the appropriate aqueous buffer.

PROTOCOLS

Below is a protocol using HEK-Blue™ IFN- α/β cells for studying the specific inhibition of IFN- α signaling by B18R. These cells express an inducible secreted embryonic alkaline phosphatase (SEAP) reporter to readily measure the activation of the JAK/STAT pathway. Changes in SEAP expression due to inhibition of IFN signaling can be assessed using QUANTI-Blue™ Solution, a SEAP detection reagent.

1. Add 20 µl (0.1 ng/ml final conc.) of type I IFN (e.g. Recombinant human IFN- α 2b) per well of a flat-bottom 96-well plate.
2. Add 20 µl of B18R (0.1 - 10 ng/ml final conc.) per well of a flat-bottom 96-well plate.
3. Incubate for 0 min - 1 h at 37°C in 5% CO₂.
4. Prepare a suspension of HEK-Blue™ IFN- α/β cells (~310,000 cells per ml) in culture medium following the instructions on the data sheet.
5. Add 160 µl of cell suspension (~50,000 cells) to each well and incubate the plate at 37°C in 5% CO₂ for 18-24 hours.
6. Prepare QUANTI-Blue™ Solution and carry out the measurements following the instructions on the data sheet.

RELATED PRODUCTS

Product	Cat.Code
HEK-Blue™ IFN- α/β cells	hkb-ifnab
Recombinant human IFN- α 1	rcyc-hifna1
Recombinant human IFN- α 10	rcyc-hifna10
Recombinant human IFN- α 2b	rcyc-hifna2b

TECHNICAL SUPPORT

InvivoGen USA (Toll-Free): 888-457-5873

InvivoGen USA (International): +1 (858) 457-5873

InvivoGen Europe: +33 (0) 5-62-71-69-39

InvivoGen Asia: +852 3622-3480

E-mail: info@invivogen.com

