

HCV-NS3/4A-1b Protease recombinant, *E. coli*

Cat. No.	Amount
PR-858	10 µg

For *in vitro* use only
Quality guaranteed for 12 months
Store at -80°C

Avoid freeze / thaw cycles

Form

Liquid. Supplied in 20 mM Tris-HCl pH 8.0, 100 mM KCl, 0.2 mM EDTA, 1 mM DTT and 20% glycerol.

Activity

20-200 ng are sufficient for an *in vitro* protease assay.

Application

Use only for Research. HCV NS3/4A can be applied in *in vitro* assay development and screening of protease inhibitors.

Purity

> 95% by SDS-PAGE

Description

Persistent infection with hepatitis C virus (HCV) is a common cause of chronic liver disease, including chronic hepatitis, cirrhosis, and hepatocellular carcinoma.

HCV is an enveloped, single-stranded RNA virus with a 9.6-kb positive-polarity genome, which encodes a polyprotein precursor of about 3,000 amino acids.

The HCV polyprotein is proteolytically processed by cellular and HCV proteases into at least 10 distinct products.

NS3 serine protease and helicase as well as NS5B RNA-dependent RNA polymerase are believed to be components of a replication complex responsible for viral RNA replication and have been shown to be essential for the HCV replication in chimpanzees. These HCV enzymes have been the major targets for the development of HCV-specific therapeutics during the past decade.

The HCV NS3/4A protease is responsible for cleavage at four sites within the HCV polyprotein to generate the N termini of the NS4A, NS4B, NS5A, and NS5B proteins. It has been shown that the central region (amino acids 21-30) of the 54-residue NS4A protein is essential and sufficient for the enhancement of proteolytic activity of the NS3 serine protease. In recent phase I trials, a 2-3-log reduction of HCV viral load was observed after a 2-day treatment with a serine protease inhibitor, which provided the first proof-of-concept evidence that HCV NS3/4A protease inhibitors could be a new therapeutic option for hepatitis C patients.

Selected References:

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- Kolykhalov *et al.* (2000) Hepatitis C virus-encoded enzymatic activities and conserved RNA elements in the 3' nontranslated region are essential for virus replication *in vivo*. *J. Virol.* **74**:2046.
- Blight *et al.* (1998) Molecular virology of hepatitis C virus: an update with respect to potential antiviral targets. *Antiviral Ther.* **3**, Suppl. **3**:71.
- Alter (1997) Epidemiology of hepatitis C. *Hepatology* **26**:62S.
- Bartenschlager *et al.* (1995) Complex formation between the NS3 serine-type proteinase of the hepatitis C virus and NS4A and its importance for polyprotein maturation. *J. Virol.* **69**:7519.
- Lin *et al.* (1995) The hepatitis C virus NS3 serine proteinase and NS4A cofactor: establishment of a cell-free trans-processing assay. *Proc. Natl. Acad. Sci. USA* **92**:7622.