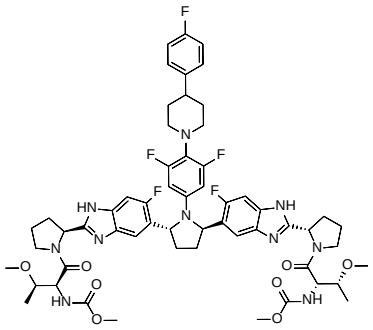
Product data sheet

MedKoo Cat#: 528903 Name: Pibrentasvir CAS#: 1353900-92-1 (free) Chemical Formula: $C_{57}H_{65}F_5N_{10}O_8$ Exact Mass: 1112.4907 Molecular Weight: 1113.20	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Pibrentasvir, also known as ABT-530, is a protease inhibitor potentially for the treatment of HCV infection.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	20.0	18.0
Ethanol	10.0	9.0

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	0.90 mL	4.49 mL	8.98 mL
5 mM	0.18 mL	0.90 mL	1.80 mL
10 mM	0.09 mL	0.45 mL	0.90 mL
50 mM	0.02 mL	0.09 mL	0.18 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Ng TI, Krishnan P, Pilot-Matias T, Kati W, Schnell G, Beyer J, Reisch T, Lu L, Dekhtyar T, Irvin M, Tripathi R, Maring C, Randolph JT, Wagner R, Collins C. In Vitro Antiviral Activity and Resistance Profile of the Next-Generation Hepatitis C Virus NS5A Inhibitor Pibrentasvir. Antimicrob Agents Chemother. 2017 Apr 24;61(5):e02558-16. doi: 10.1128/AAC.02558-16. PMID: 28193664; PMCID: PMC5404558.

In vivo study

1. Osawa M, Uchida T, Imamura M, Teraoka Y, Fujino H, Nakahara T, Ono A, Murakami E, Kawaoka T, Miki D, Tsuge M, Hiramatsu A, Abe-Chayama H, Hayes CN, Makokha GN, Aikata H, Ishida Y, Tateno C, Miyayama Y, Hijikata M, Chayama K. Efficacy of glecaprevir and pibrentasvir treatment for genotype 1b hepatitis C virus drug resistance-associated variants in humanized mice. J Gen Virol. 2019 Jul;100(7):1123-1131. doi: 10.1099/jgv.0.001268. Epub 2019 Jun 14. PMID: 31199224.

7. Bioactivity
Biological target: Pibrentasvir (ABT-530) is a hepatitis C virus (HCV) NS5A inhibitor with EC50 ranging from 1.4 pM to 5.0 pM.

In vitro activity

Pibrentasvir is a next-generation NS5A inhibitor with potent (EC50s, 1.4 to 5.0 pM) and pan-genotypic antiviral activity against HCV replicons containing NS5A from all major HCV genotypes. Pibrentasvir demonstrated similar in vitro antiviral activities against

replicons with NS5A from a panel of clinical samples of genotypes 1 to 6, indicating that pibrentasvir can inhibit HCV with clinically relevant sequence diversity in NS5A. In addition, pibrentasvir retained its activity against common NS5A amino acid substitutions that confer resistance to other NS5A inhibitors. It also demonstrated a high genetic barrier to resistance, selecting a small number or no colonies with resistance-conferring amino acid substitutions in replicons containing NS5A from genotypes 1a, 1b, 2a, 2b, 3a, 4a, 5a, and 6a. Pibrentasvir was active against key resistance-associated amino acid substitutions for NS3/4A PIs or NS5B polymerase inhibitors. The combination of pibrentasvir with HCV inhibitors of other classes produced synergistic antiviral activity in vitro.

Reference: Antimicrob Agents Chemother. 2017 Apr 24;61(5):e02558-16. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5404558/

In vivo activity

The efficacy of glecaprevir plus pibrentasvir (GLE/PIB) treatment for genotype 1b HCV strains containing RAVs was investigated using subgenomic replicon systems and human hepatocyte transplanted mice. Mice were injected with serum samples obtained from a DAA-naïve patient or daclatasvir plus asunaprevir (DCV/ASV) treatment failures including NS5A-L31M/Y93H, -P58S/A92K or -P32 deletion (P32del) RAVs, then treated with GLE/PIB. HCV was eliminated by GLE/PIB treatment in mice with wild-type and NS5A-L31M/Y93H but relapsed in mice with NS5A-P58S/A92K, followed by emergence of additional NS5A mutations after cessation of the treatment. In NS5A-P32del-infected mice, serum HCV RNA remained positive during the GLE/PIB treatment. NS5A-P58S/A92K showed 1.5-fold resistance to PIB relative to wild-type based on analysis using HCV subgenomic replicon systems. When mice were administered various proportions of HCV wild-type and P32del strains and treated with GLE/PIB, serum HCV RNA remained positive in mice with high frequencies of P32del. In these mice, the P32del was undetectable by deep sequencing before GLE/PIB treatment, but P32del strains relapsed after cessation of the GLE/PIB treatment. GLE/PIB is effective for wild-type and NS5A-L31M/Y93H HCV strains, but the effect seems to be low for P58S/A92K and NS5A-P32del RAVs.

Reference: J Gen Virol. 2019 Jul;100(7):1123-1131.
https://www.microbiologyresearch.org/content/journal/jgv/10.1099/jgv.0.001268#tab2