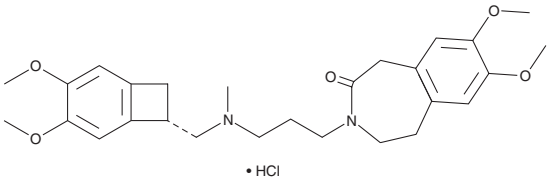
PRODUCT INFORMATION

Ivabradine (hydrochloride)

Item No. 15868

CAS Registry No.:	148849-67-6
Formal Name:	3-[3-[[[(7S)-3,4-dimethoxybicyclo[4.2.0] octa-1,3,5-trien-7-yl]methyl] methylamino]propyl]-1,3,4,5-tetrahydro-7,8-dimethoxy-2H-3-benzazepin-2-one, monohydrochloride
Synonym:	S 16257
MF:	$C_{27}H_{36}N_2O_5 \bullet HCl$
FW:	505.1
Purity:	≥95%
UV/Vis.:	λ_{max}: 287 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Ivabradine (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the ivabradine (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Ivabradine (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of ivabradine (hydrochloride) in these solvents is approximately 1, 20, and 25 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of ivabradine (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of ivabradine (hydrochloride) in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Ivabradine is a hyperpolarization-activated cyclic nucleotide-gated (HCN) channel blocker that blocks the mixed sodium/potassium inward funny current (I_f) in HEK293 cells expressing mouse HCN1, human HCN2, and human HCN4 (EC_{50}s = 4.5, 4.52, and 4.28 µM, respectively).[1] *In vivo*, ivabradine (10 mg/kg per day) reduces heart rate, incidence of ventricular tachycardia and ventricular fibrillation, and arrhythmic mortality in a rat model of myocardial infarction.[2] Formulations containing ivabradine have been used in the treatment of heart failure and angina.

References

1. Melchiorre, M., Del Lungo, M., Guandalini, L., *et al*. Design, synthesis, and preliminary biological evaluation of new isoform-selective f-current blockers. *J. Med. Chem.* **53(18)**, 6773-6777 (2010)
2. Mackiewicz, U., Gerges, J.Y., Chu, S., *et al.* Ivabradine protects against ventricular arrhythmias in acute myocardial infarction in the rat. *J. Cell Physiol.* **229(6)**, 813-823 (2014).

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