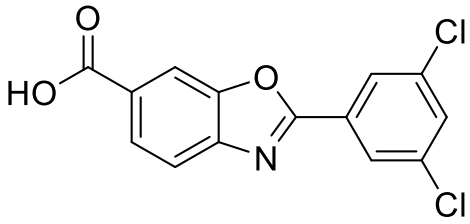
Product data sheet

MedKoo Cat#: 319842 Name: Tafamidis CAS#: 594839-88-0 (free acid) Chemical Formula: $C_{14}H_7Cl_2NO_3$ Exact Mass: 306.9803 Molecular Weight: 308.114	
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:
Tafamidis, also known as Fx-1006 or PF-06291826, is a drug for the amelioration of transthyretin-related hereditary amyloidosis (also familial amyloid polyneuropathy, or FAP), a rare but deadly neurodegenerative disease. The drug was approved by the European Medicines Agency in November 2011 and by the Japanese Pharmaceuticals and Medical Devices Agency in September 2013. Tafamidis functions by kinetic stabilization of the correctly folded tetrameric form of the transthyretin (TTR) protein.

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	31	100.61

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	3.25 mL	16.23 mL	32.46 mL
5 mM	0.65 mL	3.25 mL	6.49 mL
10 mM	0.32 mL	1.62 mL	3.25 mL
50 mM	0.06 mL	0.32 mL	0.65 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. Verona G, Mangione PP, Raimondi S, Giorgetti S, Faravelli G, Porcari R, Corazza A, Gillmore JD, Hawkins PN, Pepys MB, Taylor GW, Bellotti V. Inhibition of the mechano-enzymatic amyloidogenesis of transthyretin: role of ligand affinity, binding cooperativity and occupancy of the inner channel. Sci Rep. 2017 Mar 15;7(1):182. doi: 10.1038/s41598-017-00338-x. PMID: 28298647; PMCID: PMC5428290.

In vivo study

1. Lee KR, Jeong JW, Hyun HC, Jang E, Ahn S, Choi S, Joo SH, Kim S, Koo TS. Pharmacokinetics of tafamidis, a transthyretin amyloidosis drug, in rats. Xenobiotica. 2018 Aug;48(8):831-838. doi: 10.1080/00498254.2017.1366575. Epub 2017 Nov 16. PMID: 28803538.

7. Bioactivity
Biological target:

Tafamidis is a kinetic stabilizer of transthyretin (TTR) that prevents amyloidogenesis by wild-type and mutant TTRs.

In vitro activity

Product data sheet

At a ligand:TTR tetramer molar ratio of 0.5:1, mds84 tafamidis reduced fibril formation by 40%. At molar equivalence, inhibition increased at 60% with tafamidis. At twofold and greater molar excess of ligand, both monovalent ligands, tafamidis inhibited TTR fibrillogenesis by the same amount (~90%) as mds84.

Reference: Sci Rep. 2017 Mar 15;7(1):182. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5428290/

In vivo activity

Tafamidis, a novel drug to treat transthyretin-related amyloidosis, was studied in rats after intravenous and oral administration at doses of 0.3-3 mg/kg. After intravenous injection, systemic clearance (CL), volumes of distribution at steady state (Vss) and half-life (T½) remained unaltered as a function of dose, with values in the ranges of 6.41-7.03 mL/h/kg, 270-354 mL/kg and 39.5-46.9 h, respectively. Following oral administration, absolute bioavailability was 99.7-104% and was independent of doses from 0.3 to 3 mg/kg. In the urine and faeces, 4.36% and 48.9% of tafamidis, respectively, were recovered. Tafamidis was distributed primarily in the liver and not in the brain, kidney, testis, heart, spleen, lung, gut, muscle, or adipose tissue. Further, tafamidis was very stable in rat liver microsomes, and its plasma protein binding was 99.9%.

Reference: Xenobiotica. 2018 Aug;48(8):831-838. https://www.tandfonline.com/doi/full/10.1080/00498254.2017.1366575