

PRODUCT INFORMATION



PAMAM Dendrimer G4.0 Amine (water solution)

Item No. 39074

CAS Registry No.: 163442-67-9
Synonyms: PAMAM G4.0,
Polyamidoamine Dendrimer G4.0
MF: $[\text{NH}_2(\text{CH}_2)_2\text{NH}_2]_n(\text{G}=n)$; dendri PAMAM $(\text{NH}_2)_{64}$ $[\text{NH}_2(\text{CH}_2)_2\text{NH}_2]_n(\text{G}=n)$; dendri PAMAM $(\text{NH}_2)_{64}$
FW: 14,214.2
Supplied as: A solution in water
Storage: -20°C
Stability: ≥2 years

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

Description

PAMAM dendrimer G4.0 amine (PAMAM G4.0) is a polyamidoamine (PAMAM) dendrimer with amine termini that has been used as a drug delivery system *in vivo*.^{1,2} It is approximately 45 Å in diameter and has 64 surface groups.¹ It inhibits fibril formation by α-synuclein in a cell-free assay when used at concentrations of 1 and 2 μM.³ PAMAM G4.0 is active against *E. coli* (IC₅₀ = 3.8 μg/ml) and toxic to zebrafish embryos, inducing mortality at 120 hours post-fertilization when used at concentrations ranging from 0.5 to 20 μM.^{1,4} PAMAM G4.0 (100 and 300 mg/kg) in complex with the topoisomerase I inhibitor camptothecin (Item No. 11694) increases the oral bioavailability of camptothecin in mice without inducing gastrointestinal toxicity.⁵ PEG-modified PAMAM G4.0 in complex with folic acid (Item No. 20515), 5-fluorouracil (5-FU; Item No. 14416), and the imaging agent technetium-99m (PEG-PAMAM G4-FA-5FU-^{99m}Tc) localizes to the tumor, as well as the liver and spleen, in a 4T1 murine mammary tumor model.²

References

1. Heiden, T.C., Dengler, E., Kao, W.J., *et al.* Developmental toxicity of low generation PAMAM dendrimers in zebrafish. *Toxicol. Appl. Pharmacol.* **225(1)**, 70-79 (2007).
2. Narmani, A., Yavari, K., and Mohammadnejad, J. Imaging, biodistribution and in vitro study of smart ^{99m}Tc-PAMAM G4 dendrimer as novel nano-complex. *Colloids Surf. B Biointerfaces* **159**, 232-240 (2017).
3. Milowska, K., Malachowska, M., and Gabryelak, T. PAMAM G4 dendrimers affect the aggregation of α-synuclein. *Int. J. Biol. Macromol.* **48(5)**, 742-746 (2011).
4. Wang, B., Navath, R.S., Menjoge, A.R., *et al.* Inhibition of bacterial growth and intramniotic infection in a guinea pig model of chorioamnionitis using PAMAM dendrimers. *Int. J. Pharm.* **395(1-2)**, 298-308 (2010).
5. Sadekar, S., Thiagarajan, G., Bartlett, K., *et al.* Poly(amido amine) dendrimers as absorption enhancers for oral delivery of camptothecin. *Int. J. Pharm.* **456(1)**, 175-185 (2013).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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