PRODUCT INFORMATION

PAMAM Dendrimer G5.0 Amine (water solution)

Item No. 39075

CAS Registry No.: 163442-68-0
Synonyms: PAMAM G5.0, Polyamidoamine Dendrimer G5.0
MF: $[NH_2(CH_2)_2NH_2]$:(G=5);dendri PAMAM$(NH_2)_{128}$
FW: 28,824.8
Supplied as: A solution in water
Storage: -20°C
Stability: ≥2 years

$[NH_2(CH_2)_2NH_2]$:(G=5);dendri PAMAM$(NH_2)_{128}$

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

Description

PAMAM dendrimer G5.0 amine (PAMAM G5.0) is a polyamidoamine (PAMAM) dendrimer with amine termini.[1] It is approximately 54 Å in diameter and has 128 surface groups. PAMAM G5.0 (10 µg/ml) reduces viability, induces cell cycle arrest at the sub-G_1/M phase, and increases lactate dehydrogenase (LDH) release from RAW 264.7 macrophages.[2] It also induces DNA fragmentation in the same cells when used at a concentration of 15 µg/ml. PAMAM G5.0 in complex with siRNA targeting *Pou5f1* mRNA, the gene encoding Oct4, reduces Oct4 expression in mouse embryonic stem cells.[3] Intravenous administration of PAMAM G5.0 in complex with reporter gene DNA increases reporter gene expression in the lung, spleen, and liver, but not the heart, in mice.[4] Conjugates of PAMAM G5.0 with the contrast agent gadolinium increases small vessel contrast quality compared to conjugates of gadolinium with the cell-impermeable metal chelating agent diethylenetriaminepentaacetic acid (DTPA; Item No. 33307).[5]

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. Keo, J.-H.S., Jan, M.-S., and Chiu, H.W. Mechanism of cell death induced by cationic dendrimers in RAW 264.7 murine macrophage-like cells. *J. Pharm. Pharmacol.* **57(4)**, 489-495 (2004).
3. Ziraksaz, Z., Nomani, A., Soleimani, M., *et al.* Evaluation of cationic dendrimer and lipid as transfection reagents of short RNAs for stem cell modification. *Int. J. Pharm.* **448(1)**, 231-238 (2013).
4. Navarro, G., and Tros de Ilarduya, C. Activated and non-activated PAMAM dendrimers for gene delivery in vitro and in vivo. *Nanomedicine* **5(3)**, 287-297 (2009).
5. Sato, N., Kobayashi, H., Hiraga, A., *et al.* Pharmacokinetics and enhancement patterns of macromolecular MR contrast agents with various sizes of polyamidoamine dendrimer cores. *Magn. Reson. Chem.* **46(6)**, 1169-1173 (2001).

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