

# PRODUCT INFORMATION



## PAMAM Dendrimer G5.0 Amine (water solution)

Item No. 39075

<b>CAS Registry No.:</b>	163442-68-0
<b>Synonyms:</b>	PAMAM G5.0, Polyamidoamine Dendrimer G5.0
<b>MF:</b>	$[\text{NH}_2(\text{CH}_2)_2\text{NH}_2]:(\text{G}=5); \text{dendri PAMAM}(\text{NH}_2)_{128}$
<b>FW:</b>	28,824.8
<b>Supplied as:</b>	A solution in water
<b>Storage:</b>	-20°C
<b>Stability:</b>	≥2 years

$[\text{NH}_2(\text{CH}_2)_2\text{NH}_2]:(\text{G}=5); \text{dendri PAMAM}(\text{NH}_2)_{128}$

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.<sup>1</sup> 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<sub>1</sub>/M phase, and increases lactate dehydrogenase (LDH) release from RAW 264.7 macrophages.<sup>2</sup> 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.<sup>3</sup> 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.<sup>4</sup> 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).<sup>5</sup>

### 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).

#### 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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