

# PRODUCT INFORMATION



## PAMAM Dendrimer G2.0 Amidoethanol (water solution)

Item No. 39111

<b>Synonyms:</b>	PAMAM G2.0 Amidoethanol, Polyamidoamine Dendrimer G2.0 Amidoethanol
<b>MF:</b>	$[\text{NH}_2(\text{CH}_2)_2\text{NH}_2]:(\text{G}=2); \text{dendri}$ PAMAM $(\text{NHCH}_2\text{CH}_2\text{OH})_{16}$ $[\text{NH}_2(\text{CH}_2)_2\text{NH}_2]:(\text{G}=2); \text{dendri}$ PAMAM $(\text{NHCH}_2\text{CH}_2\text{OH})_{16}$
<b>FW:</b>	3,271.9
<b>Supplied as:</b>	A solution in water
<b>Storage:</b>	-20°C
<b>Stability:</b>	≥2 years

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

### Description

PAMAM dendrimer G2.0 amidoethanol (PAMAM G2.0 amidoethanol) is a polyamidoamine (PAMAM) dendrimer with hydroxyl termini that has been used as a drug delivery system *in vitro*.<sup>1,2</sup> It is approximately 29.4 Å in diameter in water and has 16 surface groups.<sup>3</sup> PAMAM G2.0 amidoethanol is an antagonist of the pore-forming channel binary anthrax toxin protective antigen 63 (PA63) in lipid bilayers ( $\text{IC}_{50} = 142 \text{ nM}$ ).<sup>4</sup> It inhibits the proliferation of MCF-7 and MDA-MB-231 breast cancer cells when used at a concentration of 100  $\mu\text{M}$ .<sup>5</sup> PAMAM G2.0 amidoethanol enhances the water solubility of the antibiotic erythromycin (Item No. 16486) and increases the antifungal activity of clotrimazole (Item No. 15278) against *Candida*.<sup>1,2</sup> Fragmentation of PAMAM G2.0 amidoethanol with hydrogen peroxide produces a fluorescent unsaturated hydroxylamine, which selectively detects hypochlorite over several other reactive oxygen species (ROS) and has been used to detect intracellular hypochlorite levels in RAW 246.7 macrophages.<sup>6</sup>

### References

1. Winnicka, K., Wroblewska, M., Wieczorek, P., *et al.* The effect of PAMAM dendrimers on the antibacterial activity of antibiotics with different water solubility. *Molecules* **18(7)**, 8607-8617 (2013).
2. Winnicka, K., Sosnowska, K., Wieczorek, P., *et al.* Poly(amidoamine) dendrimers increase antifungal activity of clotrimazole. *Biol. Pharm. Bull.* **34(7)**, 1129-1133 (2011).
3. Gonzalo, S., Rodea-Palomares, I., Leganés, F., *et al.* First evidences of PAMAM dendrimer internalization in microorganisms of environmental relevance: A linkage with toxicity and oxidative stress. *Nanotoxicology* **9(6)**, 706-718 (2015).
4. Yamini, G., Kalu, N., and Nestorovich, E.M. Impact of dendrimer terminal group chemistry on blockage of the anthrax toxin channel: A single molecule study. *Toxins (Basel)* **8(11)**, 337 (2016).
5. Winnicka, K., Bielawski, K., Rusak, M., *et al.* The effect of generation 2 and 3 poly(amidoamine) dendrimers on viability of human breast cancer cells. *J. Health Sci.* **55(2)**, 169-177 (2021).
6. Wu, T.-H., Liu, C.-P., Chien, C.-T., *et al.* Fluorescent hydroxylamine derived from the fragmentation of PAMAM dendrimers for intracellular hypochlorite recognition. *Chemistry* **19(35)**, 11672-11675 (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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