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Radiation Effects on Rat Brain

# Metalloporphyrin antioxidants ameliorate normal tissue radiation damage in rat brain

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Robert D. Pearlstein , Yoshinori Higuchi, Maria Moldovan, Kwame Johnson, Shiro Fukuda, Daila S. Gridley, ...show all

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irradiated rat glioma C6 cells, but had no discernible effect on radiation-induced DNA double-strand breaks. MPA, a low molecular weight SOD mimic, significantly increased mitochondrial SOD activity in C6 cells, but not total cellular SOD activity. MPA up-regulated C6 expression of heme-oxygenase 1 (HO-1), an endogenous radioprotectant, but had no effect on HO-1 levels in human astrocytoma U-251 cells, human prostatic carcinoma LNCaP cells, or primary rat brain microvascular endothelial cells in vitro, nor on brain tissue HO-1 expression levels in vivo.

Conclusions: Metalloporphyrin antioxidants merit further exploration as adjunctive radioprotectants for cranial radiotherapy/radiosurgery applications, although the potential for tumour protection must be carefully considered.



# Acknowledgements

Μ	anganese (III)	meso-tetrakis (die	thyl-2-5-imidazole)	porphyrin (AEOL-10	)150) was
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