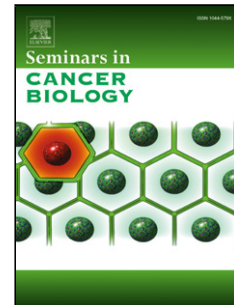


Accepted Manuscript

Title: Multiple roles of glyoxalase 1-mediated suppression of methylglyoxal glycation in cancer biology – involvement in tumour suppression, tumour growth, multidrug resistance and target for chemotherapy

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PII: S1044-579X(17)30035-4
DOI: <http://dx.doi.org/doi:10.1016/j.semcancer.2017.05.006>
Reference: YSCBI 1336

To appear in: *Seminars in Cancer Biology*

Received date: 28-2-2017
Revised date: 19-4-2017
Accepted date: 9-5-2017

Please cite this article as: Rabbani Naila, Xue Mingzhan, Weickert Martin O, Thornalley Paul J. Multiple roles of glyoxalase 1-mediated suppression of methylglyoxal glycation in cancer biology – involvement in tumour suppression, tumour growth, multidrug resistance and target for chemotherapy. *Seminars in Cancer Biology* <http://dx.doi.org/10.1016/j.semcancer.2017.05.006>

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Multiple roles of glyoxalase 1-mediated suppression of methylglyoxal glycation in cancer biology – involvement in tumour suppression, tumour growth, multidrug resistance and target for chemotherapy

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Word count: abstract 200, main text 6380.

ABSTRACT

Glyoxalase 1 (Glo1) is part of the glyoxalase system in the cytoplasm of all human cells. It catalyses the glutathione-dependent removal of the endogenous reactive dicarbonyl metabolite, methylglyoxal (MG). MG is formed mainly as a side product of anaerobic glycolysis. It modifies protein and DNA to form mainly hydroimidazolone MG-H1 and imidazopurinone MGdG adducts, respectively. Abnormal accumulation of MG, dicarbonyl stress, increases adduct levels which may induce apoptosis and replication catastrophe. In the non-malignant state, Glo1 is a tumour suppressor protein and small molecule inducers of

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