Reviewer's report

Title: Endogenous melatonin and oxidatively damaged guanine in DNA

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Reviewer: Ryszard Olinski

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After I have looked at the revised manuscript and authors’ response my assessment is to accept the revised version.

I still can't accept the statement/final conclusion: ( "low levels of endogenous melatonin production (. ) may lead to higher levels of oxidatively damaged guanine in DNA, thereby increasing the risk of developing cancer")- see my previous review, i/ I suggest to change the statement as follow:

"low levels of endogenous melatonin production (. ) may lead to higher levels of excreted 8-oxodG/8-oxoGua." .

If the authors accept that there is a direct link between the urinary excretion and cancer it is their own responsibility to add "..thereby increasing the risk of developing cancer".

To support my objection below are citations from dr Poulsen paper (Exp Toxicol Pathol. 2005 Jul;57 Suppl 1:161-9):

"Accepting that the contribution of nuclear DNA reflects the oxidation of nuclear DNA, the urinary excretion is a reflection of the average total oxidative stress to DNA of all body cells. In most experimental situations in vivo, it is reasonable to argue that a given person is in a steady state, i.e. a constant 8-oxodG level in DNA and a constant repair. Mass conservation will be applicable and consequently the amount of excreted 8-oxodG will equal newly formed 8-oxodG. The urinary measurement is therefore equal to the rate of oxidative stress to DNA.

If an experimental or other form of change happens (say smoking cessation, antioxidant intervention), a new steady state will soon be reached and a change in the rate of oxidation of DNA can be identified.

It is important to stress that this measure is independent of DNA repair, a point often not recognized."

and "Presently, there is no epidemiological evidence available that high levels of oxidative DNA modification in tissue or high urinary excretion of oxidatively modified nucleic acid products are predictive for cancer development in man"