Reviewer's report

Title: Effects of MLH1 and MGMT expression and promoter methylation on genomic instability in patients with thyroid carcinoma

Version: 1 Date: 10 October 2012

Reviewer: Giovanni Sotgiu

Reviewer's report:

Carvalho Santos J and colleagues studied the potential relationship between MLH1 and MGMT expression and methylation on microsatellite instability in individuals with thyroid cancers harboring several mutations. They selected different thyroid histotypes. It is well written and interesting.

My analysis on the methodological features could be summarized in the following points:

Major compulsory revisions:

1. The change of the incidence rate is not comprehensible if referred to the global situation or to a specific local setting (first paragraph of the Introduction).
2. It should be identified the location where their cohort was followed-up in the Introduction when the Authors describe their previous studies (third paragraph of the Introduction).
3. The assumptions behind the computations of the sample size should be described in the Methods; moreover, it is helpful to explain why they used that sample size (i.e., no. 96) and that proportional distribution of tumors (first paragraph of the Methods).
4. They should explain in the Statistical analysis section how they describe the quantitative variables in terms of central tendency and variability indicators (Statistical analysis of the Methods).
5. I suggest to change the word association in the text with relationship.
6. It is not understandable how the Authors showed the quantitative data; it seems that they used means and SDs; I would propose to use medians and IQRs for non-parametric variables (Results).
7. I would recommend to include the 95% CIs for the prevalent data (Results).
8. Tables (no. 3 and 4) should display precise p-values for all the statistical significant and not significant comparisons they did. Moreover, more p-values should be included in the text when the Authors illustrate the statistical comparisons (Tables and Results).

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.