Reviewer's report

**Title:** Tumour-Specific HMG-CoAR is an Independent Predictor of Recurrence Free Survival in Epithelial Ovarian Cancer

**Version:** 2 **Date:** 7 January 2010

**Reviewer:** C Soria

**Reviewer's report:**

The paper in its revised version is improved. However, the discussion remains sound. In my opinion their discussion is not well designed.

They focussed their discussion about the effect of statins on cancer evolution. However, because statins have a very fast hepatic clearance, they cannot have an action on cancerous tissues in vivo.

They have to move to another way.

Unfortunately there is no correlation between the expression of HMG-CoA reductase and the expression of oestrogen receptors. This is important to underline because a feedback inhibition by cholesterol appears to play a dominant role in the regulation of the HMG CoA reductase promoter.

The up regulation of HMG CoA reductase in cancer from patients with a better prognosis could be due to modifications of cholesterol content in the cytoplasmic cell membrane as HMG CoA reductase. Because the cancer cell types with higher membrane cholesterol levels have more rafts/caveolae and are more sensitive to the apoptosis. In addition, cholesterol is important to maintain the fluidity of cell membranes, and results of the literature suggest that the change of the cell membrane fluidity of cancer cell is closely related with the cancer metastases. Therefore this increase in HMG CoA reductase could be a consequence of cholesterol decrease in cancer cells in patients with a better prognosis.

In conclusion, their discussion has to be modified, according to my remarks.