Reviewer's report

Title: Core I gene is overexpressed in Hurthle and non-Hurthle cell microfollicular adenomas and follicular carcinomas of the thyroid.

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Reviewer: Sylvia L Asa

Reviewer's report:

General
This paper reports the analysis of the expression levels of the gene encoding core I subunit of complex III of the mitochondrial respiratory chain in thyroid tumours. The authors initially examined a Hurthle cell follicular carcinoma of thyroid using differential display of mRNA from the lesion and normal thyroid. They identified 7 bands that were altered in the lesion and after sequencing, focussed on Core I as the most relevant. They then examined the expression of this Core I gene in a series of thyroid tumours by quantitative RT-PCR. They correlated the results with both morphological classification and the MIB-1 labelling index as a marker of proliferation. The expression of Core I was associated with microfollicular architecture and was reduced in lesions with macrofollicular or papillary architecture. No correlation was found between Core I expression and malignancy, oncocyctic change or proliferative activity.

The study represents an example of classical translational research wherein a finding from a clinical case is applied to a series of cases to validate a hypothesis. The materials and methods are appropriate and clearly described in detail. The data are sound, well controlled and clearly illustrated. The discussion and conclusions review the data critically and place them in the context of previously published literature. The paper is well written.

Discretionary Revisions (which the author can choose to ignore)
None

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
The manuscript contains a few errors in the introduction. The review of literature concerning molecular alterations in thyroid neoplasms requires more careful attention to detail. For example, the Pax8-PPARgamma1 fusion has been reported in follicular carcinomas, not functioning follicular adenomas and papillary carcinomas as currently stated. Ras activation has not been reported as a consistent finding in these lesions.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
None

What next?: Accept after minor essential revisions

Level of interest: An article of limited interest

Quality of written English: Needs some language corrections before being published

Statistical review: No
Declaration of competing interests:

None