Reviewer's report

Title: BRAF mutations in thyroid tumors from an ethnically diverse group

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Reviewer: Bartlomiej Masojc

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Discretionary Revisions

Authors of the manuscript screened BRAF exon 15 for mutations in 381 cases of cancerous (238 cases) and non-cancerous thyroid lesions (143 cases) from Saudi Arabia. Authors found out that 63% of papillary thyroid cancer cases harbor somatic mutation in BRAF gene (mainly p.V600E). They also found mutations in other histological subtypes of thyroid cancer (6%-18%) and one mutation in follicular adenoma. For detection of mutations authors chose Sanger sequencing method which can detect as low as 20% of minority allele in a sample. As some tumor samples might have less than 20% of mutated allele, a mutation/allele enrichment method would help to detect mutations in these samples. The article would benefit if the authors:

1) explained if they used sample microdissection or if pathologist chose samples with majority of cancer/tumor cells (certain percentage?)

2) discussed allele enrichment methods that would probably help to detect more mutations in this region

3) explained what thyroid disorders/lesions were included for consideration of positive or negative family history and why they were chosen.

4) balanced the conclusion: “Other remarkable findings include correlation of capsular invasion with family history of thyroid disease “. Although statistically significant, this association seems to be weak as data on family history was only available from ca. 26% of cancer patients and multiple not fully defined thyroid disorders were included.

5) reconsidered if the Figure 1 is necessary for this manuscript. If You think that it is necessary please include an arrow in Figure 1 for
“minimally invasive focus” as probably most of the readers are not pathologists. (“A and B, FTC with a BRAF K601E mutation. Case has a single minimally invasive focus.”)

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

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests