Reviewer's report

Title: Conventional and molecular cytogenetics of human non-medullary thyroid carcinoma: characterization of eight cell line models and review of the literature on clinical samples

Version: 1 Date: 18 October 2008

Reviewer: Theodoros Foukakis

Reviewer's report:

This is a descriptive study of cytogenetic characterization of established thyroid cancer cell lines, including a literature review. It is generally well performed and reported. Apart from being purely descriptive, a main drawback of the study is that at least some of the lines have been genetically characterized previously. Furthermore, a number of points should be revised.

Major Compulsory Revisions:
1. The percentage of RAS mutations is FTC (40-50%) is probably an overestimation. The authors should refine and/or provide a reference.
2. PIC3CA mutations are common in UTC and should be mentioned in the introduction.
3. The term "Literature meta-analysis" should be refined, as no meta-analysis was performed here. I suggest the term "literature review" to be used instead.
4. Is the number of passages known for the cell lines used? I think it is a essential information with regard to the risk for secondary changes caused by extensive subculturing.
5. The authors highlight the problem of cross-contamination and unknown origin of the cell lines commonly used in cancer research. They propose the use of cytogenetic characterization for facing this problem. How reliable is this, considering the secondary changes by culturing? Alternative methods should be discussed, such as Short Tandem Repeat (STR) profiling, (used by Lee et al, reference 23).

Minor Essential Revisions:
1. "Fluorescent in situ hybridization" should be changed to the more correct "Fluorescence in situ hybridization"

Level of interest: An article of limited interest

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