Reviewer’s report

Title: Eyebrow hairs contained the highest number of cutaneous human papillomaviruses from actinic keratosis patients

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Reviewer: Axel zur Hausen

Reviewer’s report:

This is an interesting study investigating biopsies from AK lesions, normal skin and plucked eyebrow hairs for the presence of 28 cutaneous HPV (betaPV and gammaPV) by PCR.

The data are sound and very well presented. It is a comprehensive study which will certainly impact further investigation on the role of HPV in human skin carcinogenesis and is thus expected to be frequently cited.

Some minor points:
- The authors state correctly that to date there is no evidence that a specific carcinogenic HPV type is associated with AK and thus I do disagree with the last sentence of the final conclusion: "Thus, eyebrow hairs are an appropriate indicator of cutaneous HPV in AK patients and are a useful non-invasive marker especially in large epidemiological studies."

Based on the presented results it should be more pointed out that eyebrow hairs are an appropriate screening tool in order to identify a possible association of cutaneous HPV in AK patients. That they are useful as non-invasive markers for large epidemiological studies is not substantiated by data in the present study because also here no significant association between certain HPV types and AK was observed.

- How do the authors know that the frozen material of AK used for DNA isolation and HPV typing really did contain AK? The presence of AK in the other half of the tissue does certainly not mean that AK is also present in the frozen tissue. Did the authors perform frozen sections ("sandwich")? If yes they should mention this in Materials and Methods, if not the authors should explain why.

Level of interest: An article of importance in its field

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