Reviewer’s report

Title: The ceramide [NP]/[NS] ratio in the stratum corneum is a potential marker for skin properties and epidermal differentiation

Version: 0 Date: 28 Oct 2019

Reviewer: Research Square Reviewer 1

Reviewer's report:

PEER REVIEWER ASSESSMENTS:

OBJECTIVE - Full research articles: is there a clear objective that addresses a testable research question(s) (brief or other article types: is there a clear objective)?
Yes - there is a clear objective

DESIGN - Is the current approach (including controls and analysis protocols) appropriate for the objective?
No - there are minor issues

EXECUTION - Are the experiments and analyses performed with technical rigor to allow confidence in the results?
Yes - experiments and analyses were performed appropriately

STATISTICS - Is the use of statistics in the manuscript appropriate?
Yes - appropriate statistical analyses have been used in the study

INTERPRETATION - Is the current interpretation/discussion of the results reasonable and not overstated?
Yes - the author's interpretation is reasonable

OVERALL MANUSCRIPT POTENTIAL - Is the current version of this work technically sound?
If not, can revisions be made to make the work technically sound?
Probably - with minor revisions

PEER REVIEWER COMMENTS:

GENERAL COMMENTS:
The overall impression of this study is a report of ceramides distribution in disease and healthy skin. It is an attempt to find biomarkers to identify epidermal differentiation. They suggest the ratio of [NP]/[NS] ceramide in the stratum corneum as a possible marker and show this ratio is distinct within differentiated keratinocytes. They have shown this ratio significantly correlates with the normal healthy skin parameters, and thus suggest it as a potential biomarker. However, the test to verify the potential biomarker can only be considered early and preliminary, as only three patients were considered, with different skin locations. A broader cohort would benefit the
study, to show that indeed it is possible to use [NP]/[NS] as a marker independently of location, sun exposure, sex, age, for keratinocyte differentiation. The discussion goes further speculating of inflammation effects of those differences, and this cannot be seen by the results shown. In general, the authors have presented a well-organized study, with relevant information.

REQUESTED REVISIONS:
The authors should address some minor issues. The first and most relevant is regarding the experimental number of subjects tested when stating and suggesting a biomarker is found. More individuals should be provided, with similar age and skin location for a better comparison, as those are major differentials in the context.

Other minor points:
The term Cer species, such as displayed on line 11 page 6 and others, does not seem correct. Types of ceramides are more often used, and species is a reference to something else. Classes and subclasses are in agreement with the literature.

Include skin photometric color parameters, L*a*b* (as is in Figure 3) in Table 2 legend.

In figure 4, as only 3 different skin areas were used, data would be better represented with each individual point present. As differences (and the high standard deviation) could be referenced to the same individual/location and should be available to evaluation. The same for Figure 5b, showing the standard deviation with points.

ADDITIONAL REQUESTS/SUGGESTIONS:
The overall idea is interesting, and the authors should be careful about statements of finding biomarkers, please revise the text to only include suggestions, as the present form is an initial report. In addition, overall English proofreading would benefit the manuscript.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics
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Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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