Reviewer's report

Title: Differential endothelial cell gene expression by African Americans versus Caucasian Americans: A possible contribution to health disparity in vascular disease and cancer

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Reviewer: Tatjana Rundek

Reviewer’s report:

This is an extraordinary well written manuscript regarding different expressions of the genes implicated in endothelial cell biology between African-Americans and Caucasians. The authors are experts in the methods (cultured blood outgrowth endothelial cells and analytical GSEA models) applied in this study. The results are interesting and if validated may be of important scientific implications and future clinical relevance.

Discretionary Revisions

Several clarifications may be important for the validity of the presented results. These include:

1. Clinical characteristics of the study subjects. The selected study subjects were young and presumed healthy because they had no history of vascular disease and were not taking any relevant medications. The authors however did not provide other possible important clinical information, including clinical characteristics relevant for the presence of subclinical vascular disease such as pre-diabetes or metabolic syndrome. Considering increased prevalence of these risk factors among African Americans at younger age (even among children) this information may be important for the results of this study. I suggest comparing several clinical characteristics between the two groups (e.g. BMI, levels of BP, LDL, HDL, fasting glucose, WBC, inflammatory markers or hr-CRP if available, etc.).

2. The presented race differences rely on self-identification of race alone. Although the authors were very careful in the selection of their subjects, the reported associations may be misestimated. No allowance was made for admixture, which may still represent a considerable proportion of the study groups. Do the authors have data on ancestry informative markers?

3. Can the authors make any connection of their data with a new, recently reported lipid regulatory circuit involving crosstalk between high oxidative tissues and their endothelial cells (vascular endothelial growth factor B)? The VEGFB metabolic actions require signaling through factors abundantly expressed in endothelial cells.

Thank you.
Which journal?: Not appropriate for BMC Medicine: an article whose findings are important to those with closely related interests and more suited to BMC Medical Genetics

What next?: Offer publication in BMC Medical Genetics after discretionary revisions

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.