Letter by Lee Regarding Article, “Multi-Analyte Profiling Reveals MMP-9 and MPC-1 as Plasma Biomarkers of Cardiac Aging”

To the Editor:

Chiao et al gained further insights of the role of plasma biomarkers in association to cardiac aging phenotypes. The authors observed significantly higher plasma levels of inflammatory markers in the senescent compared with the adult C57/BL6J mice. Among them, matrix metalloproteinase-9 (MMP9) correlated with the increase in end-diastolic dimensions that occurred with senescence. Dual labeling immunohistochemistry of Mac-3 and MMP9 in the left ventricle sections gave further evidence that macrophages were the major contributor of MMP9 in the senescent left ventricle. The authors conclude that MMP9 is a potential plasma marker for cardiac aging.1

I am interested if the authors considered the preanalytical issues that are known to affect MMP9 measurements. In the study, mice were euthanized under terminal anesthesia. Heparin was injected intraperitoneally, before arterial blood sampling from the carotid artery. Blood was then centrifuged for 5 minutes to prepare plasma samples.

Two preanalytical issues invite further consideration: the use of heparin and plasma separation technique. Heparin affects the measured level of MMP9 in plasma; it may also lead to difference in MMP9 profiles in leukocytes.3 In addition to the other sources, platelets are also known to contain and actively secrete MMP9.4 Depending on the speed of centrifugation, a short spin cycle of 5 minutes may have resulted in high residual platelets (slow speed) or platelet activation (high speed) in the plasma samples prepared, and could have caused variations in the MMP9 level measured in plasma.

References

Acknowledgments
Regent Lee is the Lumley Surgical Research Fellow with the Royal Australasian College of Surgeons and also receives funding from the Oxford Biomedical Research Centre, National Institute of Health Funding Stream.

Disclosures
None.

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_Circ Cardiovasc Genet._ 2011;4:e30
doi: 10.1161/CIRCGENETICS.111.961110

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