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Response to the Letter to the Editor "Hemodynamics in the Microcirculation" by A. G. Koutsiaris

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Associate Editor Umberto Morbiducci oversaw the review of this article.

To the Editor,

We would like to thank Dr. Koutsiaris[1] for his valuable comments to our review article "Hemodynamics in the microcirculation and in microfluidics".[4] First of all, we explain why we did not include many in vivo studies on hemodynamic measurements. This review paper focused on computational and experimental studies of hemodynamics in the microcirculation and microfluidics. The discussed topics were thus broad, and we could not cover the whole research field with a complete set of references. In the section "Experimental Measurement of Cellular Scale Hemodynamics", we especially focused on visualization methods using selective stain of blood cells, platelet and plasma for blood flow. *In vitro* blood flow measurements using microfluidics are well controlled with high accuracy and precise experimental settings. It is thus advantageous to discuss such in vitro studies to know recent sophisticated techniques. Consequently, the citation of in vivo studies were reduced than that of in vitro studies in the section. The pre-processing to analyze the velocity fields was also not reviewed, because some former papers had already reviewed.[5,7,8] In order to notify that we focused on blood flow in microfluidics, we explicitly wrote in the introduction as 'In "Experimental Measurement of Cellular Scale Hemodynamics" section, the latest experimental visualization techniques for blood flow in microfluidics are described'. A similar sentence can be found in the abstract. If readers are interested in in vivo blood flow measurements of animals, for examples see Koutsiaris *et al.*,[3] and Koutsiaris *et al.*[2] as Dr. Koutsiasis[1] suggested.

As Dr. Koutsiaris pointed out, Tangelder *et al.*[6] reported that the velocity profile of blood flow was parabolic or blunt (plug). Our expression in the review paper was not accurate, so we would like to modify "parabolic" to "blunt" on line 14 in page 249.

Because the particle image velocimetry methods for blood flow have attracted many researchers in the field of biomechanical-engineering, biology, medical and pharmaceutical sciences, we hope that the section "Experimental Measurement of Cellular Scale Hemodynamics" will be helpful for them to understand, and to improve their numerical and experimental techniques.

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