micromachines

Supplementary Materials: Microfluidic-Based Biosensor for Sequential Measurement of Blood Pressure and RBC Aggregation Over Continuously Varying Blood Flows

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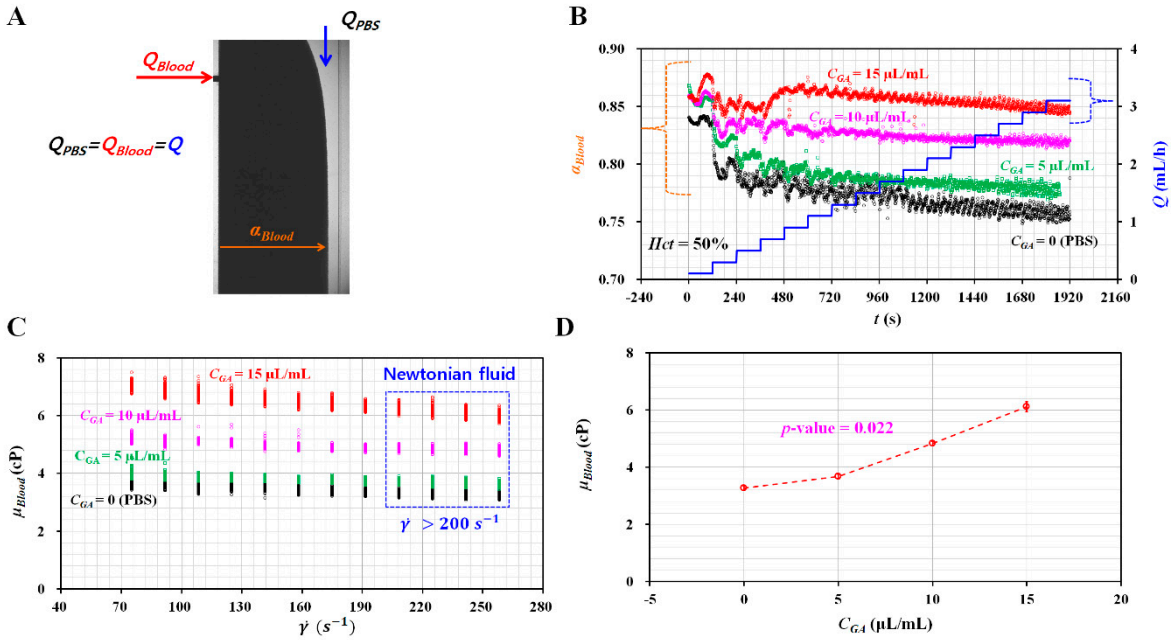


Figure S1. Quantification of blood viscosity composed of RBCs hardened with GA solution (C_{GA}). (**A**) Schematic diagram of blood viscosity measurement with co-flowing method. Blood and PBS were simultaneously supplied into single microfluidic device, at the same flow rate (Q_{Blood} = Q_{PBS}). Here, blood viscosity was obtained by monitoring the variations of blood-filled width (α_{Blood}) in the single channel. (**B**) Temporal variations of α_{Blood} with respect to C_{GA} = 0, 5, 10, and 15 μL/mL. (**C**) Variations of μ_{Blood} with respect to shear rate and concentration of GA solution. Experiment results indicated that bloods behave as Newtonian-fluid at sufficiently higher shear rates (i.e., $\dot{\gamma} > 200\ s^{-1}$). (**D**) Variations of μ_{Blood} with respect to C_{GA}. Statistical analysis indicated that μ_{Blood} increased significantly with respect to C_{GA} (i.e., ANOVA, p-value = 0.022).

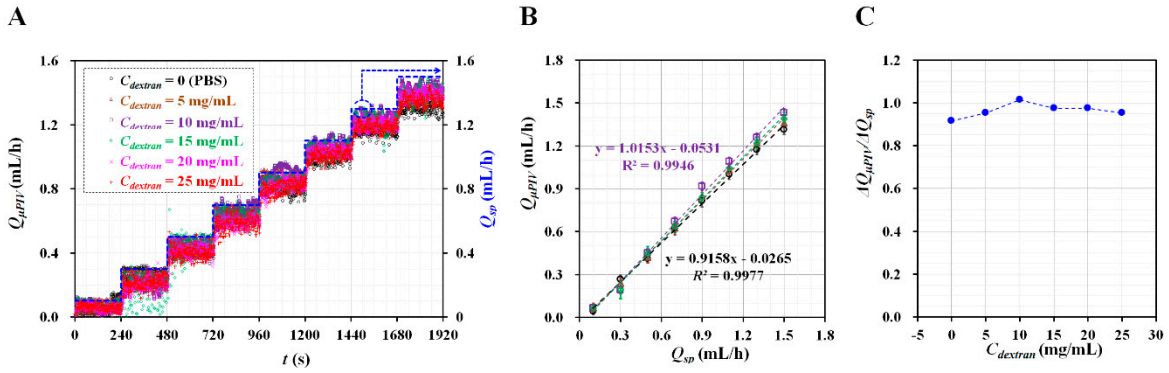


Figure S2. Validation of blood flow rate obtained by conducting micro-PIV.