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Quantification of hydrodynamic factors influencing cell lateral migration STEPHANIE NIX, Akita Prefectural Univ, YOHSUKE IMAI, TAKUJI ISHIKAWA, Tohoku University — The study of the migration of blood cells perpendicular to the direction of blood flow, or lateral migration, is motivated by the differing behavior of the various types of blood cells. *In vivo*, red blood cells are observed to flow in the central region of the blood vessel, particularly in the microcirculation, while other types of cells in the blood, including white blood cells and platelets, are observed to flow disproportionately near the vessel wall. However, the specifics regarding the effect of hydrodynamic and biological factors are still unknown. Thus, in this study, we aim to quantify the effect of hydrodynamic factors on a cell model numerically using the boundary integral method. By using the boundary integral method, we can isolate the effect of a single hydrodynamic factor, such as a wall or given flow distribution, in an otherwise infinite flow. Then, we can use the obtained numerical results to develop a semi-analytical model describing the cell lateral migration dependent on only the flow geometry and the viscosity ratio between the cell and external fluid.

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