

Abstract Submitted
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Experimental comparison of mammalian and avian blood flow in microchannels¹ KATHRYN FINK, DORIAN LIEPMANN, Univ of California - Berkeley — The non-Newtonian, shear rate dependent behavior of blood in microchannel fluid dynamics has been studied for nearly a century, with a significant focus on the characteristics of human blood. However, for over 200 years biologists have noted significant differences in red blood cell characteristics across vertebrate species, with particularly drastic differences in cell size and shape between mammals and non-mammalian classes. We present an experimental analysis of flow in long microchannels for several varieties of mammalian and avian blood, across a range of hematocrits, channel diameters, and flow rates. Correlation of shear rate and viscosity is compared to existing constitutive equations for human blood to further quantify the importance of red blood cell characteristics. Ongoing experimental results are made available in an online database for reference or collaboration.

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