Abstract Submitted
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The Kinetics of Forisome Conformation Change STEPHEN WARMANN, AMY SHEN, Washington University in St. Louis, WILLIAM PICKARD, Washington University in St. Louis, MICHAEL KNOBLAUCH COLLABORATION, WINFRIED PETERS COLLABORATION — Forisomes are a newly discovered proteinaceous contractile element found in the phloem of legumes. These protein bodies show promise as a biological smart material. Forisomes contract anisotropically in response to pH variation or the presence of calcium ions. Possible applications of forisomes include micro-valves, micro-actuators, and other smart sensing activities where one may currently see materials such as synthetic hydrogels or shape memory alloys. In order to pursue forisome synthesis as a smart material and to understand the biological function of the forisome, a detailed understanding of its material properties is necessary. Our research in this area entails the study of the mechanical properties and surface interactions of forisomes. Here we present detailed conformational kinetics of forisomes from *Vicia faba*, *Glycine max*, and *Canavalia gladiata*. The flow rate dependency of conformational kinetics within a microfluidic network is described. Computational fluid dynamic models of the phloem are presented.

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