Abstract: The surfaces of blood-contacting devices are procoagulant and activate blood into clots during their use. The clots either cause device failure, embolic complications or both. Anti-fouling coatings are therefore applied to the surfaces of these devices to prevent clot formation locally without systemic effects as seen with systemic anticoagulants. To do this, PDMS membranes coated with pCBMA were placed in acrylic flow cells and exposed to variable shear stresses. Fibrinogen, a key clotting factor, adsorption on PDMS pre and post flows was measured using a standard enzyme-linked immunosorbent assay. Initial results indicate that pCBMA coating on PDMS pre and post flows was measured using a standard enzyme-linked immunosorbent assay. Initial results indicate that pCBMA coating on PDMS is stable under the shear stresses tested.

Materials and Methods:
2. Flow Cell Fabrication: Bridgeport miller, drill press etc. (TCoE)
3. PDMS Membrane Casting: Two-part polymerization reaction.
4. pCBMA Coating of PDMS: Graft-to coating in TRIS buffer (pH 8.5)
5. Flow Circuit: See Figure 2F.
6. Coating Stability Testing: Recirculation (8hrs) of blood substitute (phosphate buffered saline, pH 7.34, p=1g/cm³) over coated PDMS at different shear stresses (1, 6, and 10 dynes/cm²).
8. Materials: Acrylic, PDMS, Connectors, Tygon tubing, PBS, and Fibrinogen were obtained from Custom Creative Plastics, Sigma Aldrich, Nusil Tech, and Qosina

PDMS is stable under the shear stresses tested. To do this, PDMS membranes coated with pCBMA were placed in acrylic flow cells and exposed to variable shear stresses. Fibrinogen, a key clotting factor, adsorption on PDMS pre and post flows was measured using a standard enzyme-linked immunosorbent assay. Initial results indicate that pCBMA coating on PDMS is stable under the shear stresses tested.

Discussion: The initial results indicate that pCBMA coating on PDMS is stable under the shear stresses tested. Funding to support the collection of additional data is needed to complete this study. Currently the results look promising; pCBMA coating highly reduces fibrinogen adsorption onto PDMS membranes. Moving forward, we would like to continue experimenting with the coating and for longer flow durations.

Acknowledgement: SURF, TCoE, UNH and Dr. Shaoyi Jiang.

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