Supplemental Information

Polyacrylamide-based Hydrogel Coating Improves Biocompatibility of Implanted Devices

*Doreen Chan, Caitlin L. Maikawa, Andrea d'Aquino, Shyam S. Raghavan, Megan L. Troxell, Eric A. Appel**

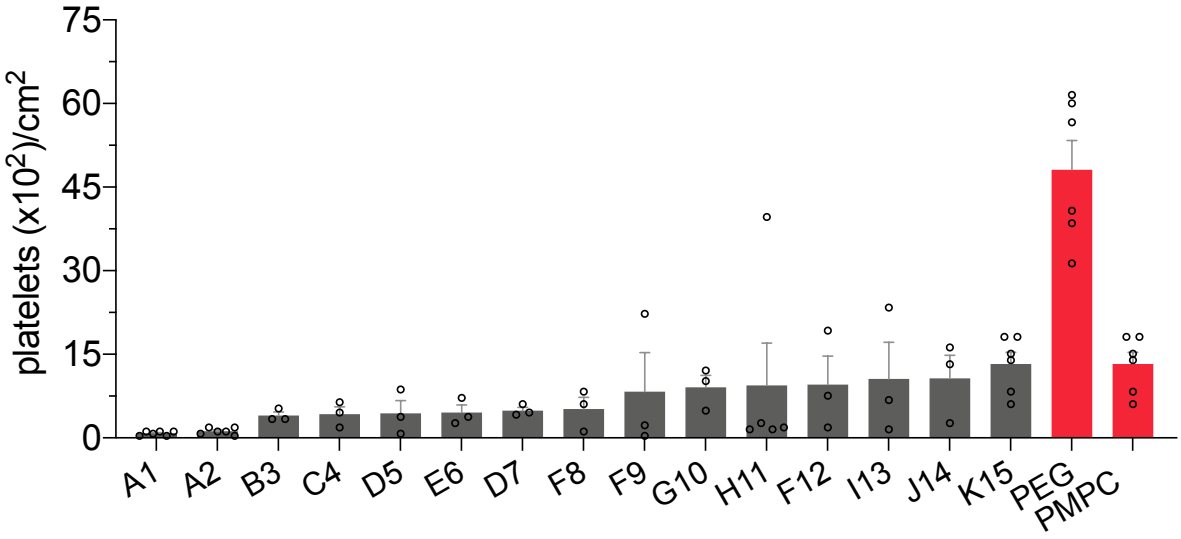

Fig. S1. Platelet adhesion counts for top 15 anti-biofouling combinatory polyacrylamide hydrogels and PEG and PMPC hydrogel formulations. Mean ± standard error of platelets on hydrogels are shown with $n \geq 3$.

Fig. S2. Table of formulations from selected mix of anti-blood biofouling hydrogels

Ranking on Platelet Adhesion	Monomer 1	Monomer 2
20	15% Am	5% HMAm
22	15% HMAm	5% MPAm
27	20% Am	-
30	15% Am	5% DMAm
46	15% NiPAm	5% Am
49	5% ALMP	15% tHMAm
57	15% Am	5% HEAm
108	10% DEAm	10% tHMAm
151	10% ALMP	10% HMAm
153	10% ALMP	10% DEAm

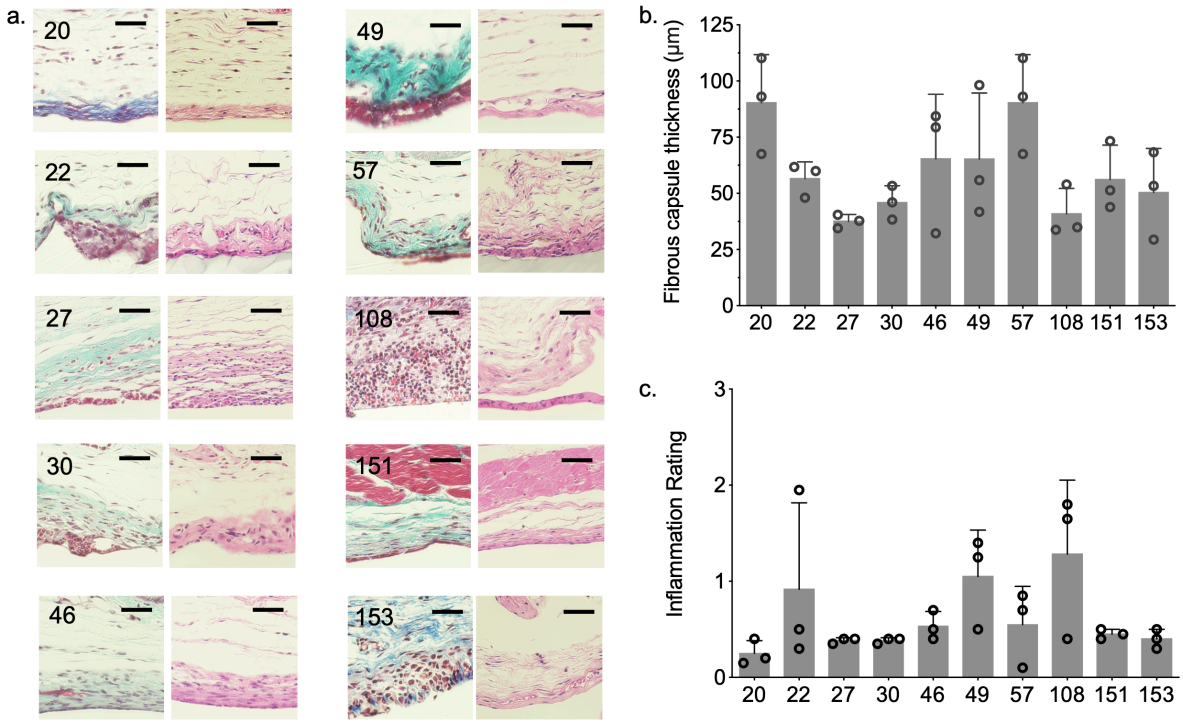

Fig. S3. a. Histology images for selected subset of hydrogel library. Number indicates ranking on platelet adhesion test. Scale bar represents 50 μm. **b.** Fibrous capsule thickness of n = 3 samples (mean ± s.d.) where each mean was determined from the median of 10 fibrous capsule thicknesses per image. **c.** Inflammation ratings from blinded pathologists to characterize extent of inflammation.

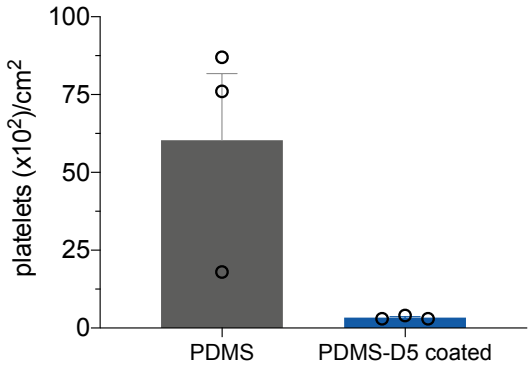

Fig. S4. Platelet counts for PDMS and D5-hydrogel coated PDMS. Data shows mean ± standard error of number of platelets on surfaces. Data analyzed with an unpaired t test, p = 0.056, n =3.

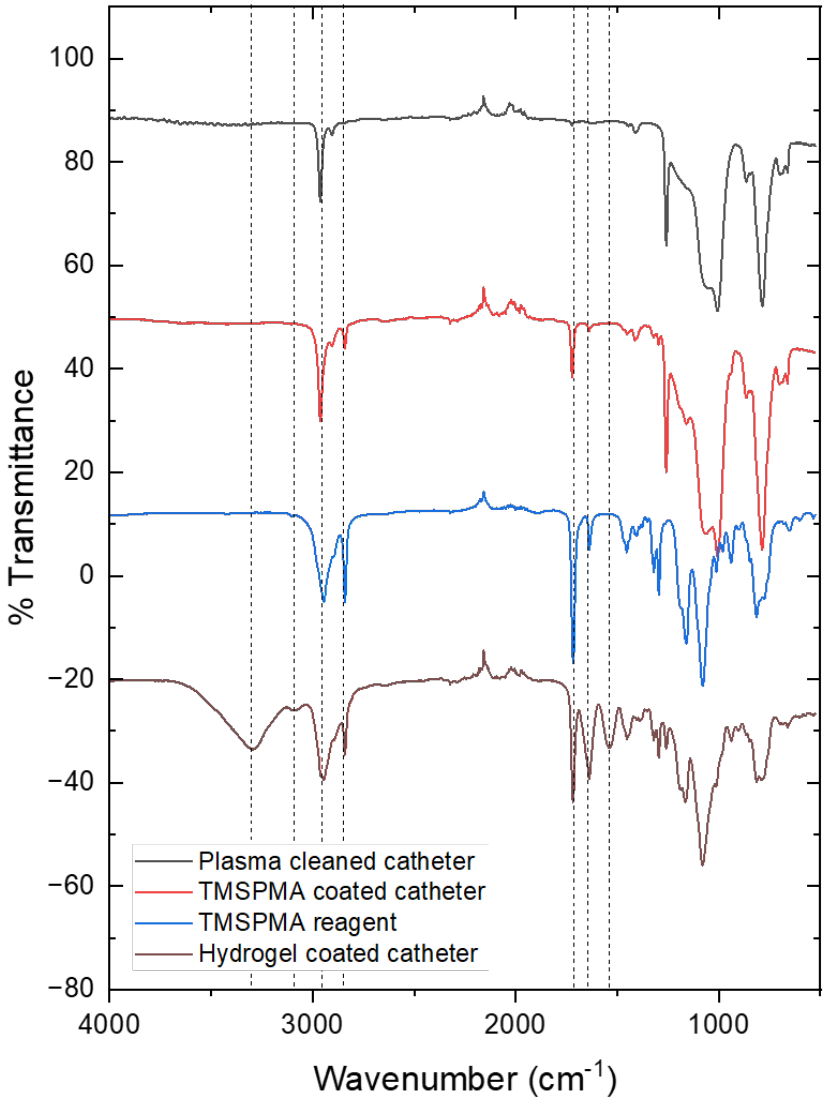

Fig. S5. FTIR characterization of coated catheters, including (i) plasma cleaned catheter surfaces, (ii) TMSPMA-coated catheter surfaces, (iii) TMSPMA reagent, and (iv) hydrogel-coated catheter surfaces.

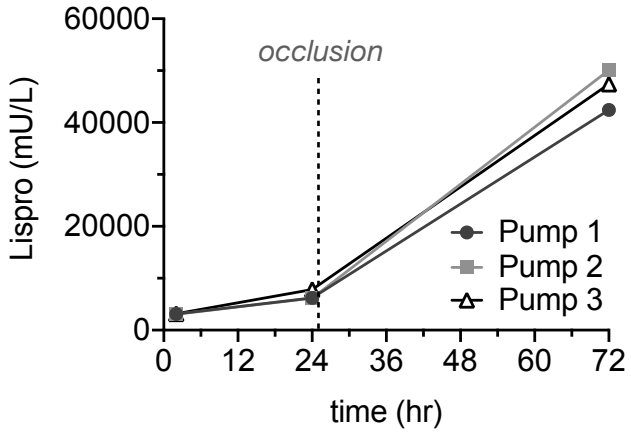

Fig. S6. Insulin lispro concentration into PBS from osmotic pumps at 37°C. Aliquots were taken at specified timepoints to determine insulin concentration. Occlusion was induced on the pumps at 24 hr, resulting in a corresponding sharp increase in detected insulin.

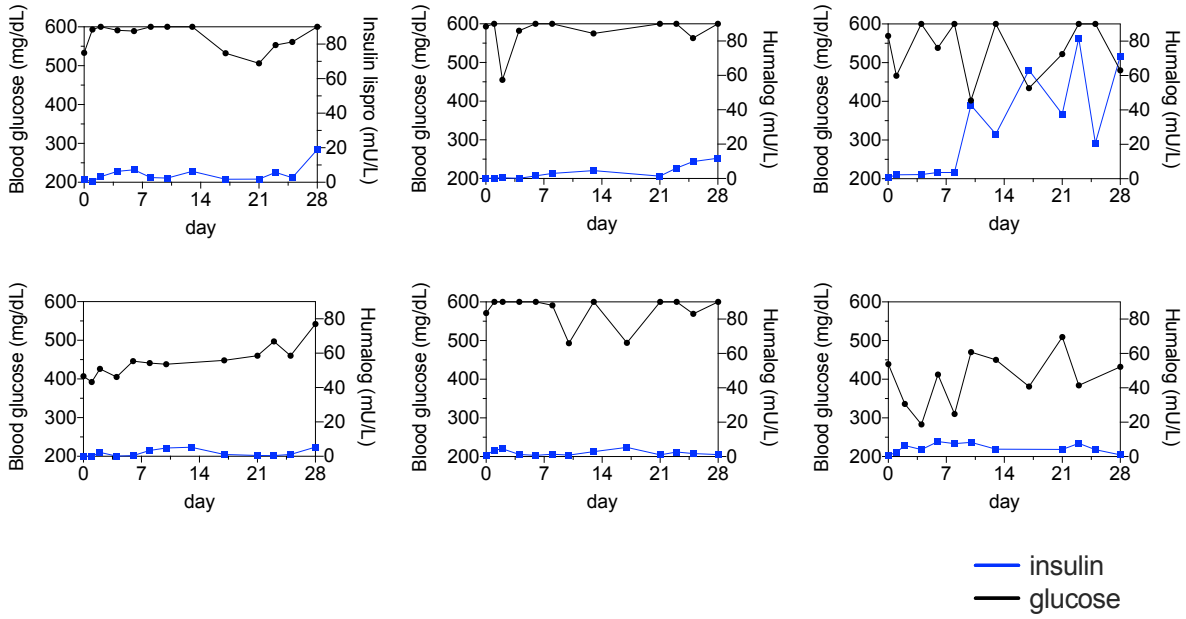

Fig. S7. Blood glucose values and humalog concentration from blood serum. Maximum detection limit for blood glucose levels were 600 mg/dL.

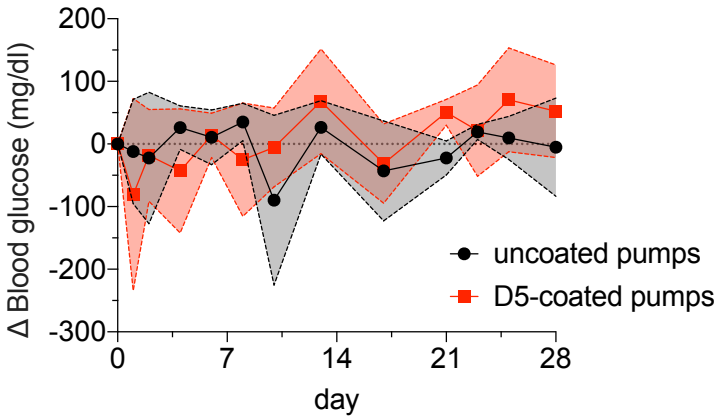

Fig. S8. Change in blood glucose levels of rats with uncoated and D5-coated pumps. Data represents mean ± standard deviation, n = 3.

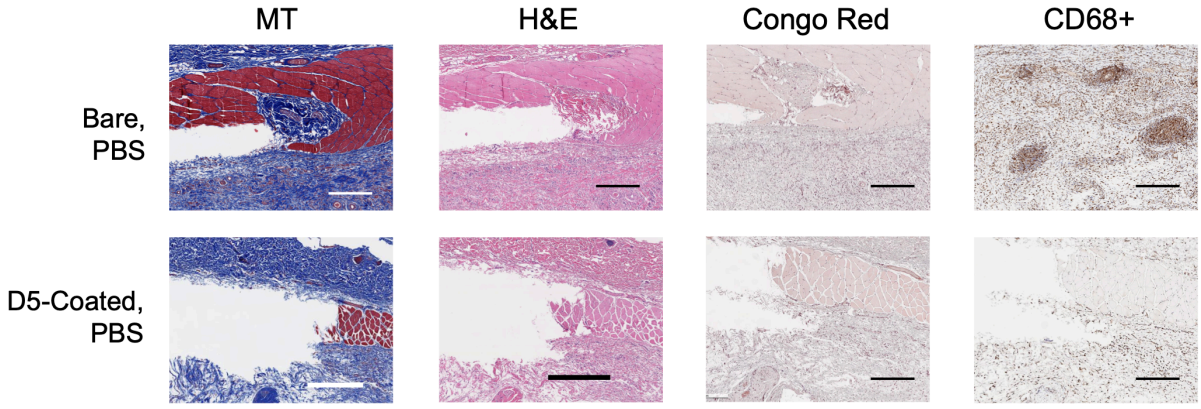

Fig. S9. Histology images of tissues surrounding catheter tips (bare and D5-coated) of osmotic pumps infusing PBS. Masson's trichrome (MT), hematoxylin & eosin (H&E), congo red, and CD68+ staining were performed on histology samples, and representatinve images are shown. Scale bar represents 50 μm.