# Fabrication and characterization of plasma-treated electrospun membranes for blood filtration application

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***Abstract***

Membrane-based leukodepletion filters reduce many clinically adverse effects during blood transfusions such as non-hemolytic febrile transfusion reactions, and platelet refractoriness. Polyethylene co-vinyl alcohol (EVAL) is a hemocompatible polymer proven for its leukodepletion efficiency. However, due to its hydrophobic character, it finds some limitations during blood filtration. In this current study, the wettability of the EVAL membranes were improved by blending it with a hydrophilic polymer such as polyvinyl pyrrolidone (PVP) and its plasma surface treatment. Contact angle measurements showed that incorporating PVP improved the wettability of the membrane. Blood filtration studies conducted with the modified membranes showed that the filtration time through the membranes was significantly improved after plasma treatment. The percentage of WBC adhesion, RBC recovery, platelet adhesion and percentage of hemolysis were studied. The residual leukocyte count after filtration was studied using flow cytometry. The flowcytometry data provides the percentage of leukodepletion of EVAL/PVP and plasma treated EVAL/PVP as 100 and 99.9±0.14% respectively. The study thus shows that suitability of plasma treated electrospun EVAL/PVP membranes as a potential candidate for leukodepletion filter media.

**References**

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