Red blood cell and platelet transfusions are routine life-saving procedures in medicine.The production of ex vivo- generated transfusible blood products, or Blood Pharm- ing, remains one of the most promising, as well as per- haps one of the most distant, deliverables of current cell expansion technologies.While the relative ease of harvest and storage of these cell subsets enable this process, an adequate supply of suitable donor mate- rial remains problematic.We recently reviewed the individual challenges associated with production of red blood cells (RBCs), platelets, and neutrophils (25).The .current technical limita- tions are both biological and engineering in nature