

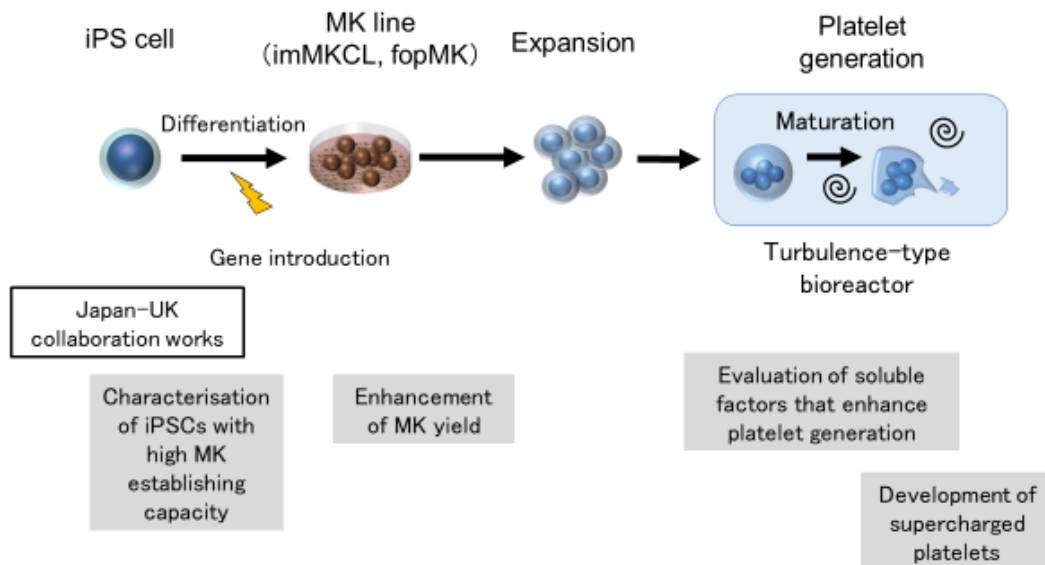


## Generating platelets in vitro for the clinic: optimisation and added clinical efficacy

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A large amount of platelet preparations is transfused every year to prevent or treat bleeding associated with thrombocytopenia. However, the current system relies solely on blood donation and thus bears the risk of unstable supply, infection and immunological incompatibility. Therefore, we and Ghevaert of the United Kingdom established expandable cell lines of megakaryocytes, which are mother cells of platelets, from iPS cells named imMKCLs and fopMKs, respectively. Nevertheless, there are still common problems. To overcome these problems, both groups will exchange reagents and cells, and first establish a method for selecting iPS cell lines suitable for mass production of platelets. Next, we will elucidate the mechanism of induction of megakaryocyte progenitor cells, identify useful cell markers, and improve the culture method. Furthermore, a small molecule substance that promotes platelet production identified by the UK side will be used in the "turbulent" bioreactor we have developed to improve platelet production efficiency. We will also create platelets with enhanced specific functions and pursue their effectiveness in treating bleeding, fractures, and infections.



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