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Fetal bovine serum *vs* platelet rich in growth factors: A comparative study on hematologic malignancies cell lines

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Fetal bovine serum (FBS) is a popular cell culture supplement with growth, proliferation, and adhesion factors, but its high costs, safety concerns, potential xenogeneic agent transmission, and accessibility issues discourage its use. Alternative options have been proposed, each with its own advantages and disadvantages. However, caution is advised when choosing a substitute, as alterations to the fundamental characteristics of cultured cells may introduce biases and impact clinical applications. Herein, the authors assess the function of 10% PRGF compared to 10% FBS and 5% FBS+5% PRGF by examining morphology, viability, and apoptosis rates in the NALM6, NB4, and U266 cell lines. Despite there being no observable variance in cell morphology across the three cell lines, NALM6 and NB4 cells exhibited greater viability after 24 and 48 h of incubation in the presence of 10% PRGF. Meanwhile, the proliferation rate of NALM6 and NB4 cells in the combination group and U266 cells across all groups remained comparable to that of the 10% FBS group. Furthermore, no significant incidence of apoptosis was detected among the cultured cells at the desired additive concentrations. Our study showed that PRGF could be recognised as an optimal, accessible, safe, and affordable supplement for FBS.

Keywords: Cell culture techniques, FBS alternatives, Tumour cell line, Xeno-free serum