

Aggregation Behavior and Functions of Porcine Hepatocyte-HSC Co-spheroids

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There are many investigations concerning improvement of hepatocyte function and survival that cultured in vitro. These attempts include use of cytokines, growth factors and other medium supplements. However, one of the most promising techniques in retaining hepatocyte functions and viability is co-culturing with nonparenchymal liver cells such as sinusoidal endothelial cells, bile duct epithelial cells and hepatic stellate cells. Hepatic stellate cells (HSCs) are nonparenchymal cells with stellate morphology present in the perisinusoidal space of Disse and contain vitamin A-rich lipid droplets.¹⁾ When hepatocytes co-cultured with HSCs, hepatocytes expressed improved liver-specific functions like albumin secretion in monolayer culture.²⁾ In this study, primary pig hepatocytes were co-cultured in suspension with pig HSCs to investigate functional activities of hepatocytes. Spheroids were embedded in alginate bead to prevent formation of over-size aggregates. And then activities of ammonia removal, urea synthesis and albumin secretion were investigated.

References

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