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Three Dimensional Reconstitution of Liver Epithelial Tissue Structures *ex vivo* Enhanced (with Animal-Origin Free Recombinant Proteins and Culture Media)

Speaker:

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Abstract:

Traditionally, tissue engineering and regenerative medicine have faced challenges due to the limitations in obtaining functional three-dimensional tissue structures. For tissue engineering using pluripotent and tissue stem cells, a stable supply of functional cells with high purity is crucial. To eliminate risks of contamination and to ensure consistent performance, Ajinomoto have originally developed and supply a series of StemFit™ media and StemFit Purotein™ growth factors, as chemically defined and animal-origin free products. These high quality growth factors and differentiation supplements have been applied to induce liver cells from human induced pluripotent stem cells (hiPSCs) and a robust cell differentiation system has been successfully established for hepatic endoderm (HE), endothelial cells (ECs), and mesenchymal cells (MCs) (Sekine K et al. Sci. Rep 2020)

*Dr. Tanimizu and his colleagues are currently working on 3D reconstitution of hiPSC-HE, ECs, and MCs into functional liver tissue. In this seminar, he talks about a transition from 2D to 3D organoid culture system for understanding the development of liver epithelial tissue structures, and presents their recent achievement in generating the hepatic biliary system from hiPSCs *ex vivo*.