



Exploring Macrophages: Their Role as Xenobarrriers in Interspecies Chimeras and the Development of iPSC-derived CAR-Macrophages for Cancer Immunotherapy

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Abstract

Induced pluripotent stem cells (iPSCs) have revolutionized possibilities in regenerative medicine and disease modeling. In our research group, we are advancing two main pillars: (1) generating organs by injecting pluripotent stem cells into the embryos of interspecies animals with specific organ deficiencies, and (2) developing immune cells for cancer immunotherapy.

This seminar will focus on macrophages, a type of immune cell, to report on our findings related to these two areas of research. Macrophages are essential components of the innate immune system, acting as frontline responders during infections by quickly recognizing and responding to foreign pathogens and facilitating their clearance through phagocytosis.

Our work explores how macrophages function within interspecies chimeras created by injecting rat PSCs into mouse embryos, and investigates the development of iPSC-derived CAR (chimeric antigen receptor) macrophages and their contribution to cancer treatment.

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