

Neonatal immune-tolerance in mice does not prevent xenograft rejection.

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Authors: Virginia B Mattis, Dustin R Wakeman, Colton Tom, Hemraj B Dodiya, Sylvia Y Yeung, Andrew H Tran, Ksenija Bernau, Loren Ornelas, Anais Sahabian, Jack Reidling, Dhruv Sareen, Leslie M Thompson, Jeffrey H Kordower, Clive N Svendsen

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Public Summary:

Stem cell transplantation represents a highly promising treatment strategy for human diseases. However, to test these approaches often requires transplantation of human stem cells into animal models of disease. These tests have been hindered by immune rejection of the cells by the animals. As one method to prevent immune rejection, we tested a method of stimulating early tolerance of the cells in the animals that had shown some promise in rat models. In several different studies in three different strains of mice, this approach did not prevent the rapid rejection of the cells, therefore other immune suppression approaches are needed for transplantation studies.

Scientific Abstract:

Assessing the efficacy of human stem cell transplantation in rodent models is complicated by the significant immune rejection that occurs. Two recent reports have shown conflicting results using neonatal tolerance to xenografts in rats. Here we extend this approach to mice and assess whether neonatal tolerance can prevent the rapid rejection of xenografts. In three strains of neonatal immune-intact mice, using two different brain transplant regimes and three independent stem cell types, we conclusively show that there is rapid rejection of the implanted cells. We also address specific challenges associated with the generation of humanized mouse models of disease.

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