

THE EFFECT OF TRANSFERRIN ON T CELL DIFFERENTIATION, A STUDY USING THE HYPOTRANSFERRINEMIC MOUSE MODEL.

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A mouse model of hereditary hypotransferrinemia (Trf^{hpx}) has provided interesting data to better understand different aspects of iron metabolism. Although a straight correlation between iron metabolism and the immune system has been extensively reported, little is known concerning iron influence on T cell differentiation. We decided to make use of Trf^{hpx} mice to study the role of transferrin on thymocyte differentiation.

Studies on thymocytes differentiation have been performed at two distinct time points: 12 and 16 weeks of age. We found that Trf^{hpx} mice have a smaller thymus compared to control mice. Despite the reduced cellularity (less than half of the total number of cells), no differences were observed on the relative proportion of the four main thymic populations: CD3-CD4-CD8- (TN), CD4+CD8+ (DP), CD4+CD8- (CD4SP), CD4-CD8+ (CD8SP). Interestingly, a different effect was found after a more detailed analysis of the TN thymocytes. The proportion of the CD44-CD25-, the most mature cells among the TN thymocytes, is manifestly diminished in the Trf^{hpx} mice compared to control mice. Moreover there are abnormalities on the expression of the transferrin receptor (CD71) in the TN thymocytes. Iron is known to be strongly associated with cell division. Therefore we investigated if cell division was altered in the thymus of these mice. Studies with Bromodeoxyuridine (BrdU) incorporation *in vivo* indicate that cell division is not altered in Trf^{hpx} mice thymus.

The results to be presented show that transferrin plays an important role on thymocyte differentiation. Trf^{hpx} thymocytes are specifically affected during the intermediate to late TN stages. Current experiments are designed to elucidate why the almost absence of transferrin affects this particular step during thymocyte differentiation.

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