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Lesional infiltration of CD8⁺ cells in sciatic nerves of experimental autoimmune neuritis rats

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Objective: Experimental autoimmune neuritis (EAN), which is characterised by infiltration of T cells and macrophages into the peripheral nervous system, is an autoantigen-specific T cell mediated animal model of human Guillain-Barré Syndrome. CD8 expression was classically considered to be specific for certain subpopulation of lymphocytes and natural killer cells, however recently CD8 has been identified in dendritic cells, mast cells and subpopulation of macrophages. This paper is primarily concerned with the expression of CD8 in sciatic nerves of EAN rats.

Methods: EAN was induced in male Lewis rats. Neurological severity of EAN was evaluated. CD8 expression has been investigated in the sciatic nerves of EAN rats by immunohistochemistry and cellular sources of CD8 were identified by double-labelling experiment.

Results: A significant accumulation of CD8⁺ cells was observed on Day 12, with a maximum around Day 15, correlating to the clinical severity of EAN. In sciatic nerves, CD8⁺ cells concentrated in perivascular areas but also were seen in the parenchyma. Double-labelling experiments showed that the major cellular sources of CD8 were reactive macrophages.

Conclusion: In conclusion, this is the first demonstration of the presence of CD8 in the sciatic nerves experimental autoimmune neuritis rats. The time courses and cellular sources of CD8 together with the functions of CD8 indicate that CD8 may function to facilitate macrophage and T cell infiltration in experimental autoimmune neuritis and therefore could be a potential therapeutic target.

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