TOMATO LECTIN HISTOCHEMISTRY SPECIFICALLY LABELS AMOEBOID AND RAMIFIED MICROGLIAL CELLS

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Lectins, in the nervous system, have usually been related to glial cells, showing particular affinity for microglial cells. In this sense, several lectins have lately been used as microglial cell markers. In this study we present a lectin from *Lycopersicon esculentum* (Tomato lectin), with affinity for poly-N-acetyllactosamine sugar residues, as a new specific microglial cell marker.

The present study was performed in postnatal (five day old) and adult rats. After fixation by intracardiac perfusion with 4% paraformaldehyde and 0,5% glutaraldehyde, brains and cerebella were removed and subsequently cut in a vibratome, or embedded in paraffin and cut in a microtome. After endogenous peroxidase inhibition, sections were incubated in the biotinylated lectin (Sigma) at 4ºC overnight, rinsed in buffer and then incubated for 1 hour at room temperature with avidin labeled peroxidase, after several rinses, the reaction product was visualized with diaminobenzidine. Selected vibratome sections were postfixed in 1% osmium tetroxide, dehydrated, and embedded in epon.

Our observations showed that tomato lectin stained all microglial cell population, in both postnatal and adult rats. The histochemical stain allowed the complete visualization of the cell body and the processes of ramified microglial cells. Amoeboid microglial cells in postnatal animals were also labeled, showing a stronger staining. While the reaction product in amoeboid microglial cells was localized in the plasma membrane as well as intracytoplasmatically, in ramified microglial cells tomato lectin was exclusively bound to the plasma membrane.

This technique will be very useful in studies concerning distribution and morphology of microglial cells, both for its specificity, simplicity, and the possibility of using vibratome or paraffin sections.