A31

**Monocyte entrance in the developing brain is mediated by cell adhesion molecules.**

*Dalmau I., Vela J.M., González B. and Castellano B.*

*Dept. of Cell Biology and Physiology, Unit of Histology, Faculty of Medicine, Autonomous University of Barcelona, Barcelona, Spain.*

Although most studies agree that microglial cell precursors are derived from monocytes infiltrating the central nervous system (CNS) during development, the mechanism by which these cells enter the nervous tissue during development is still poorly known. In acute inflammatory response, experimental situations and some pathological states affecting the adult CNS, migration of monocytes into the nervous tissue associates with upregulation of cell adhesion molecules. In this way, the aim of the present study was to analyze by means of immunocytochemistry the expression of the cell adhesion molecule receptors, lymphocyte function-associated antigen-1a (LFA-1a) and intercellular adhesion molecule-1 (ICAM-1) in the developing rat brain (E17 to P18).

Our observations showed that LFA-1a and ICAM-1 were expressed in the developing rat brain with a characteristic time course of appearance. Mainly, LFA-1a immunoreactivity was displayed by intravascular monocytes (E17) and intraparenchymatic round cells with a horseshoe-shaped nucleus, showing the typical morphology of monocytes (E19 to P0). Occasionally, these cells displayed mitotic profiles. Additionally, round LFA-1a labeled cells were observed in the ventricular lumen and meningeal blood vessels (E17-E21). From day E19, nascent ameboid microglial cells expressed LFA-1a, this expression remaining until its final transformation into ramified microglia during the postnatal period. ICAM-1 immunolabeling was observed at the blood vessel endothelium mostly on day E19 and day E21. Moreover, ICAM-1 labeled blood vessels were found in the pia and choroid plexus in embyonic and postnatal life.

In conclusion, LFA-1a expression in immigrated monocytes correlates with ICAM-1 expression in the vascular network suggesting that the LFA-1/ICAM-1 system may contribute to the entry of microglial cell precursors into the developing brain.

Funded by Direcció General de Recerca (Generalitat de Catalunya) and DGICYT project PB92-0598.