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EVALUATION OF CELL PROLIFERATION IN EAR AND LYMPH NODE USING BRDU IMMUNOHISTOCHEMISTRY FOR MOUSE EAR SWELLING TEST

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A mouse ear swelling test (MEST) has been developed as an alternative to guinea pig models for contact sensitization potential. However, the MEST relies on a quantitative measurement of ear swelling as an endpoint by micrometer. In this study, we aimed to investigate the cell proliferation in ear and lymph node using Bromodeoxyuridine (BrdU) immunohistochemistry as a possible reliable marker for MEST. Female Balb/c mice were treated by the topical application of sensitizer, DNCB(2,4-dinitrochlorobenzene), TDI(Toluene diisocyanate), HCA(α -hexylcinnamaldehyde), and irritant SLS(Sodium lauryl sulfate) following the protocol of MEST. The proliferation of cells in ear and auricular lymph node were analyzed by Labelling index (LI) of BrdU incorporation into cells. There was an increase in BrdU LI of ear in mice treated with DNCB and TDI compared to vehicle control. However, there was not increase in cell proliferation of SLS. DNCB, HCA and TDI resulted in a significant increase in BrdU LI in auricular lymph node, compared to control, but SLS did not increase. We also observed a significant increase in ear swelling in DNCB, HCA and TDI, but not in SLS. These results suggest that the measurement of cell proliferation in auricular lymph node using BrdU immunohistochemistry could be one of the reliable marker for MEST.

keyword : MEST, BrdU immunohistochemistry, contact sensitization