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Non-radio isotopic endpoint for local lymph node assay in Balb/c mice using ELISA based on Bromdeoxyuridine incorporation

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A murine local lymph node assay (LLNA) has been developed as an alternative test to guinea pig maximization test. The disadvantage of LLNA is the need for the use of radioactive material. In this study, we aimed to investigate the development of non-radio isotopic endpoint for local lymph node assay in Balb/c mice using Enzyme-linked immunosorbent assay (ELISA) based on Bromodeoxyuridine (BrdU) incorporation. Female Balb/c mice were treated by the topical application on the dorsum of both ears with strong allergens,

2,4-dinitrochlorobenzene (DNCB), Oxazolone (OXZ), Toluene diisocyanate (TDI) and strong irritant, Sodium lauryl sulfate (SLS), once daily for three consecutives, respectively. The proliferation of cells in auricular lymph node was analyzed by labelling index (LI) of BrdU incorporation into cells. The weight of lymph node in the mice treated with allergens, DNCB, OXZ and TDI were increased compared to vehicle control. The Stimulation index (SI) of mice treated with DNCB, OXZ and TDI were over three-fold increase compared to that of the control. However, the SI of mice exposed to SLS was not significantly increased compared to vehicle control, althought the lymph node weigth of SLS was siginificantly increased. These results that the LLNA modified endpoint using ELISA based on BrdU incorportation could be one of the possible methods for screening for irritant and allergen.

Keyword : LLNA, ELISA, BrdU, allergen, irritant