

〈原 著〉

免疫毒性評価のための宿主抵抗性試験方法の検討

— *Listeria monocytogenes* 感染実験系を用いて —

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An Approach to Host Resistance Assays for Assessment of Chemical-induced Immunotoxicity

— An application of the *Listeria monocytogenes* challenge model —

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Abstract

It is known that the effects of certain environmental chemicals on the immune system are a potential risk for human health. Luster et al. have reported a screening battery involving a “tier” approach for detecting potential immunotoxic compounds in mice¹⁾. In this tiered approach, a host resistance assay using *Listeria monocytogenes* was described. We have tried to establish this *in vivo* assay method in our laboratories.

Five week old female BALB/c mice were subcutaneously dosed with diethylstilbestrol (DES), 12-0-tetradecanoylphorbol 13-acetate (TPA) or cyclophosphamide (CPA) for 5 days before being injected with *Listeria Monocytogenes* (strain Y1). Resistance to the bacterium was assessed by mortality. Mice exposed to DES had increased susceptibility to *Listeria* infection while those exposed to TPA or CPA had decreased susceptibility. Changes in the liver, a major site of replication, were observed even in surviving animals and could be another way of assessing resistance to the bacterium. The virulence of *Listeria monocytogenes* was not affected by freezing at -80°C for 6 months.

These results showed that the host resistance assay using *Listeria monocytogenes* strain Y1 could detect chemical-induced immunotoxicity in mice.

Key words: Immunotoxicity, host resistance, diethylstilbestrol, cyclophosphamide, 12-0-tetradecanoyl-phorbol 13-acetate