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Determination of lymphokine induced histamine release *in vitro*

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Lymphokines (LK) are produced following the interaction of sensitized lymphocytes with specific antigen and by virtue of the immunological circumstances of their generation and the nature of their action are considered to be mediators of cellular immunity (Dumonde, Wolstencroft, Panayi, Matthew, Morley & Howson, 1969).

It has been previously reported (Morley & Williams, 1972) that the early phase (0 to 30 min) of the LK mediated inflammatory skin reaction in the guinea pig is abolished by pretreatment of animals with mepyramine maleate. These observations suggest that histamine is involved in the early part of LK mediated inflammation, which is consistent with reports of histamine involvement in reactions of delayed hypersensitivity. The present work was undertaken to determine whether LK would release histamine from rat mast cells and/or guinea-pig skin slices *in vitro*.

Mixed peritoneal mast cells were harvested from male rats (250-300 g) as described by Johnson & Moran (1969) and incubated at 37°C for 15 min or more with partially purified LK preparations, compound 48/80 and melittin. The LK preparations, at doses up to 125 µg/ml, did not release detectable amounts of histamine from rat mast cells. However compound 48/80 and melittin produced a dose-dependent release of histamine: compound 48/80 (25 µg/ml)

released 85% of the total histamine and melittin (25 µg/ml) released 90% of total histamine.

Skin slices (1 mm thick) were prepared from guinea-pigs (300-350 g) using a hand microtome as described by Greaves, Fairley & Yamamoto (1971). The guinea-pig skin slices were incubated at 37°C for 15 min or more with LK preparations, melittin and compound 48/80. LK preparations produced a dose-dependent release of histamine: at a dose of 125 µg/ml, LK released 20% of the total histamine. By comparison, melittin (100 µg/ml) induced 50% of the histamine to be released while no detectable amounts of histamine were released with compound 48/80 (100 µg/ml).

The results show that LK preparations release histamine from guinea-pig skin slices but not from rat mast cells, whilst melittin produces histamine release in both systems. Compound 48/80 released histamine from rat mast cells but not from guinea-pig skin. These results suggest that more than one mechanism of histamine release may be involved.

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