

REFERENCES

- HARRIES, J. T. & SLADEN, G. E. (1972). *Cut* 13, 596-603.
- WEINER, I. M. & LACK, L. (1968). In *Handbook of Physiology*, sect. 6, vol. III, ch. 73, pp. 1439-1456, ed. CODE, C. F. American Physiological Society, Washington D.C.
- WINGATE, D. L. (1973). *J. Physiol.* 229, 43-44P.

Effects of sugars and diols on enzyme-potentiated hyposensitization

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β -Glucuronidase has been shown to cause hyposensitization when given with a small dose of antigen to patients suffering from asthma or rhinitis (McEwen, Ganderton, Wilson & Black, 1967). The enzyme also shows hyposensitizing activity in guinea-pigs, rats and mice (McEwen & Starr, 1972), but variability in the immunological effects of different samples of enzyme could not be correlated with differences in β -glucuronidase activity nor with differences in purity. This problem has been investigated using pinnal anaphylaxis in mice to assess the immunological

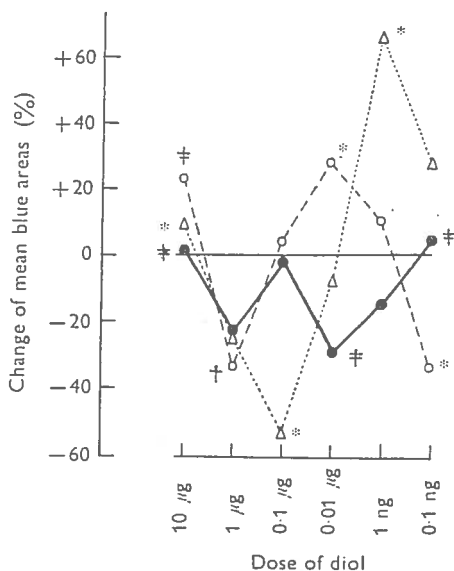


Fig. 1. Mouse pinnal anaphylaxis: groups of seven mice sensitized with 250 μ g horse serum. Treated after 3 weeks with 1 μ g horse serum + 10 u. β -glucuronidase + various doses of diols and challenged 8 days later. Results expressed as % of result after treatment with antigen + enzyme. ●—● Propylene glycol. ○---○ Propane 1,3-diol. △····△ Butane 1,3-diol. Significance: * $P < 0.001$; † $P < 0.01$; ‡ $P < 0.05$.

effect of a small second dose of horse serum with or without enzyme given 7 days before challenge. It was found that glucose and other pyranose derivatives added to the enzyme/antigen mixture 1 hr before injection determined the immunological effect. This action was shared by propylene glycol but propane 1,3-diol was found to have similar effects at greater dilution (see Fig. 1). Butane 1,3-diol was even more active, while butane 1,4-diol was less so, and pentane 1,5-diol had no significant effect.

The dose-response curves for both sugars and diols were W-shaped: two doses caused hyposensitization while an intermediate dose had little effect or induced hypersensitization. Hypersensitization might also result from a dose of sugar or diol less than that required to produce the low dose zone of hyposensitization.

REFERENCES

- McEWEN, L. M., GANDERTON, M. A., WILSON, C. W. M. & BLACK, J. H. D. (1967). *Br. Med. J.* ii, 507-508.
- McEWEN, L. M. & STARR, M. S. (1972). *Int. Archs Allergy appl. Immun.* 42, 152-158.