A lectin in *Nemopanthus mucronatus* to papain treated porcine erythrocytes

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Summary. Extracts of the mountain holly, *Nemopanthus mucronatus*, contained an agglutinin to papain treated porcine erythrocytes but not untreated or neuraminidase treated cells. Human erythrocytes similarly treated did not react.

Plant agglutinins or lectins have been used to determine human and animal blood group factors[1,2], to differentiate various species of animals[3] and to examine the structure of the red cell[1,4]. Several new lectins reacting with receptor sites uncovered by the action of enzymes have expanded the tools available to probe the sub-surface geometry of cells[5–8].

A lectin was found in the dried fruit of the mountain holly, *Nemopanthus mucronatus*, which agglutinated papain treated porcine erythrocytes to a titer of $^1/_{16}$ but which did not agglutinate untreated or neuraminidase treated cells. Human erythrocytes of various ABO(H), MN and RH–Hr phenotypes did not react if similarly treated.

The lectin from the mountain holly appears to react with a sub-surface antigen on the porcine erythrocyte which is not unblocked by the release of sialic acid through neuraminidase treatment but which is unblocked by the proteolytic effect of papain treatment.

This behavior indicates that the receptor site for the lectin is not at the periphery of the cell membrane since the reduction of the zeta potential by neuraminidase would have a greater effect on sites closer to the periphery of the cell than those buried deeper. The lectin becomes effective only after the removal of sterically hindering proteins on the cell membrane by a proteolytic enzyme. A similar reactivity has been noted between the *Amaranthus caudatus* lectin and bovine erythrocytes[6].

The receptor site for the lectin is also different from the T antigen found in many animal species[6] and inhibition experiments with simple sugars indicate a glucose-like specificity.

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Effects of various hormones and adrenalectomy on the levels of amylase in rat pancreas and parotid gland[1]

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Summary. Dexamethasone, adrenocorticotropic hormone and thyroxine increased the amylase activities in both the pancreas and the parotid gland of infant rats. After adrenalectomy, the amylase activities of the pancreas and parotid gland were about half the control levels, suggesting that both glucocorticoid and thyroxine are involved in maintaining the amylase activities in these organs.

Administration of glucocorticoid to immature rats is known to include increase in the levels of pancreatic amylase or chymotrypsin from the immature to the mature level[2–4]. However, the abilities of hormones other than glucocorticoid to cause premature induction of pancreatic or parotid amylase in rats, and the effects of the absence of glucocorticoids on this enzyme are unknown.

Materials and methods. Donryu-strain rats were used. Hormones were injected s.c. on days 6, 7 and 8 after birth. Amylase activities in the pancreas and parotid gland were assayed on days 8, 10, 13 and/or 16 after birth. The doses of hormones injected per g b.wt per day were as follows: dexamethasone, 0.1 μg; testosterone propionate, 10 μg; adrenocorticotropic hormone (ACTH), 80 mU; growth hormone, 10 μg; L-thyroxine, 10 μg; insulin, 2 mU; and glucagon, 10 μg. Adrenalectomy was performed by the posterior approach in immature rats (day 14 after birth) (experiment 1) and young adult rats (day 40 after birth) (experiment 2)[5]. The amylase activities in the pancreas and parotid gland and the serum corticosterone level were assayed 4 and 12 days after adrenalectomy. Amylase activity was assayed as described by Ceska et al.[6] and expressed as μmoles of maltose hydrolized per min at 37 °C. Serum corticosterone was assayed by competitive binding radioassay as described by Murphy[7].

Results and discussion. After injection of ACTH or dexamethasone rats showed less increase in b.wt than control rats and, after injection of growth hormone, rats

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