Prolongation of the duration of survival of skin allografts and facilitation of the growth of tumour allografts in mice treated with various bat ches of normal rabbit serum (NRS) and antilymphocyte serum (ALS)

No.	Serum	Mean survival time of skin allografts in days (MST)	Percentage increase in MST (P)	Tumour diameter on day 14 1/16th inch units (D)	Activity [c]
NRS 1	NRS	14.6 [a]	0.0	3.3 ± 0.2 [d]	—
ALS 1	R33	26.0 [a]	78.0	12.0 ± 1.0	+
ALS 2	IRS 280	14.5 [a]	−0.7	2.4 ± 0.2	—
ALS 3	IRS 49	13.5 [a]	−7.5	3.0 ± 0.5	—
ALS 4	R55	17.0 [a]	16.4	5.6 ± 1.2	+
ALS 5	IRS 28/29	23.0 [a]	57.5	7.8 ± 2.2	+
ALS 6	R53	13.5 [a]	−7.5	2.2 ± 0.2	—
ALS 7	IRS 24	19.0 [a]	30.1	8.0 ± 1.5	+
ALS 8	IRS 282	14.5 [a]	−0.7	2.4 ± 0.2	—
NRS 2	NRS	10.8 [b]	0.0	3.0 ± 0.3	—
ALS 9	ALS 1	12.8 [b]	15.3	6.2 ± 0.7	+
ALS 10	ALG	11.6 [b]	4.5	3.2 ± 0.5	—
ALS 11	NRG	11.2 [b]	0.9	2.8 ± 0.2	—
ALS 12	ALS II	15.9 [b]	43.3	8.4 ± 0.6	+

[a] B. BRADLEY[21]; [b] D. ARKELL[22]; [c] Activity +, active; −, inactive; [d] Standard errors.

Discussion. It has previously been shown that the primary and secondary responses to tumour allografts can be suppressed by treating mice with ALS[14]. Further samples of ALS have now been examined and it has been demonstrated that these vary in their ability to suppress the primary response to tumour allografts. A good relationship has been found between the mean diameter of tumour allografts on the 14th day after implantation and the corresponding percentage mean increase in the survival times of skin allografts. The diameter of tumour allografts on the 14th day is unlikely ever to be very much greater than 12.5 (1/16 inch units) for this model, a limitation being imposed by the maximum growth rate of the tumour. Thus it would not be possible, without dilution, to differentiate sera with:

$$P > \frac{12.5 - 3.21}{0.11} = 85\% \text{ (equation 1).}$$

For all the sera tested $P < 85\%$ although sera which suppress the rejection of skin allografts for periods in excess of 30 days i.e. P between 100% and 250%, have been reported[2,3].

The model which has been investigated serves as a most effective amplifying system for differentiating the immunosuppressive potency of different batches of ALS. For the weakest serum tested the mean survival time of skin allografts was prolonged by 16% whereas the volume of tumour allografts was increased by 388% on the 14th day after implantation.

The measurement of the growth of tumour allografts for screening antilymphocyte sera offers several advantages. Sera can be screened using small groups of animals and only small quantities of serum are required. Active sera can be selected within 2 weeks using extremely simple techniques[23].

Zusammenfassung. Die Wirkung von Kaninchen-anti-Maus-Lymphozytenserum auf das Wachstum von Tumorallotransplantaten kann in kleineren Tiergruppen leicht bestimmt werden, indem man das immunosuppressive Potential verschiedener Serumsätze prüft. Ein gutes Verhältnis zwischen dem durchschnittlichen Durchmesser von Tumortransplantaten am 14. Tag nach dem Implantat und die entsprechende, durchschnittliche, prozentuale Zunahme der Überlebenszeit der Hauttransplantate wird demonstriert.

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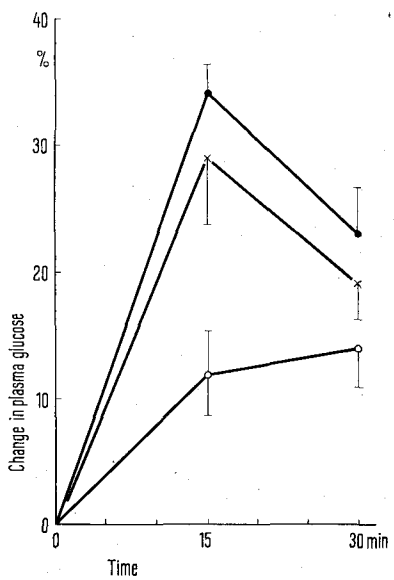
The Restoration of the Glycaemic Response to Adrenaline in the Bursectomized Fowl

The importance of the bursa of Fabricius, a lymphoepithelial gland unique to the class Aves, in conferring immunological competence is now well-known[1]. It has also been shown that the bursa influences other systems including modification of the ascorbic acid depletion response of the adrenal glands[2,3], the uptake of iodine by the thyroid glands[4], the activity of xanthine oxidase[5], cytochrome oxidase[5] and the glycogenolytic mechanism of the liver[6], the activity of xanthine oxidase of the kidney[5] and the erythrocyte count and mean corpuscular haemoglobin concentration[7].

Following the demonstration that the glycaemic response of the bursectomized fowl (*Gallus domesticus*) to adrenaline is reduced by one half[6], attempts have been made to restore the responsiveness of the bursectomized bird by treatment with plasma taken from normal intact birds.

The chicks were bursectomized surgically[8] at one day of age, the bursal stalk being cauterized to prevent regeneration[9]. One half of the bursectomized group was injected with plasma prepared from normal, intact 3-week-old chickens. Blood was obtained by a frontal heart puncture technique, the syringe having previously been wetted with a solution of heparin in order to prevent coagulation. The sample was immediately centrifuged at 4 °C, the plasma collected and injected into the recipient bird. The whole procedure took about 15 min. Each donor bird was bled *once only*: the bursa is particularly sensitive to stresses, responding by regression[1] which might therefore have adversely affected the concentration of any humoral agent secreted by it. Each chick received 1.5 ml plasma intraperitoneally twice weekly beginning on the day following the operation. At 3 weeks of age the treated, bursectomized birds, the untreated bursectomized birds and normal intact birds were given L-adrenaline (300 mg/kg i.p.) and plasma glucose levels determined 0, 15 and 30 min after injection.



The percentage change in plasma glucose following stimulation with adrenaline (300 µg/kg i.p.). Each point is the mean of 10 observations; the standard errors are indicated. ●, treated, bursectomized; X, normal; ○, bursectomized.

The results are summarized in the Figure. It will be noted that whereas the untreated bursectomized birds showed a markedly reduced hyperglycaemia as compared with the normal, intact birds, the treated bursectomized birds showed not only a restored response but a slightly enhanced one.

These results are consistent with the hypothesis that a humoral factor was present in the plasma of the normal bird that was absent from the bursectomized bird and that this factor was responsible for enhancing the activity of the glycogenolytic mechanism.

It has been claimed, on the basis of the restoration of immunological activity by bursal implants[10] and extracts[11], that the bursa of Fabricius should be considered an endocrine gland. The findings described in this report support this view.

Résumé. Des poussins boursectomisés traités avec du plasma de poussins intacts ne subissent pas de perte de réponse glycémique à l'insuline, mesurée d'après les changements de niveaux du glucose dans le plasma sanguin. Il est suggéré que les résultats sont compatibles avec l'hypothèse selon laquelle la bourse de Fabricius est une glande endocrine.

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Effects of 2-Br-α-Ergokryptine on Plasma Prolactin Level During Parturition and Onset of Lactation in Cows

The prolactin inhibitor 2-Br-α-ergokryptine was shown to have an inhibitory effect on lactation in rats[1], rabbits and pigs[2] by measuring the weight gain of litters as criterion for the milk production of treated mothers.

In a series of experiments concerning the effects of the ergot alkaloid 2-Br-α-ergokryptine-methane-sulfonate (CB 154) on plasma prolactin level and milk yield in cows, we could demonstrate a depression of prolactin to a very low basic level during lactation: contrary to the drastic decrease of prolactin, the milk yield remained unchanged or dropped only slightly (about 15%)[3]. We concluded that prolactin in the bovine is not a major factor for the maintenance of lactation (galactopoiesis). One preliminary observation reported in this first communication suggested that the inhibitory action of CB 154 may have a stronger effect on the onset of lactation. In the present paper we studied the effect of CB 154, administered around parturition, on prolactin level and milk yield in cows; these experiments were motivated by the fact that the most distinct prolactin elevation occurs shortly before parturition in cattle[4–6].

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