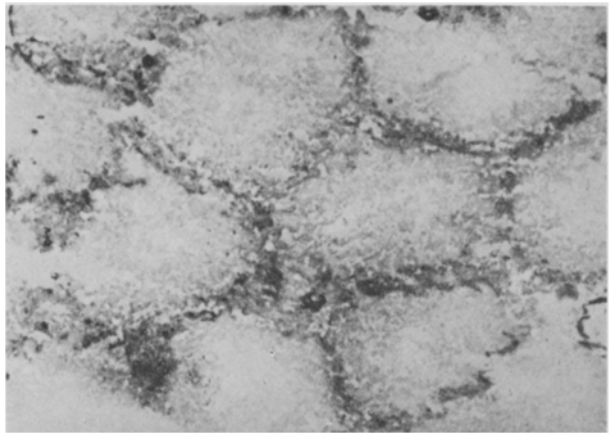

Fig. 1. Enzyme reaction of inactive phosphorylase appears as fine granules within the seminiferous tubule. Stronger positivity is visible in close proximity to the tubular wall and in the interstitium. ×140.

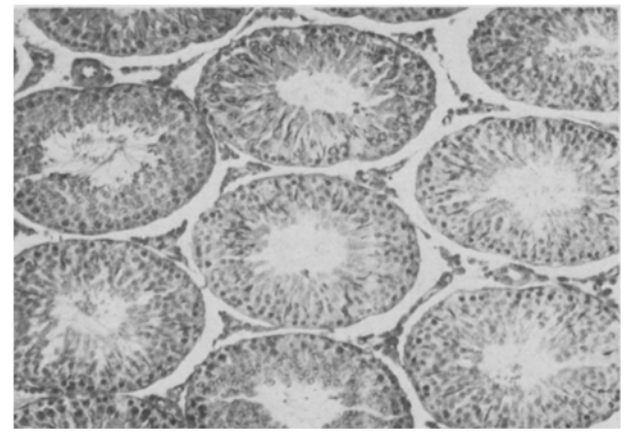

Fig. 2. Histological pattern of the same specimen. Hopa staining. ×140.

possible the histochemical demonstration of phosphorylase in those tissues, such as adult rat testis, which have a low content of glucosoyl-acceptor glycogen[14–17].

It is of interest to note, in contrast to normal human testis, that inactive phosphorylase is more abundant than the active form[13]. This difference may be due to the fact that the very low amount of glycogen and active phosphorylase is related to the cycle of rat spermatogenesis. In consequence of the short duration of the cycle[18], it is possible that metabolic processes are more rapid and so rapid synthesis of the glycogen triggers off immediate activation of the phosphorylase which in turn releases the energy needed in the metabolic processes of spermatogenesis.

Riassunto. Per la scarsa quantità di glicogeno presente nel testicolo di ratto adulto, non é possibile dimostrare istochimicamente la fosforilasi. Gli Autori affermano che solo con l'uso del destrano é possibile mettere in evidenza questo enzima. Viene inoltre ipotizzato una relazione fra glicogeno, fosforilasi e spermatogenesi nel testicolo di ratto adulto.

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Suppression of Cellular Immunity in vivo by Rifampicin

Several observations indicate an immunosuppressive action of rifampicin[1–4]. Also, a prophylactic activity against adjuvant arthritis in rats has been described[5]. In the light of recent reports on the possible consequences of chronic immunosuppression[6,7], such an influence may have practical implications. Therefore, I wish to communicate the effect of rifampicin on two manifestations of cellular immunity.

First, it was investigated whether the drug prolongs skin allograft survival in mice. Male C3H mice were grafted with BALB/c tail skin and treated daily from the day of transplantation with either 30 or 100 mg/kg of rifampicin (Rimactan®) orally. The control grafts (8 mice) displayed a survival time of 10.5 ± 0.9 (S.D.) days, while with 30 mg/kg/day, the grafts survived for 9.9 ± 1.0 days (10 mice) and with 100 mg/kg/day for 12.4 ± 1.9 days (6 mice; $p < 0.02$). However, the latter dose was tolerated badly and caused the death of 4 out of 10 mice within 1 week and had therefore to be reduced to 30 mg/kg/day.

Another manifestation of in vivo cellular immunity, tuberculin hypersensitivity, was also tested. Albino guinea-pigs were immunized with living lyophilized BCG vaccine[8] and challenged 4 weeks later with 750 IU tuberculin intracutaneously. The ensuing reaction was assessed by measuring the thickness of the skin fold over the reaction site[8]. In a group of 6 guinea-pigs treated with a single dose of rifampicin (30 mg/kg) applied orally 30 min before the antigenic challenge, the reaction intensity was reduced compared with the controls at 24 h by 69% ($p < 0.01$) and at 48 h by 87% ($p < 0.001$).

Thus, rifampicin slightly depresses transplantation immunity, but this effect is of doubtful practical importance, since it occurs only with dosages approaching the

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LD_{50}. However, the suppression of tuberculin hypersensitivity with a well tolerated dose of rifampicin seems more significant. It demonstrates the efficacy of a single dose applied with the antigenic challenge and confirms the in vivo immunosuppressive action of this antibacterial agent.

In passing, another recently discovered effect of rifampicin might be mentioned, namely its marked antagonism to the toxic octapeptide phalloidin isolated from the poisonous mushroom *Amanita phalloides*[9].

Note added in proof. Depression of tuberculin sensitivity in guinea-pigs by chronic application of rifampicin (40 mg/kg for 30 days) has been reported by G. ALGEORGE and DORINA RUDESCU (Z. Immunforsch. exp. Ther *144*, 459, 1973).

Zusammenfassung. Rifampicin hemmte die Tuberkulinreaktion bei Meerschweinchen. Eine andere Manifestation zellulärer Immunität, die Abstossung von Hautallotransplantaten bei Mäusen, wurde erst bei Anwendung toxischer Dosen des Tuberkulostatikums vermindert.

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Studies on Phytohemagglutinins XV. Hemagglutinins of the Pea and the Lentil: Advantage of their Application in Comparison to Concanavalin A in some Agglutination Reactions

The exponentially increasing interest in the use of concanavalin A in studies of various biological systems, and some observations that the physico-chemically well characterized pea and lentil hemagglutinins can match or surpass concanavalin A in most of its applications[1–3], initiated the present comparative study. The aim was (1) to compare the agglutinating activity of the 3 phytohemagglutinins against various animal erythrocytes and (2) to supply basic characterization of the structural requirements of the carbohydrate-binding sites of these phytohemagglutinins under identical conditions.

Materials and methods. For our studies concanavalin A was prepared by the Sephadex adsorption procedure from the jack bean meal as described by AGRAWAL and GOLDSTEIN[4]. The pea and lentil hemagglutinins were prepared by the procedure described in our previous papers[5,6]. All the 3 phytohemagglutinins have similar molecular weights[5–7]. The hemagglutinating activity as well as the inhibitory activity of saccharides were determined by the methods referred to by TOBIŠKA[8].

For the comparison of the inhibitory activity of sugars, and the glycopeptide receptor from human erythrocytes (designated in the original paper as glycopeptide I.3[9], rabbit and dog red blood cells were used; all of them were agglutinated by all the 3 tested phytohemagglutinins. In the case of dog red blood cells, the hemagglutinin concentration was 4 times higher than the highest dilution at which hemagglutination was observed. With rabbit red blood cells, the highest dilution of the hemagglutinin solution which produced hemagglutination had to be used to find a perceptible inhibition by sugars.

Results and discussion. Results of the first part of the study are summarized in Table I. It can be seen that the pea and the lentil hemagglutinins show in all the agglutination reactions higher activity than concanavalin A, but differ in specificity towards erythrocytes of different

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Table I. Hemagglutinating activity of concanavalin A, pea and lentil hemagglutinins against erythrocytes of different origin

Species	Activity (titer)[a]		
	pea PHA[b]	lentil PHA[b]	concanavalin A
Dog (*Canis familiaris*)	1024	1024	512
Chicken (*Gallus domest.*)	256	256	64
Domestic pig (*Sus scroja domest.*)	2048	2048	8
Domestic goat (*Capra hircus*)	0	0	0
Cow (*Bos taurus domest.*)	0	0	0
Mouse (*Mus musculus*)	2048	4096	256
Rat (*Rattus norvegicus*)	2048	2048	64
Guinea pig (*Cavia porcellus*)	8192	4096	1024
Squirrel (*Sciurus vulgaris*)	32768	32768	1024
Rabbit I	65536	65536	1024
Rabbit II (*Oryctolagus cuniculus f. domest.*)	4096	4096	128
Vervet monkey (*Cercopithecus callitrichus*)	8192	16384	256
Man (*Homo sapiens*)	512	512	0
Frog (*Rana temporaria*)	2048	4096	64

[a] Titer of 1% phytohemagglutinin solution. [b] PHA, phytohemagglutinin.