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Skin Sensitivity and Antibody Production upon Administration of Normal and Immune Serum in Rabbits.

LLOYD R. JONES. (Introduced by M. S. Fleisher.)

From the Department of Bacteriology and Hygiene, St. Louis University School of Medicine.

In studies upon the antibody response in human subjects following administration of serum, Tuft and Ramsdell[1, 2] have noted that normal serum is weakly antigenic and immune serum highly antigenic, as indicated in tests made for precipitins, skin sensitivity, anaphylactic antibodies and transferable human and guinea pig skin sensitizing antibodies. Administration of normal horse serum was followed by serum sickness however, identical in its clinical characteristics and about as frequently as was produced by the injection of immune serum.

Since it is possible to produce in the rabbit, upon injection of a single large dose of normal or immune serum, a condition closely resembling or identical with serum sickness in man,[3] an attempt was made to compare the antigenicity (as measured by precipitin response and appearance of skin sensitivity) of normal horse serum with that of immune serum, as produced by a single subscapular injection in this species. Three animals were injected with pooled normal horse serum, 5 with the pseudoglobulin fraction of this normal horse serum, 3 with immune serum (collected from the same horses after immunization with diphtheria toxin and containing 1700 units of diphtheria antitoxin per cc.) and 5 with the pseudoglobulin fraction derived from this immune serum. Serum sickness occurred only in some of the animals receiving 75 mg. or more of serum nitrogen per kilo of body weight, and with about the same incidence and severity in those receiving normal serum as in those receiving immune serum. Skin sensitivity and precipitin production resulting from these injections are given in Table I. Skin tests were made by intradermal injection of 0.1 cc. amounts of various dilutions of normal and immune sera or the pseudoglobulin fractions of these sera in the cases of those animals receiving a single large dose of pseudoglobulin fraction. Tests were made for precipitin content of rabbit serum against

[1] Tuft, L., and Ramsdell, S. G., *J. Immunol.*, 1929, **16**, 411.

[2] Tuft, L., and Ramsdell, S. G., *J. Exp. Med.*, 1929, **50**, 431.

[3] Fleisher, Moyer S., and Jones, Lloyd, *J. Immunol.*, 1933, **24**, 369.

TABLE I.

Rabbit No.	Horse Serum	Mg. serum N. inj. per kilo. body wt.	Highest dilution of serum or serum fraction giving positive skin reaction in 0.1 cc. amount		Days after inj.	Precipitin titre of rabbit serum for horse serum or fractions		Days after inj.
			Normal	Immune		Normal	Immune	
3	Whole Normal	100	100	100	30	10,240	10,240	9
4	Whole Immune	100	100	100	30	5,120	10,240	9
5	Whole Normal	100	1000	1000	24	10,240	10,240	12
6	Whole Immune	100	1000	1000	24	10,240	10,240	12
1	Whole Normal	50	100	100	30	10,240	10,240	12
2	Whole Immune	50	100	100	30	20,480	20,480	12
7	Pseudoglob. Normal	100	100	100	13	20,480	20,480	10
8	Pseudoglob. Immune	100	100	100	13	20,480	20,480	10
9	Pseudoglob. Normal	75	100	100	14	10,240	10,240	10
10	Pseudoglob. Immune	75	100	100	14	10,240	10,240	10
11	Pseudoglob. Normal	75	100	100	17	20,480	20,480	11
12	Pseudoglob. Immune	75	100	500	17	10,240	10,240	11
17	Pseudoglob. Normal	5	100	100	20	10,240	10,240	11
14	Pseudoglob. Immune	5	100	100	17	10,240	10,240	9
15	Pseudoglob. Normal	5	100	100	20	10,240	10,240	11
16	Pseudoglob. Immune	5	100	100	20	10,240	20,480	11

normal and immune horse sera, or their pseudoglobulin fractions in those cases where the animals received a single large dose of pseudoglobulin.

The results indicate that under these conditions skin sensitivity and precipitin production occur in the rabbit and to practically the same extent whether normal or immune serum is used as the antigen.