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Male Skin Isograft Survival in Pregnant and Multiparous Female Mice.* (26375)

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Breyere and Barrett have demonstrated that multiparous female mice of the BALB/cAn strain which had borne litters of strain DBA/2 males became tolerant of a transplanted sarcoma originated in DBA/2 strain mice(1). Recently Prehn(2) demonstrated that female mice of the C57Bl/An strain parous by repeated matings to littermate males accepted male skin isografts in high proportion of cases. Furthermore, the incidence of tolerance of male graft was proportional to the number of litters borne by the female recipient. Thus, while 60% of the females having 1-3 litters were tolerant of male skin isografts, 90% of those having 4-6 litters were also tolerant and accepted male skin isografts.

In the experiments reported herein studies were undertaken to determine male skin isograft survival in multiparous female mice of the C57Bl (Subline 1)§ strain. Female mice of this strain regularly reject skin grafts taken from isologous males although the antigenic disparity between donor and recipient is rather weak allowing induction of tolerance in the females to male skin graft by exposure to the male antigen during the neonatal period as well as during adult life(3,4).

The experiment was carried out as follows: Female breeder mice in the C57Bl (Subline 1) inbred colony were separated from the breeder boxes after they had borne 2-6 litters (average 3.5). One group of 16 animals received a full-thickness skin graft (1.5 × 2.0 cm in size) taken from isologous males. Grafting was performed at midpregnancy (12-14 days after fertile mating). Another group of 11 mice received the male skin graft 9-16 days after delivery of last litter. A third group of 9 mice received the male skin graft 43-105 days after delivery of last litter. Finally, a fourth group consisted of 19 virgin controls receiving male skin isografts.

The technic of skin grafting as well as the criteria used to judge the success or failure of the graft were the same as previously described(5). Mice were singly housed in plastic boxes and fed Laboratory chow and tap water.

The results are listed in the Table. There was only a slight increase in male graft acceptance in the females receiving the transplant either during pregnancy or 9-16 days after delivery as compared to the virgin control group. However this difference is not statistically significant. In addition, no significant differences in rejection time of the

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§ Mice of this strain were separated from Dr. J. J. Bittner's mouse colony in 1956 and maintained in our laboratory by rigorous inbreeding.

TABLE I. Survival of Male Skin Isografts in Pregnant and Parous Female Mice of C57Bl (Subline 1) Strain.

Group	No. of mice	No. of previous pregnancies (mean)	Time of grafting	No. and (%) of female mice accepting male skin grafts
I	16	3.6	Mid-preg.	5/16 (27.5)
II	11	3.5	9-16 days after deliv.	3/11 (27)
III	9	3.4	43-105 days after deliv.	2/9 (22)
IV	19	0	—	4/19 (21)

grafts were observed, this being approximately 8 to 12 days in all groups.

It seems, therefore, that multiparous mice of the C57Bl (Subline 1) do not show a significant increase in male isograft acceptance when compared to virgin controls. Our results seem in conflict with those recently reported by Prehn. However, this could be perhaps explained on the basis of a different genetic make up of our C57Bl (Subline 1) strain mice as compared to those of the C57 Bl/An which Prehn has used.

Summary. Experiments were undertaken to determine male skin isograft survival in multiparous female mice of the C57Bl (Subline 1) strain, as compared to virgin controls. No significant difference in male isograft acceptance was found in multiparous mice as compared to that in virgins.

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Alteration of Susceptibility of Embryonated Eggs to Newcastle Disease Virus by *Escherichia coli* and Endotoxin. (26376)

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It was recently demonstrated(1) that infection with *Escherichia coli* markedly increased resistance of chick embryos to subsequent challenge with *Vibrio cholerae*. Resistance could also be stimulated by inoculation of killed *E. coli* cells or endotoxin preparations prior to challenge. Thus, it seems apparent that the chick embryo is capable of a response to endotoxin, similar to that described in mature animals(2,3), which results in an enhanced non-specific resistance to bacterial infection. It is of obvious importance, then, to determine whether this enhanced resistance extends to virus infection as well. Newcastle disease virus was selected as the agent for test since it is stable and lethal for chick embryos in low dosage, infection can readily be proven by hemagglutination, and it has been reported on a number of occasions(4) to be inhibited by host serum factors which may play roles in natural resistance.

Materials and methods. Antibiotic-free, pullorum clean White Leghorn chick embryos were used. Eggs from a single flock were delivered at a specified age, usually 10 days, and were incubated on arrival with the air sac end up at a slight angle on racks in a humidified egg incubator at 36-37°C. Methodology was similar to the previous study(1). Embryos were challenged allantoically with 0.1 ml of virus dilution on day 13 through a small hole punched in the shell. At least 15 eggs were used per group within an experiment. Viability of embryos was determined by candling using criteria of well defined blood vessels and embryonic movement. *Escherichia coli* strain 9, serotype 0111:B4, and