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STUDY OF THE DETECTION AND CHANGES
IN THE EXPRESSION OF EARLY PREGNANCY FACTOR ACTIVITY IN MICE

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The rosette inhibition test was developed for the detection of early pregnancy factor (EPF) in mouse strain ddY. First, the optimal conditions for the assay were investigated. Second, the effects of superovulation treatments on the changes of EPF during pregnancy were examined. The time when EPF appeared in the maternal peripheral blood in relation to the stage of fertilization was also investigated.

The mean rosette inhibition titres (RITs) of pregnant ddY mouse sera (4.8) were found to be significantly higher than those of nonpregnant ddY mouse sera (2.0; $p < 0.01$), when spleen cells from mice of strain C3H/He, anti-mouse Lyt-1.1 monoclonal antibody and human complement at a dilution of 1:50 were used. Hence, EPF in mouse strain ddY could be detected using the procedure described above.

Serum RITs of all nonpregnant or pseudopregnant mice which were known to be EPF negative were 3 and below; thus, EPF negative ranges were considered to be 3 and below.

Serum RITs of naturally mated and superovulated pregnant mice were measured from day 2 of pregnancy up to 4 days after parturition. There was an increase in the RITs of both the naturally mated and superovulated mice on day 2 of pregnancy which persisted at high levels until day 15. Thereafter, the RITs decreased to the EPF negative range. Mean RITs of naturally mated and superovulated pregnant mice from day 2 to day 15 were 4.1 and 4.4, respectively. However, no significant difference was observed. Hence, the superovulatory treatments did not effect the RITs.

Results of measurements of serum RITs and examination of fertilized ova from the time of fertilization indicated that the mean RITs of mice with pronuclei and cleavage stage ova were significantly higher than those of mice with unfertilized and sperm-penetrated ova (mean RITs=3.6, 4.2, 2.0 and 2.2, respectively; $p < 0.01$). It was thought that EPF appeared in the maternal peripheral blood at the pronuclei stage.