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STUDIES ON PURIFICATION OF PORCINE α -FETOPROTEIN, AND
SPECIFIC CHARACTERISTICS OF SERUM PROTEIN
IN PIGLETS OF SUCKLING STAGE

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For the study of immunodeficiency and immaturity in neonatal piglets, the serum levels of albumin, IgM, IgG and total serum protein of animals aged from newborn to 5 weeks old were examined. In addition to these investigations, α -fetoprotein (AFP) was purified from the sera of newborn piglets, rabbit anti-AFP serum was prepared and then the serum level of the substance was observed in piglets at various stages of suckling. The results were summarized as follows :

1. The molecular weights of purified porcine AFP were 81,000 (gel filtration) and 75,000 (SDS-PAGE), respectively. The isoelectric point of the substance was 4.85 at 0°C. It was demonstrated electrophoretically and immunologically that the AFP was remarkably pure.

2. The maximum mean value (1.1 mg/ml) of AFP was observed in the piglets of 3 to 4 days old, and the level was gradually decreased with the progress of aging. From these results, it was inferred that neonatal piglets should be in the fetal stage in order to measure the serum level of AFP.

3. Relatively high levels of IgM and IgG in the sera, collected soon after the parturition, from one of the two littermates employed were observed in spite of the fact that the piglets had had no ingestion of colostrum. However, it was difficult to determine the origin of the IgM and IgG in the present study. Igs, which is produced in the placenta, might permeated into the amniotic fluid and then be absorbed by the fetus from the gastrointestinal tract, as suggested in an earlier report by Yabiki & Namioka (1976).