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PROSTAGLANDIN E₂ SYNTHESSES BY PERITONEAL MACROPHAGES
DERIVED FROM SUCKLING PIGLETS

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It is well known that suckling piglets are immunodeficient because of the poor differentiation of B lymphocytes into antibody-forming cells. T lymphocytes of piglets of this age possess a suppressor function, which may be one of the major reasons for the immunodeficiency found in this stage. The present study was initiated to investigate the production of PGE₂ by macrophages in adult and suckling piglets, since this activity is considered to play an important role in immunosuppression in suckling piglets. Cells in peritoneal exudate were harvested 4 days after intraperitoneal injection of 2.4% thioglycollate medium by peritoneal lavage, the adherent cells isolated were incubated 18 hours with ¹⁴C-arachidonic acid and the production of PGE₂ during the incubating period was measured. The results of the experiments are summarized as follows.

(1) PGE₂ production by macrophages derived from four adult pigs employed in this study revealed the same trend. PGE₂ production by macrophages from adult pigs was proportional to the cell count of macrophages *i. e.*, under 50 μg of protein amount, while the production decreased over 50 μg of protein amount.

(2) PGE₂ production by macrophages from suckling piglets varied according to age and individual differentiation, a large increase in PGE₂ production was seen at 1 to 2 weeks of age, while it decreased from 2 to 3 weeks, and then increased gradually by 4 and 5 weeks.

(3) Macrophages from suckling piglets produced less PGE₂ than those from adult pigs, but no significant difference was noted in either group.

Since the PGE₂ syntheses by peritoneal macrophages were unsteady, the mechanism of PGE₂ production by macrophages and its role in immunosuppression in suckling piglets remain unclear. Further studies are needed to clarify the relationship between macrophages and lymphocytes and their effect on the immunodeficiency state of suckling piglets.