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Title	IMMUNOPOTENTIATION IN SUCKLING PIGLETS BY ORAL ADMINISTRATION OF PEPTIDOGLYCAN (PG) DERIVED FROM BIFIDOBACTERIUM THERMOPHILUM
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**IMMUNOPOTENTIATION IN SUCKLING PIGLETS BY ORAL  
ADMINISTRATION OF PEPTIDOGLYCAN(PG) DERIVED  
FROM *BIFIDOBACTERIUM THERMOPHILUM***

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It has been shown that the cell wall peptidoglycan (PG) possesses a non-specific immunopotentiating effect on animals. In the present study, neonatal piglets were orally administered PG which had been prepared from *Bifidobacterium thermophilum* obtained primarily from the pig large intestine to determine its immunological effect on the piglets. The investigation was conducted at two farms, i. e., at Y farm with a low incidence of pig scour, and at H farm with a high incidence of it. During a four-week experimental period, measurements were made of the serum IgG level, the number of *Escherichia coli* in the small intestine, the serum hemagglutination antibody (HA) titer to a certain *E. coli* which was most predominantly found in the pig small intestine, and the number of IgA-bearing cells in the lamina propria of the small intestinal mucosa. In addition, the effect of PG on the incidence of pig scour was examined at H farm on the suspicion that the immunoresponse immaturity of the neonatal piglets might be related to the occurrence of pig scour.

The results showed that there was little difference in the serum IgG level between the PG-treated group and the control group of both farms. The serum HA titer in the PG-treated group at H farm, however, increased significantly in four-week-old piglets as compared to that in the control group ( $p < 0.001$ ). A smaller number of *E. coli* in the small intestine was found in the PG-treated group than in the control group of both farms. In the Y farm piglets, the IgA-bearing cell counts in the intestinal mucosa tended to increase in the PG-treated group as compared to those in the control group. The mean incidence of pig scour in the H farm piglets administered PG was 31.8 %, whereas that in the control group was 60.9 % ( $p < 0.05$ ).

These findings indicated that the local immunopotentiality in the small intestine was induced by the oral administration of PG, which suggested that it was causally related to the suppressive effect of PG on the pig scour.