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MATURATION OF DIFFERENTIATION ABILITY OF B LYMPHOCYTES AND SUPPRESSOR ACTIVITY OF T LYMPHOCYTES FROM NEONATAL AND SUCKLING PIGLETS IN THE POKEWEED MITOGEN SYSTEM

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The functional capacity of porcine neonatal T and B lymphocytes has been investigated by *in vitro* methods using T lymphocyte-dependent polyclonal B lymphocyte activators of the pokeweed mitogen (PWM) system. B cell activation of single cells was detected by class specific immunoglobulin (Ig) secretion using a Protein A hemolytic plaque assay.

Only a few peripheral blood lymphocytes (PBL) from colostrum-deprived newborn piglets were differentiated into Ig-producing cells *in vitro* by PWM-stimulation. Newborn PBL suppressed differentiation of adult PBL into Ig-producing cells in the PWM system, and this suppressive effect of newborn PBL was found to exist in a T-cell enriched population. The suppressing activity of newborn T lymphocytes was dose dependent to some extent, and it appeared to be equally effective on the generation of Ig-producing cells of IgG and IgM. To evaluate the ability of newborn B lymphocytes to become differentiated into Ig-producing cells, newborn B lymphocytes were co-cultured with T lymphocytes from newborn piglets and from adult pigs in the PWM system. The addition of adult T lymphocytes enhanced differentiation of newborn B lymphocytes into Ig-producing cells of IgG and IgM.

The generation of Ig-producing cells in PBL from suckling piglets by PWM-stimulation gradually increased with advancing age, and reached about half the adult mean at 6 weeks of age. The suppressor activity of T lymphocytes was observed to continue throughout the suckling period and to decrease gradually with advancing age. At 5 weeks of age or later, the suppressing activity of T lymphocytes was not consistently demonstrated. In addition, the generation of circulating cells secreting IgM in peripheral blood without PWM-stimulation increased more rapidly with aging than that of the PWM-induced IgM-producing cells.