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GESTATIONAL EXPOSURE TO NONYLPHENOL CAUSE PRECOCIOUS MAMMARY GLAND DEVELOPMENT IN FEMALE RATS

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This experiment tested whether *in utero* and lactational exposure to 4-nonylphenol (NP) alters mammary gland differentiation in the female offspring rat. Pregnant Sprague Dawley rats were administered NP (10, 100 mg/kg), atrazine (100 mg/kg), pesticide demonstrating antiestrogenic activity in mammary gland development, or vehicle (0.5% methyl cellulose) by oral gavage from gestation day 15-19. After parturition, the mammary glands were taken from the offspring female rats on postnatal day (PND) 4, 22, 33 and 41, and the whole mounts were observed under the microscope. In the whole mount and H&E histology studies, mammary glands of NP (100 mg/kg) during late gestation showed better development than control from PND 4, and clearly difference in differentiation into alveolar buds on PND 41. Atrazine glands, however, have obviously smaller epithelial elongation, and lack of differentiation by PND 41. Absolute and relative-to-body weight uterus weight was significantly increased in NP (100 mg/kg) on PND 41, but there were no treatment-related changes in estrous cycle length between treatment groups. In conclusion, the present data show that exposure to NP for pregnant dams of rat during late gestation provided indications of estrogen activity of the reproductive organ and mammary gland in female offspring.