

Females of the communally breeding rodent, *Octodon degus*, transfer antibodies to their offspring during pregnancy and lactation

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Abstract

Females in numerous rodent species engage in communal nesting and breeding, meaning that they share a nest to rear their young together. One potential benefit to communally nesting mothers is that infants improve their immunocompetence. Thus, suckling from two or more females might provide newborns with a more diverse array of antibodies and defensive cells. As a first step toward testing the immunocompetence hypothesis, we assessed whether female degu (*Octodon degus*), a communally nesting and breeding caviomorph rodent, transfer immunoglobulins to their young through the yolk sac or placenta while in the uterus and, during lactation, through milk. With this aim, adult degu females were immunized with four antigens, including two mollusk hemocyanins from *Concholepas* and *Megathura* (CCH and KLH, respectively), porcine thyroglobulin and tetanus toxoid. Specific antibodies against the experimental antigens were used to track the origin of antibodies in the young. To establish the presence of specific antibodies of IgG and IgA isotypes in sera and milk of animals, an indirect enzyme-linked immunosorbent assay (ELISA) was developed. Degu females produced specific antibodies against antigens not found in their natural environment, and mothers were able to transfer the induced antibodies to their litters during pregnancy (IgG) and during lactation (IgA). However, we recorded only limited evidence of degu offspring acquiring antibodies from lactating mothers other than their own, giving little support to the increased immunocompetence hypothesis.