

Over 6.1 million people in the United States suffer from a peanut allergy, and researchers have long wondered how a food allergy is developed. Current research using mouse models has shown that intratracheal treatment of Peanut (PN) + House Dust Extract (HDE) leads to peanut allergy. This project focused on determining the ideal concentration of PN (with HDE) administered via intranasal treatment to create an allergic response in 6-week old C57BL/6J female mice, treated 4 times over a 2 week period. After treatment, blood samples were collected from each mouse, and ELISAs were performed to measure the concentration of peanut-specific IgE, IgG1, and IgG2c present. The mice were then challenged with peanut by intraperitoneal injection, and core body temperature was measured as a sign of an allergic response. Based on the peanut-specific IgE and IgG1 levels and largest drop in body temperature, the 50 ug PN + HDE treatment was the most effective in sensitizing the mice to PN. Lower doses of PN alone did not lead to sensitization through the airway, while the 250 ug PN treatment did lead to PN sensitization. Further experiments should investigate increasing the number of treatments, sex differences in sensitization, and using different sensitizing foods.