

Neutrophils in the Geniculate Ganglion Following Chorda Tympani Transection in Adult Rats

The chorda tympani nerve (CT) innervates taste buds on the tongue. The CT's cell bodies are in the geniculate ganglion (GG). Previous work in our lab found that severing the CT (CTX) results in a reduction of taste bud numbers, and substantial immune responses at the tongue and in the brain. However, there is limited information on how the immune system responds at the GG following CTX. Neutrophils are critical members of the first wave of immune response to nerve injury, attacking foreign pathogens and clearing debris. The present study explored neutrophil responses within the GG after CTX. Adult Sprague-Dawley rats had CTX or sham surgery at 65 days of age. Sham animals (control group) received the same surgical procedures without CTX. The GG was extracted 24 hours after CTX and frozen in OCT compound. GG sections (10 μ m thick) were fixed onto gel slides and stained using antibodies and diaminobenzidine. This procedure allows the visual identification of neutrophils. Tissues were analyzed with the computer software NeuroLucida (MBF Bioscience). Volumes were determined by tracing around the perimeter of the GG and the adjacent facial nerve, then tissues were scanned and marked for neutrophils. Neutrophil densities were calculated as the number of neutrophils over volume. The results of each animal will undergo t-test analysis to determine differences in neutrophil numbers between CTX and sham controls.