Previous studies with mice (Mukherjee & Delay, 2011; Mukherjee et al., 2013) found that an acute injection of cyclophosphamide (CYP), a chemotherapy drug, causes disruptions to the taste sensory cell (TSC) replacement cycle in two-phases. These effects were also responsible for deficits in umami and sweet taste detection. Our first study examined the effects of CYP on hedonics and preference of bitter taste solutions. It was hypothesized that a single dose of CYP would cause disturbances in bitter taste function by directly affecting taste buds and taste cells. An acute dose of CYP would result in a shift in preference correlated with a period of increased threshold to bitter taste stimuli due to decreases in the TSC population. The effects of CYP on quinine preference of mice were assessed daily using a brief access paradigm. Water deprived C57BK/6J mice were trained to lick in a Davis Rig. Quinine concentrations during training and testing were 0.03, 0.1, 0.3, 1, and 3 mM. Once licking was stable, half of the mice received a single 75/kg IP injection of CYP and the other half received equal volumes of saline. CYP-treated mice increased their lick rates for 0.3, 1.0, and 3.0 mM quinine 5-14 days post-injection. These increases in lick rates are indicative of a decreased sensitivity to bitter stimuli. Our second study examined the effects of CYP on the detection threshold for bitter taste stimuli. Results of the initial threshold study, taken with those of the preference study, suggest bitter taste deficits may not be as robust or follow the same time course as CYP-induced umami and sweet taste dysfunction. Currently, pilot studies are underway to further investigate the time course of CYP-induced bitter taste deficits using bitter, sweet, and binary bitter-sweet taste solutions.