

American Heart Association Tobacco Regulation and Addiction Center (A-TRAC)
5F01HL120163-02
Robertson, Rose Marie

Abstract:

Many tobacco products contain artificial flavors to enhance palatability and appeal. Market research has shown that flavorings increase the sale of tobacco products and appeal to specific demographics of tobacco users, particularly youth and minority populations. However, the toxicity of these flavors especially when inhaled after heating or burning is not known, hence, additional research is needed to evaluate the toxicological effects of flavors and to assess whether heating or burning of these additives generates new products that have additional toxicity. The overall goal of this project is to identify products generated from heating or burning of some of the most commonly used flavor chemicals and to determine how the toxicity of these products could be measured in in vitro assays. Specifically, we will identify and quantify the chemical products generated due to thermal degradation that occurs when tobacco product flavorings and additives are heated or burned and compare the relative toxicity of different flavorings commonly used in tobacco products after burning or heating. The results of this project will provide comprehensive data identifying which chemicals are formed from thermal degradation of commonly used flavors as well as quantitative results showing the extent to which these chemicals are generated upon pyrolysis and/or oxidation of flavor chemicals. Concurrent in vitro evaluation of the toxicity of both the parent (untransformed) flavor and thermal degradation products will help in assessing how heating or burning of flavors alters their toxicity. Moreover, the study results will enable us to directly compare the relative efficacy of different in vitro assays in evaluating the toxicological effects of flavor and other tobacco product additives