

**Response Form for the Final Performance Review Report—
Monell Chemical Senses Center 2008F***

1. Name of Grantee: Monell Chemical Senses Center
2. Year of Grant: 2008 Formula Grant

A. For the overall grant, briefly describe your grant oversight process. How will you ensure that future health research grants and projects are completed and required reports (Annual Reports, Final Progress Reports, Audit Reports, etc.) are submitted to the Department in accordance with Grant Agreements? If any of the research projects contained in the grant received an “unfavorable” rating, please describe how you will ensure the Principal Investigator is more closely monitored (or not funded) when conducting future formula funded health research.

Management for the overall grant at Monell is the responsibility of Monell Administration. Dr. Gary Beauchamp, Monell’s Director, oversees the grant by meeting periodically with individual investigators to discuss scientific progress and results. John Tran, Monell’s Administrator, oversees the budget and manages expenses to ensure that investigators stay within the established budget parameters. Erin West, Monell’s Research Grants & Contracts Administrator assists John Tran in ensuring all activities are in accordance with our Grant Agreements and acts as coordinator for the project by working with investigators about deadlines, assembling required reports and reviewing reports prior to final submission.

This research project received a rating of “outstanding” and therefore no need for additional monitoring of investigators is needed at this time.

For each research project contained in the grant, please provide a response to items B-D as listed on the following page(s). When submitting your response please include the responses for all projects in one document. The report cannot be submitted as a ZIP file, because the Department’s exchange server will remove it from the email. If the report exceeds 2MB, please contact the Health Research Program for transmittal procedures: 717-783-2548.

* Please note that for grants ending on or after July 1, 2007, grantees’ Final Performance Review Reports, Response Forms, and Final Progress Reports **will be made publicly available on the CURE Program’s Web site.**

Project Number: 0864001

Project Title: Effect of Genotype on Smoking, Taste and Obesity in Mothers and Children

Investigator: Reed, Danielle R.

B. Briefly describe your plans to address each specific weakness and recommendation in Section B using the following format. As you prepare your response please be aware that the Final Performance Review Report, this Response Form, and the Final Progress Report will be made publicly available on the CURE Program's Web site.

Reviewer Comment on Specific Weakness and Recommendation (*Copy and paste from the report the reviewers' comments listed under Section B - Specific Weaknesses and Recommendations*):

Response (*Describe your plan to address each specific weakness and recommendation to ensure the feedback provided is utilized to improve ongoing or future research efforts*):

Reviewer 3:

1. The behaviors the investigators are studying are very complex. We have seen a surge in obesity over a relatively short time-span. This is a function of a myriad of contributing factors. The investigators have attempted to reduce the question to, perhaps, taste genetics (and preferences) and/or smoking behavior. Likewise, they have attempted to implicate taste genetics in smoking behavior. Further, they wish to connect all of these to each other. It is difficult to see how these questions can be evaluated with the sample size.

Response: The reviewer may be concerned that a reasonable hypothesis might be set aside, and not studied further, because the relationship between the key variables did not meet nominal significance thresholds in this study. For instance, bitter compounds in cigarette smoke may genuinely affect people depending on their receptor genotype despite that lack of statistical support obtained from these subjects. We offer reassurance that we too are aware of the dangers of Type II statistical errors. While the sample size might be too low to detect some types of genetic effects, we recognize they do provide an estimate of their effect sizes, and, as such, provide useful information as we plan larger studies.

2. There is a lack of physiologic consideration of smoking on taste function. Some consideration should be given to how smoking affects taste. For example, what happens to bitter, sweet, umami, sour, etc. sensitivity in smoke?

Response: The effect of smoking can be divided into two parts. The first is the direct effect on sensory ability which is typically measured by asking subjects to report the lowest concentration of a taste substance they can perceive. Smoking has both short term effects on this type of sensory ability; it affects taste cells for the period during and immediately after a cigarette is smoked. Smoking also has long term effects on this type of sensitivity, perhaps due to the loss of taste cells from an accelerated aging process. These types of effects in smokers and other

groups are important and have been studied by investigators of the current project (Pepino *et al.* 2010; Pepino and Mennella 2007). The reviewer suggests and we agree that additional study would be useful to determine whether short-term or long-term direct effects of smoking on taste sensitivity might be quality-specific, e.g., reducing sweet or salt sensitivity but not sour or bitter. We agree.

The second effect of smoking (and the one studied here) is on liking – the hedonic appreciation of the sweetness or the flavor of fat in foods. We asked if mothers who smoked and their children preferred high-fat and high-sugar stimuli compared to non-smoking mothers and their respective children. Smoking was associated with a large increase in liking for a sweet solution and smaller increase in liking for puddings higher in fat. Taste sensitivity and liking for a particular quality like sweetness both affect food preferences. Incorporation of these two outcome measures is a potential goal of future study. Studies of other qualities including non-traditional preferences like fat-taste would also be of value.

Pepino, M.Y., Finkbeiner, S., Beauchamp, G.K. and Mennella, J.A. 2010. Obese women have lower monosodium glutamate taste sensitivity and prefer higher concentrations than do normal-weight women. *Obesity* (Silver Spring). 18: 959-965.

Pepino, M.Y. and Mennella, J.A. 2007. Effects of cigarette smoking and family history of alcoholism on sweet taste perception and food cravings in women. *Alcohol. Clin. Exp. Res.* 31: 1891-1899.

C. If the research project received an “unfavorable” rating, please indicate the steps that you intend to take to address the criteria that the project failed to meet and to modify research project oversight so that future projects will not receive “unfavorable” ratings.

Response: The average score for this project 1.33 placing it in the outstanding category and thus no response is required in this section.

D. Additional comments in response to the Final Performance Review Report (OPTIONAL):

Response: We thank the anonymous reviewers for their time. It may also be of value to know that a manuscript describing these findings is currently under review:
Mennella, J.A., Finkbeiner, S. and Reed, D.R. under review. The proof is in the pudding: children prefer lower fat but higher sweetness than do mothers. *International Journal of Obesity*.