

## Balsamic Vinegar Improves High Fat-Induced Beta Cell Dysfunction via Beta Cell ABCA1 (*Diabetes Metab J* 2012;36:275-9)

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We sincerely appreciate the interest and comments regarding our study, "Balsamic Vinegar Improves High Fat-Induced Beta Cell Dysfunction via Beta Cell ABCA1," which was published in *Diabetes & Metabolism Journal* 2012;36:275-9. Our responses to Dr. Cho's comments follow.

The main pathogenesis of type 2 diabetes is well known as it entails decreased pancreatic  $\beta$ -cell dysfunction and increased insulin resistance [1].  $\beta$ -cell dysfunction was closely correlated with glucotoxicity and lipotoxicity [2-4]. Our study showed that balsamic vinegar treatment increased insulin secretion in pancreatic  $\beta$ -cell, and this was associated with increased ABCA1 expression and increased cholesterol excretion in  $\beta$ -cell. Based on these results, we suggested that balsamic vinegar could improve  $\beta$ -cell dysfunction by decreasing lipotoxicity.

However, our study failed to demonstrate a change in pancreatic  $\beta$ -cell mass after balsamic vinegar treatment. We also did not measure insulin levels nor did we quantify cholesterol levels in  $\beta$ -cell, as Dr. Cho pointed out. These are potential limitations of our study.

Our study showed the effect of balsamic vinegar on reducing lipotoxicity, and its potential for the treatment of diabetes. Further investigation is warranted to demonstrate the effect of balsamic vinegar on  $\beta$ -cell dysfunction more clearly, and to clarify the mechanisms that account for the relationship be-

tween balsamic vinegar, lipotoxicity and  $\beta$ -cell dysfunction.

Thank you for taking interest in this study and for your thoughtful comments.

### CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

### REFERENCES

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