Reviewer's report

Title: Tyrosine hydroxylase activity in the endocrine pancreas: changes induced by short-term dietary manipulation

Authors:

Maria I Borelli (miborelli@yahoo.com.ar)
Modesto Rubio (ininfa@flyb.uba.ar)
Maria E Garcia (marielisa_ar@yahoo.com.ar)
Luis E Flores (fdplf@sinecitis.com.ar)
Dr Juan J Gagliardino (gagliardino@infovia.com.ar)

Version: 1 Date: 12 Nov 2002

Reviewer: Dr Sue Chan

Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Reject

Compulsory comments
1. The authors need to state the duration of the experiment, though it is expressed in the Discussion, this information needs to be present in the Methods.
2. It is unclear to the reader as to why the high carbohydrate diet was chosen for the study. Why and how does diet affect the level of catecholamine biosynthetic enzymes in the pancreatic islet, specifically? - What is the physiological significance?
3. What is the calorific value of the food, how does this compare to the standard chow?

Discretionary comments
1. Would this diet result in higher glucose levels postprandially, resulting in glucose desensitization of the b-cells? Could what we are observing be due to b-cell exhaustion or glucotoxicity (changes in TH levels aside)? If this is a response to chronic exposure to high glucose levels, would culturing the islets from the CHD-fed animals in low glucose media affect the responsiveness of these islets, ie. is it reversible?
2. Have the authors applied an inhibitor of TH to these islets to observe its effect on insulin release? If elevated levels of TH is responsible for the differences between islets from the control and experimental animals on basal and glucose-induced insulin release, then in the presence of the TH inhibitor, no differences should be observed. Furthermore, I am unclear as to how elevated TH can affect basal insulin release - does this mean that some other mechanism or process is involved since I am not aware that catecholamines can affect basal insulin release? Please could the authors clarify this for me.
3. The authors do not rule out the possibility that the lack of protein in the diet may affect insulin secretion by mechanisms other than that of enhanced endogenous CA production - Can the authors provide further discussion regarding the effects of ingestion of a wholly carbohydrate diet for 1 week on metabolism generally?

Competing interests:

None declared.