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CL9 - PRESENCE OF GLUT4 AND SGLT1 IN DUCTAL CELLS OF NORMAL AND STREPTOZOTOCIN RAT SALIVARY GLANDS

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INTRODUCTION

We have documented that the salivary glucose comes mainly from the three principal salivary glands: parotid, sub-maxillary and sublingual in human subjects. The primary saliva is isotonic and becomes hypotonic during its transport to the oral cavity because of the reabsorption of sodium by ductal cells.

AIM

This study aims at assessing whether the glucose secreted by acinar cells is reabsorbed by ductal cells.

MATERIAL AND METHODS

Staining included avidin-biotin-peroxidase (Vector Labs, Belgium) and diaminobenzidine (Dako, Belgium), with hematoxylin counterstaining for the DAB technique; and fluorescein isothyocyanate (FITC, Jackson) for immunofluorescence. Anti-Glut4 antibody (Millipore 07-1404, 1/1000) and anti-SGLT1 antibody (Millipore 07-1417, 1/1000) were applied on the fixed normal and streptozotocin rat salivary glands sections.

Total RNA from salivary glands was extracted and subjected to mRNA quantification using specific primers for SGLT1 and Glut4 and SYBR Green on a LightCycler 480.

RESULTS

The presence of SGLT1 and Glut4 was detected in rat parotid and sub-maxillary glands by immunohistochemistry and immunofluorescence.

The presence of both SGLT1 and Glut4 was also confirmed by qRT-PCR in theses salivary glands.

In the streptozotocin rats, the qPCR showed a decreased ratio of Glut4/GADPH in comparison to normal rats, particularly in the parotid gland. SGLT1 also decreased in diabetic parotid rat. On the contrary, it increases in the sub-maxillary gland of diabetic rats.

DISCUSSION

The Glut4 is an insulino-dependent transporter, which transports glucose in an intracellular vesicle. The histology seems to show its presence particularly in the basolateral membrane of the ductal cells but a co-localization immunohistochemistry marking is under consideration to confirm its position on the membrane.

In comparison, the SGLT1 transports glucose from the basolateral membrane of the acinar cells to the lumen of the salivary gland. Due to an hypotonic gradient, during the transport of glucose, sodium goes through the cell. The immunohistochemistry doesn't show exactly its position on the cellular membrane.

In conclusion, further experiments are required to assess the validity of this proposal by co- localization immunohistochemistry and to understand the variation in the quantity of SGLT1 and Glut4 diabetic rats