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Gas1 expression in parietal cells of Bowman's capsule in experimental diabetic nephropathy

In the present study, we evaluated whether the decrease in Gas1 expression favors the activation and differentiation into podocytes of the progenitor cells (PC's) of the Bowman's capsule (BC), in a model of experimental murine diabetes. We describe for the first time that parietal cells of BC express Gas1 and observe that in early stages of diabetes its expression is decreased. On the other hand, the expression of progenitor cell markers like NCAM, CD24 and SIX1/2 is augmented, suggesting that PC's of BC are activated and/or proliferating. When the PC's are activated, they express mesenchymal renal markers. To determine if the decrease of Gas1 in the BC favors this process; we analyzed PAX2 and we found that the expression of PAX2 increases in diabetes. In order to study if these PC's that are activated can be differentiate into podocytes, we analyzed the BC expression of Wilms tumor protein 1 (WT1), a specific podocyte marker and noticed that the number of WT1+ cells augmented in diabetes in comparison to controls. We explored the expression of Gas1 in other nephron segments; we found that Gas1 is also expressed in the collecting duct in diabetic and control condition, mainly at the principal cells. These findings suggest that diabetes induces a decrease in the expression of Gas1 and this possibly promotes the activation and differentiation of PC's into podocytes. We propose that Gas1 is a novel protein in kidney with an important role in renal regeneration at the early stages of diabetes.

Biography

Brenda Ivonne Luna Antonio is a PhD student in the Department of Pharmacology, Center for Research and Advanced Studies of the National Polytechnic Institute (CINVESTAV-IPN). Her research is focused on renal regeneration in early stages of diabetes and the analysis of the expression and function of Gas1 protein in the kidney.

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