Letter to the Editor

Points of view

In relation with the article "The interstitial cells of Cajal in pancreas" [1] published in this journal by Popescu *et al.*, we would like to demonstrate that the priority of the discovering of this type of interstitial cells of Cajal (ICC) in the pancreas belongs to Santiago Ramón y Cajal.

The authors of the above mentioned article [1] say in the Discussion "This study demonstrates for the first time that in human and rat exocrine pancreas there are cells having a phenotype similar with the enteric interstitial cells of Cajal… Until now the presence of ICC in pancreas has not yet been proven, either ICC were overlooked or the tentatives to find them failed".

In our work in the Museum Ramón y Cajal we have the opportunity of reading the original papers written by Ramón y Cajal related to the ICC. In one of them, Ramón y Cajal and Sala [2] studied the nervous plexi in the pancreas of some mammals (rabbit, hedgehog) and birds (sparrow) impregnated with the Golgi method. They observed a new cellular type with a triangular, fusiform or star-shaped body. These cells usually have three or more branched processes ending in a nervous plexus surrounding the acini. Other cells are located close to the capillaries forming another plexus surrounding the blood vessels. Ramón y Cajal and Sala [2] could not distinguish an axon among the cytoplasmic processes but they did realize that some processes contacted with those of the neighbour cells forming a network of anastomosing cells. Ramón y Cajal and Sala conclude that these neurons are probably similar to those discovered by Ramón y Cajal in the Auerbach plexus (ICC).

Although this article [2] is written in Spanish, Ramón y Cajal published a small summary of his findings in the pancreas in his Spanish book "Textura del Sistema Nervioso del Hombre y de los vertebrados" [3] (p. 1191-1193) and it is also available in French version [4] (p. 938-940), and in English versions [5, 6] (p. 766-767; 591-593).

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Authors' Comments

In a recent issue of JCMM, we gave a description of interstitial cells in the human exocrine pancreas [1], with a remarkable resemblance to ICC described in the musculature of the gastrointestinal tract [2]. We wrote that this was presumably the first description of these cells, because we quoted in the same paragraph (p. 187) Ushiki and Ide, who wrote about the nerve terminals in the rat exocrine pancreas: "No distinct type of cells such as the so-called interstitial cells of Cajal were found to be associated with the formation of the networks" [3].

As pointed out by Marin and Freire, Cajal described this cell type already in 1891 [4]. We should not be surprised: Cajal remarked that all or almost all glands have terminal neural plexi [5], similar to those of the intestine, as well as fusiform or stellate cells of the interstitial type. He noted that in the rabbit pancreas the interstitial cells were mainly triangular in shape with divergent, varicose and notable ramified processes. We also found a dominance of triangular shaped interstitial cells. Cajal noted that they form a intricate plexus adding to the nerve fibres from the autonomic ganglia. Similar to his hypothesis on intestinal interstitial cells [6], *Cajal suggested that they might correspond to certain neurons*. However, we do not believe that the interstitial cells are an integral part of the nervous system. Functional contact with unmyelinated terminal nerve fibres is possible although contacts with nerves were not as extensive as in the gastrointestinal musculature and synapse like contacts have not yet been observed. Hence functionally, the interstitial cells of the pancreas may mediate neural regulation of pancreatic functions, although this is at this moment pure speculation.

Our group is honored that someone, somewhere, made an intellectual link between the famous Ramón y Cajal and the findings in our laboratory.

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