ity via totally broad cell surface may be reasonable for effective secretion. Also, this structure may function as cellular elements of the barrier (blood-joint barrier) between blood vessel and joint cavity.

Type B synoviocytes in the horse contain PGP9.5, a marker substance unique to neurons and sensory cells. The microvillous crowns of type B cells are closely similar to receptor sites of gut endocrine cells, sensory cells open to the gut lumen. These findings suggest that type B cells monitor, with their microvillous crowns, certain mechanical and chemical conditions of the joint cavity, such as pressure, viscosity and change of chemical composition.

Effects of streptozotocin on intracellular Ca^{2+} dynamics in rat pancreatic islets.

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1. The present study was carried out to examine the effects of streptozotocin on changes in intracellular Ca^{2+} concentration ($[Ca^{2+}]_i$) and to elucidate a possibility that streptozotocin produces NO in rat pancreatic β cells.

2. A microfluorometric method and a confocal imaging analysis, combined with NO imaging with Diaminofluorescein-2 (DAF-2), were adopted. NO production from streptozotocin in Krebs-Henseleit buffer was also measured with Griess reagent.

3. Stimulation of isolated pancreatic islets with 20 mM glucose caused a biphasic increase in $[Ca^{2+}]_i$, the first transient rise (first phase) followed by a continuous $[Ca^{2+}]_i$ increase (second phase). A confocal imaging suggested that the biphasic $[Ca^{2+}]_i$ changes occured mostly in the β cells. The second phase was inhibited by adding 1 mM or 2 mM streptozotocin to perifusate. This inhibitory effect was persisted even after pretreatment with 10 μM oxyhemoglobin, an extracellular NO scavenger.

4. NO_2^- production was detected in a dose-dependent manner in a solution in which streptozotocin was dissolved. Imaging analysis with DAF-2 also suggested intracellular production of NO in islet cells and NO production lasted even after the withdrawal of streptozotocin from the perifusate.

5. These results indicate that streptozotocin produces NO and the NO thus produced can inhibit glucose-induced $[Ca^{2+}]_i$ dynamics in the pancreatic β cells.