LGR5 and Nanog identify stem cell signature of pancreas beta cells which initiate pancreatic cancer

Abraham Amsterdam
The Weizmann Institute of Science, Israel

Pancreas cancer is the fourth leading cause of cancer death but its cell of origin is controversial. We compared the localization of stem cells in normal and cancerous pancreas using antibodies to the stem cell markers Nanog and LGR5. Here we show, for the first time, that LGR5 is expressed in normal pancreas, exclusively in the islets of Langerhans and it is co-localized, surprisingly, with Nanog and insulin in clusters of beta cells. In cancerous pancreas Nanog and LGR5 are expressed in the remaining islets and in all ductal cancer cells. We observed insulin staining among the ductal cancer cells, but not in metastases. This indicates that the islet's beta cells, expressing LGR5 and Nanog markers are the initiating cells of pancreas cancer, which migrated from the islets to form the ductal cancerous tissue, probably after mutation and dedifferentiation. This discovery may facilitate treatment of this devastating cancer.

Biography


abraham.amsterdam@weizmann.ac.il