

SUPPLEMENTARY DATA

Supplementary Table 1.

DM INCRETIN

	β cell area	α cell area	Pancreas	β cell mass	α cell mass	Costained
	[%]	[%]	weight [g]	[g]	[g]	cells [%]
6157	0.05	0.05	84.5	0.04	0.04	6.4
6185	2.51	3.36	204.3	5.13	6.86	21.0
6186	0.97	0.86	73.3	0.71	0.63	8.1
6189	0.85	1.09	139.7	1.18	1.52	16.9
6199	1.19	2.61	114.1	1.36	2.97	18.7
6194	2.86	1.83	57.1	1.63	1.04	42.8
6203	3.40	2.43	89.3	3.04	2.17	3.6
6206	0.97	0.98	143.7	1.40	1.40	
Mean	1.60	1.65	113.3	1.81	2.08	16.8
SEM	0.41	0.39	16.9	0.56	0.75	5.0

DM

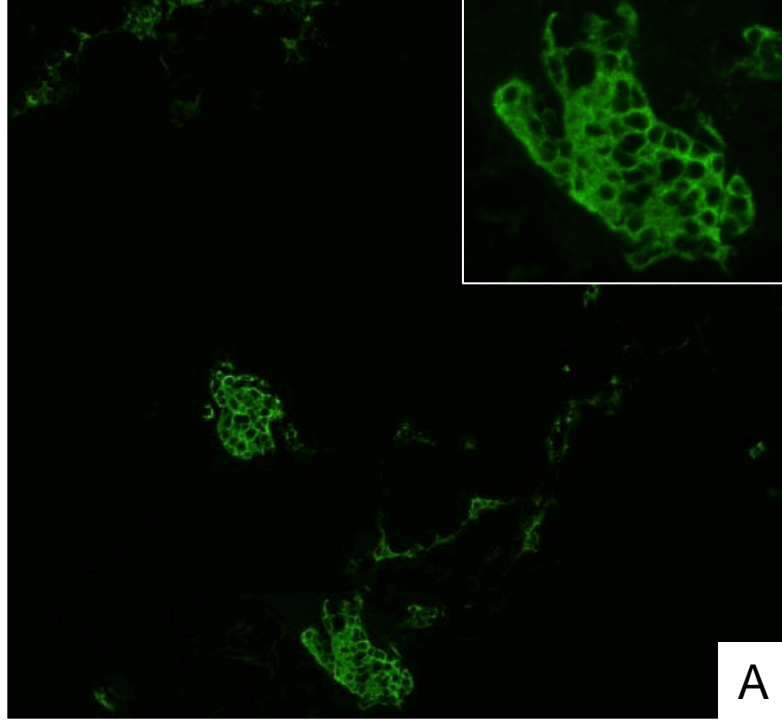
	β cell area	α cell area	Pancreas	β cell mass	α cell mass	Costained
	[%]	[%]	weight [g]	[g]	[g]	cells [%]
6028	0.04	0.56	48.5	0.02	0.27	
6059	1.21	1.33	74.4	0.90	0.99	
6108	0.57	0.15	91.0	0.52	0.13	2.2

6110	0.35	0.56	69.5	0.24	0.39	
6109	0.29	0.15	120.9	0.35	0.18	3.5
6114	0.67	1.10	100.0	0.67	1.09	
6124	0.28	0.66	103.9	0.29	0.69	1.9
6127	0.03	0.45	58.9	0.02	0.26	0.1
6133	0.10	0.16	70.4	0.07	0.12	8.3
6139	0.38	1.05	79.3	0.30	0.83	
6142	0.11	0.15	70.2	0.07	0.10	
6149	0.10	0.57	65.2	0.06	0.37	
Mean	0.34	0.57	79.3	0.29	0.45	3.2
SEM	0.10	0.12	6.00	0.08	0.10	1.4

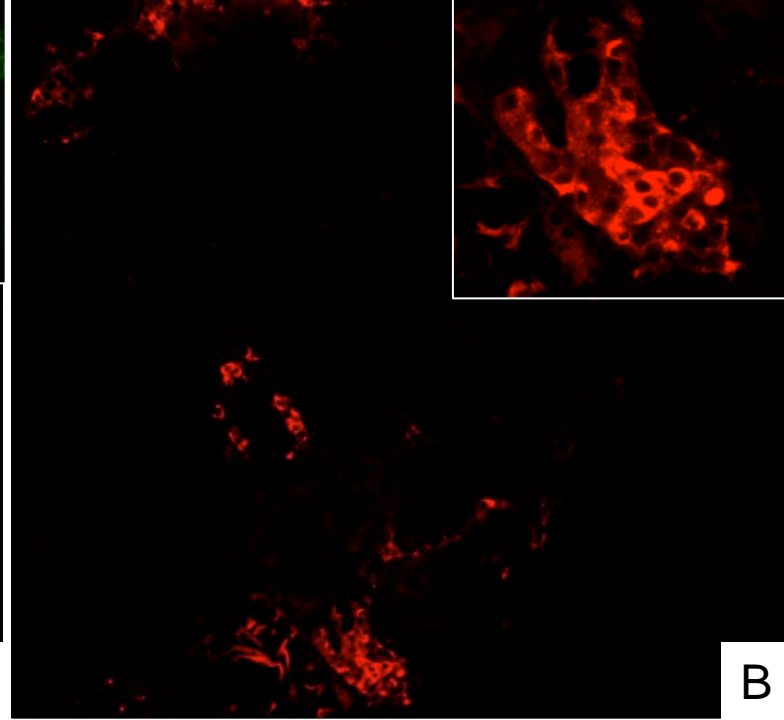
NON DIABETIC

	β cell area	α cell area	Pancreas	β cell mass	α cell mass	Costained
	[%]	[%]	weight [g]	[g]	[g]	cells [%]
6009	0.57	0.59	-	-	-	
6015	0.80	0.61	-	-	-	
6012	1.55	0.52	-	-	-	0.6
6016	1.36	1.08	-	-	-	
6019	0.60	0.82	-	-	-	
6020	0.60	0.20	-	-	-	0.5
6022	0.92	0.11	-	-	-	0.0
6034	1.12	0.85	75.4	0.85	0.64	

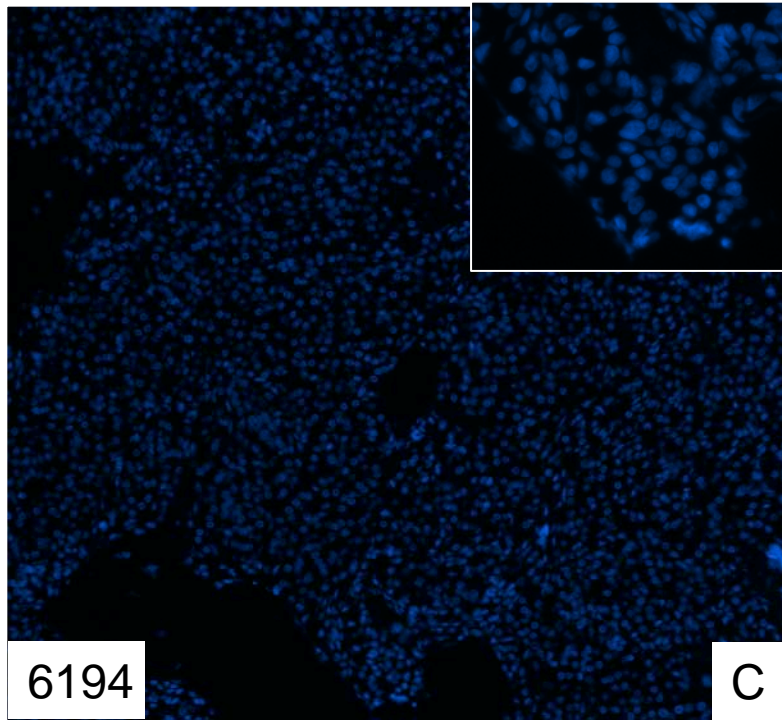
6060	0.75	0.46	104.0	0.78	0.48	
6097	0.79	0.78	85.2	0.67	0.67	0.1
6099	0.46	0.34	85.6	0.40	0.29	
6102	0.45	0.39	87.3	0.40	0.34	0.4
6158	0.23	0.15	101.9	0.24	0.15	
6165	0.89	0.40	97.4	0.86	0.39	0.8
Mean	0.79	0.52	91.0	0.60	0.42	0.4
SEM	0.10	0.08	3.9	0.10	0.07	0.1



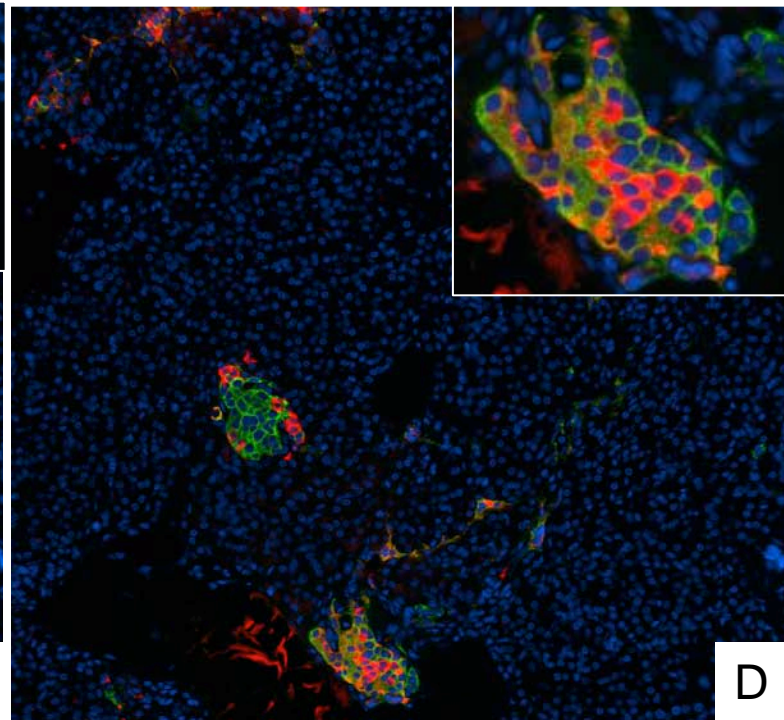
A



B



C

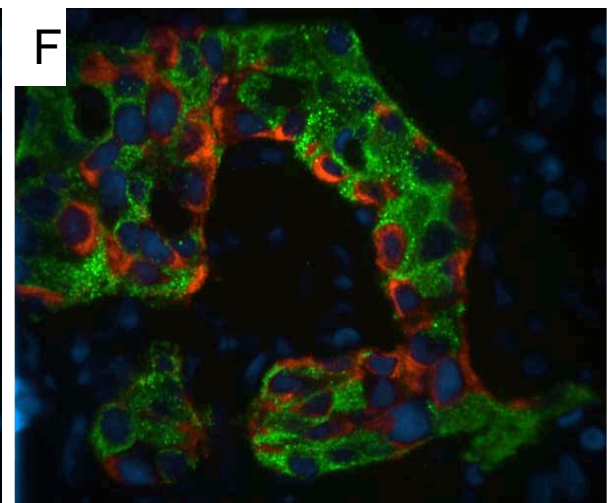
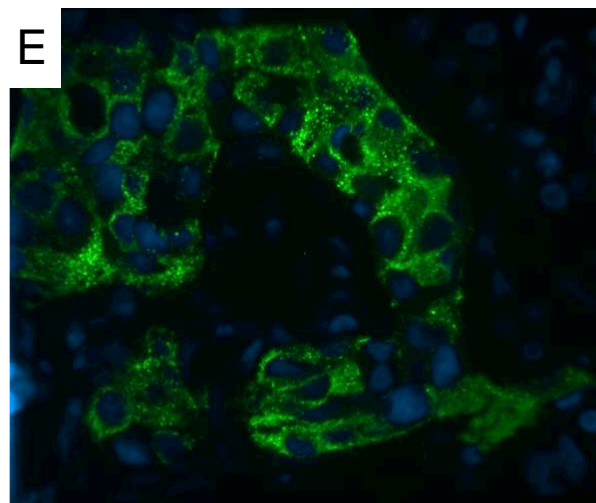
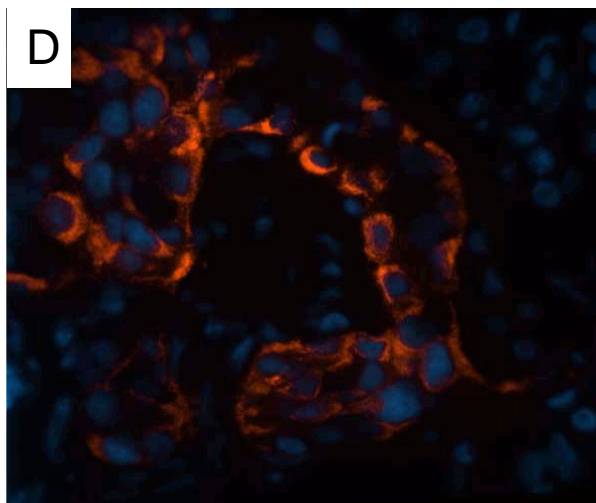
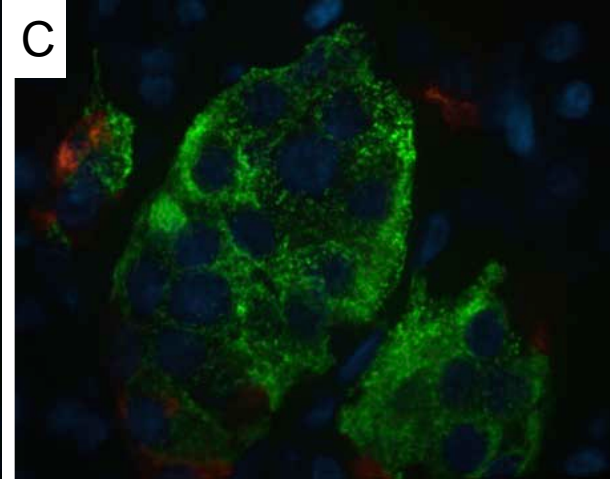
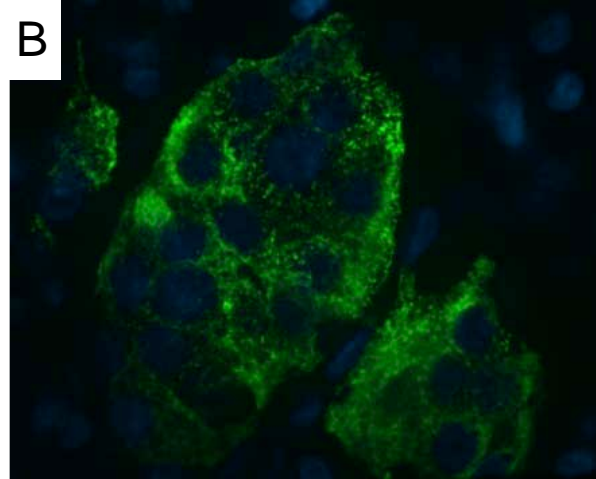
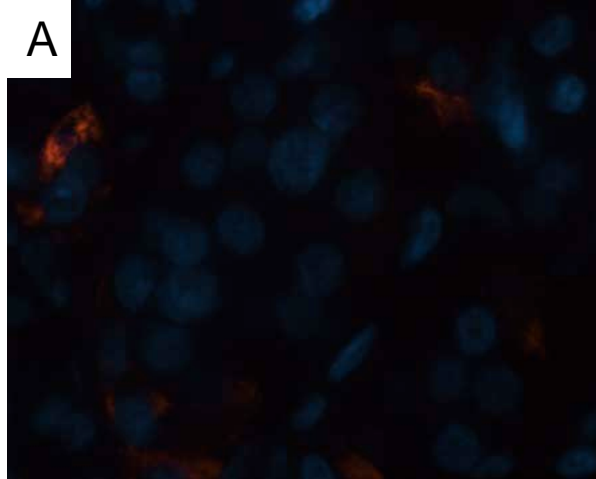


D

6194

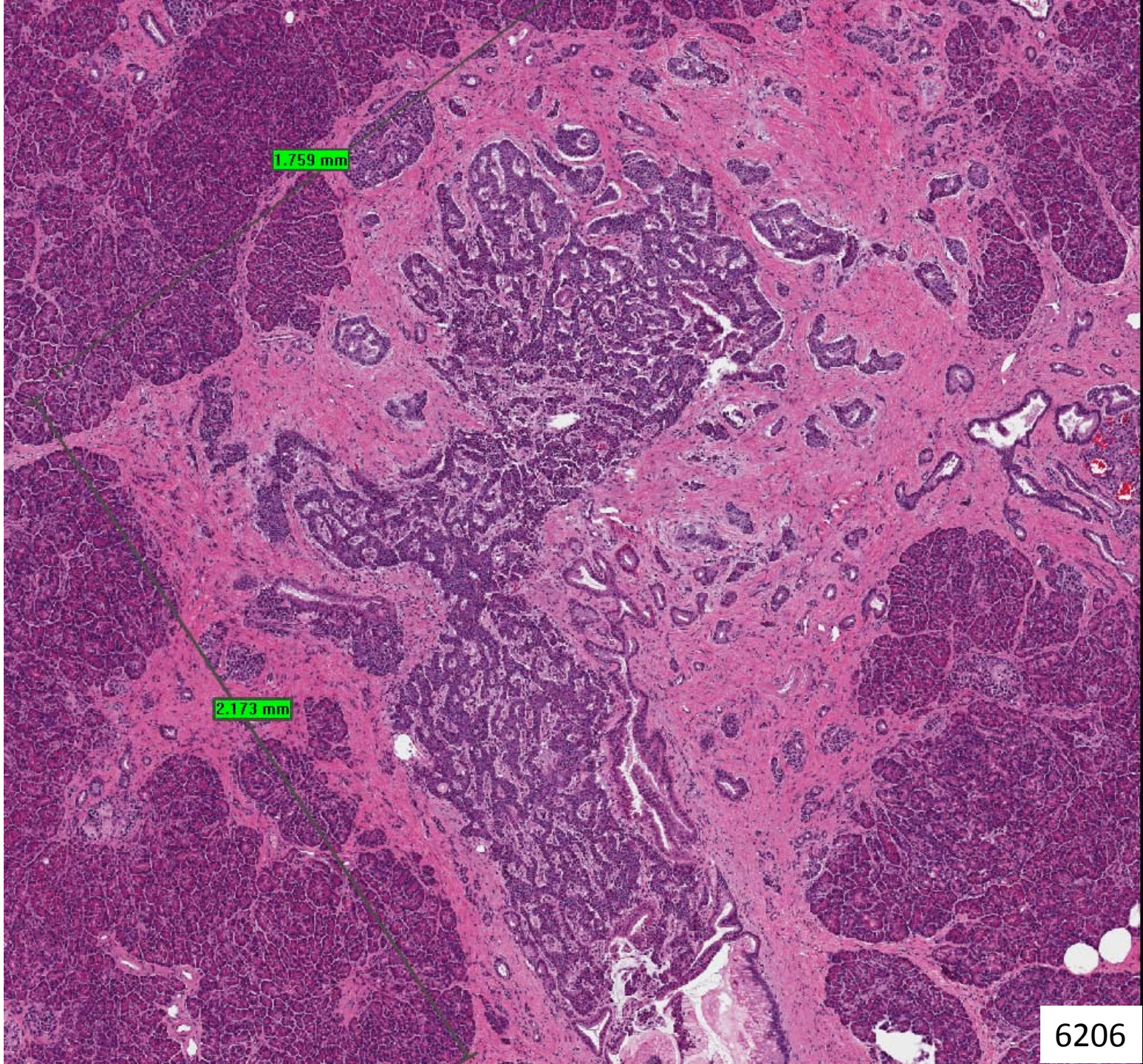
Supplementary Figure 1. Low power view (10x) of nPOD case 6194.

Low power image to illustrate a high percentage of co-expressing cells for insulin and glucagon (higher power islet inset). Insulin (green, A); glucagon (red, B); DAPI (blue, C) nuclear staining; merged (D).



Supplementary Figure 2. Confocal images of sections of insulin glucagon double staining cells.

Additional images from insulin and glucagon double stained sections of pancreas from a non diabetic (A-C), and a type 2 diabetes case not on incretin therapy (D-F). Glucagon (red, A, D); Insulin (green, B, E); Merged (C, F); DAPI Nuclear Counterstain



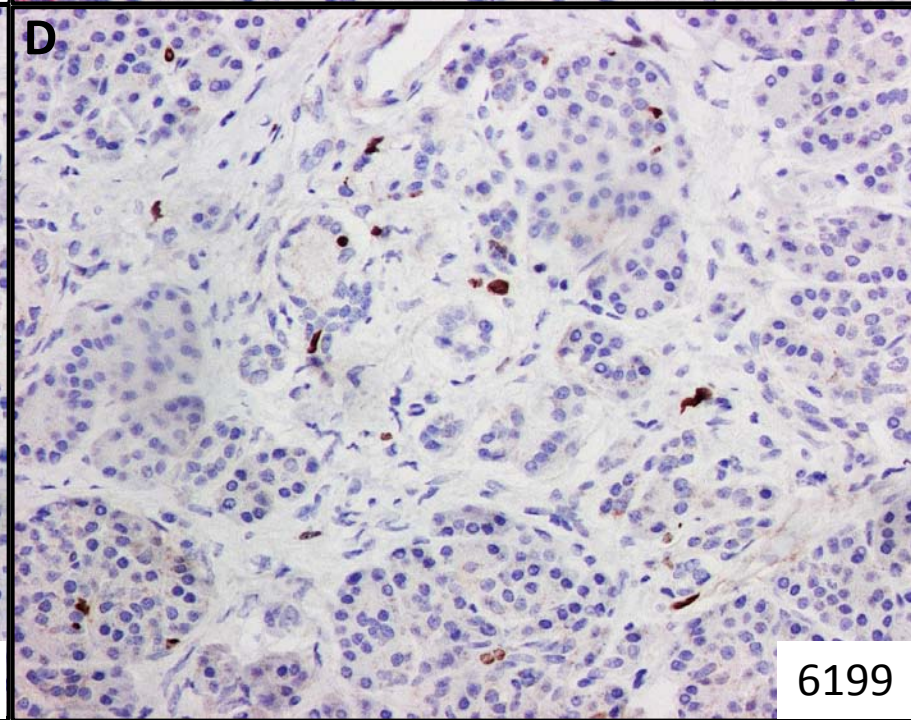
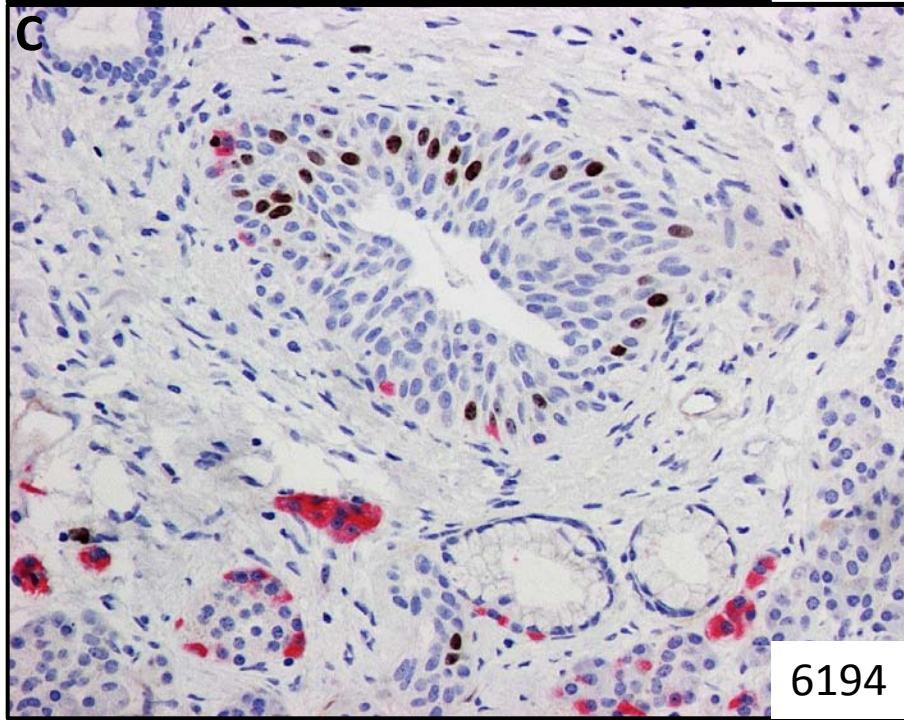
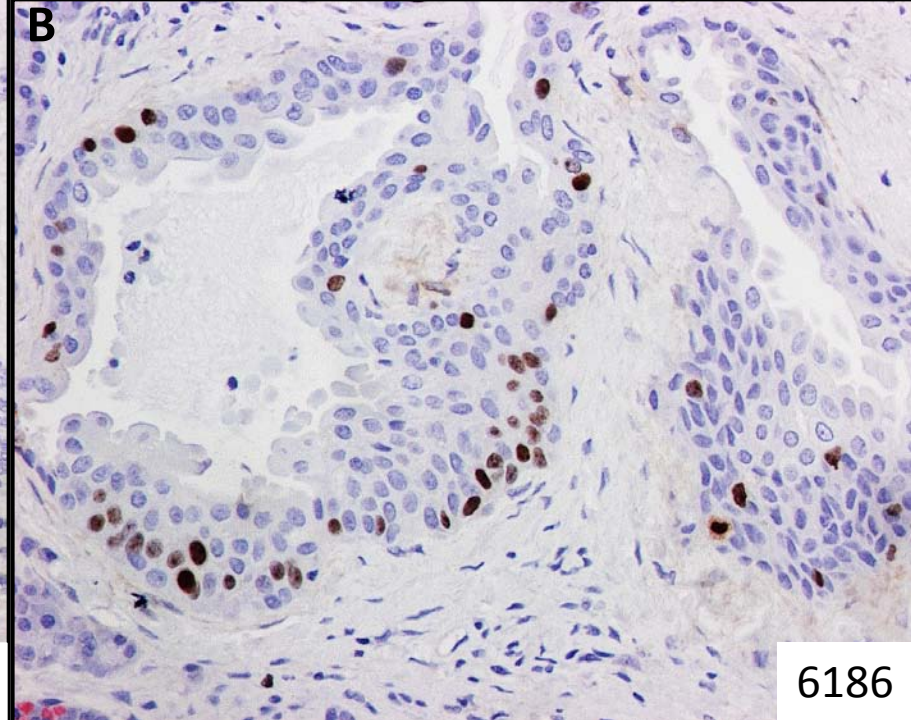
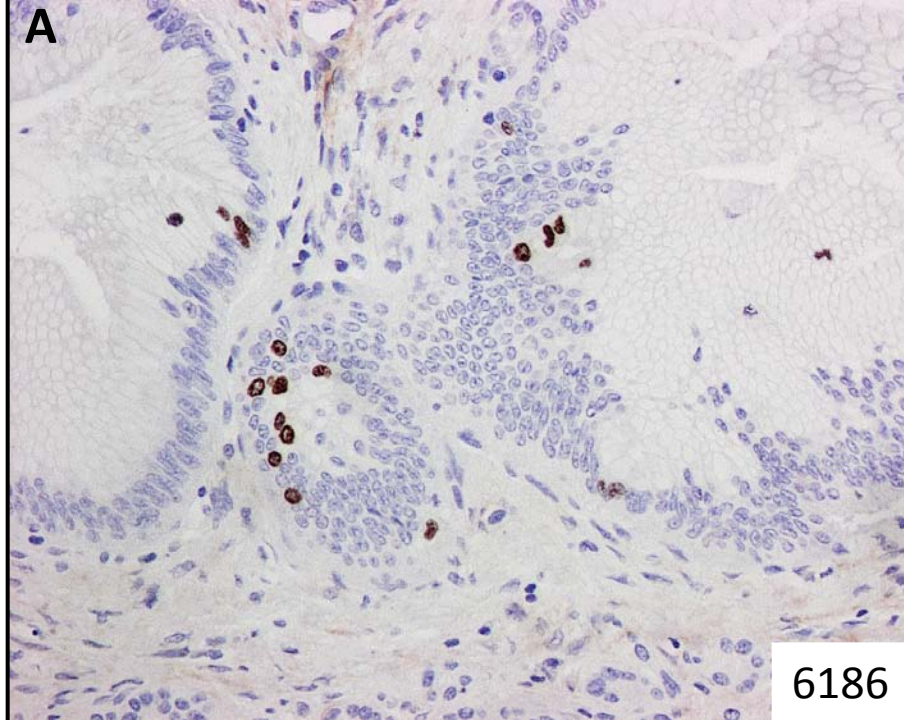
1.759 mm

2.173 mm

6206

Supplementary Figure 3. Photomicrograph of microadenoma case 6206.

Additional low power hematoxylin and eosin stained section of glucagon expressing microadenoma.



Supplementary Figure 4. Pancreas sections to reveal foci of increased replication.

Photomicrographs of pancreatic sections double stained for Ki67 and glucagon to illustrate examples of foci of increased replication (Ki67) in exocrine pancreas in incretin treated patients.

Increased Ki67 staining in a duct with mucin (likely gastric foveolar type) (A). Reactive ducts and squamous metaplasia with foci of increased replication (B and C). Increased Ki67 staining in an area of early acinar to ductal metaplasia (D). Ki67 brown, glucagon, pink. Hematoxylin counterstain.