

**ESM Table 4. Individual morphometric data from LepR<sup>flp</sup> and Ubc Cre LepR<sup>flp</sup> mice. Pancreas mass (g), total number of slides and tissue sections analyzed, pancreas and insulin area (mm<sup>2</sup>), beta cell area (% of total pancreas area), and beta cell mass (mg) for the head, tail, and total pancreas. Measurements were made in three different cohorts of LepR<sup>flp</sup> and Ubc Cre LepR<sup>flp</sup> mice at 3 and 5 weeks after tamoxifen initiation.**

		Week 3																								
	Group	ID Number	Sex	#	Head Pancreas						Tail Pancreas						Total Pancreas									
					Pancreas Mass (mg)	Number of Slides Analyzed	Number of Depths Analyzed	Pancreas Area (mm <sup>2</sup> )	Insulin Area (mm <sup>2</sup> )	Beta Cell Area (% Total)	Beta Cell Mass (mg)	Pancreas Mass (mg)	Number of Slides Analyzed	Number of Depths Analyzed	Pancreas Area (mm <sup>2</sup> )	Insulin Area (mm <sup>2</sup> )	Beta Cell Area (% Total)	Beta Cell Mass (mg)	Pancreas Mass (mg)	Number of Slides Analyzed	Number of Depths Analyzed	Pancreas Area (mm <sup>2</sup> )	Insulin Area (mm <sup>2</sup> )	Beta Cell Area (% Total)	Beta Cell Mass (mg)	
Control	LepR <sup>flp</sup>	63.2Bl	F	1	88	2	10	145.1	0.78	0.54	0.47	92	2	8	166.5	1.21	0.73	0.67	180	4	18	311.5	1.99	0.84	1.15	
	LepR <sup>flp</sup>	63.3Bl	F	2	121	2	7	150.9	1.06	0.70	0.85	100	2	8	157.8	1.03	0.65	0.65	221	4	15	308.7	2.09	0.68	1.50	
	LepR <sup>flp</sup>	63.4Bl	F	3	65	2	7	105.7	0.48	0.45	0.30	90	2	7	150.4	0.65	0.43	0.39	155	4	14	256.1	1.13	0.44	0.68	
	LepR <sup>flp</sup>	64.3Bl	F	4	58	2	7	88.7	0.54	0.61	0.35	69	2	8	120.0	0.80	0.67	0.46	127	4	15	208.7	1.34	0.64	0.81	
	LepR <sup>flp</sup>	62.9Bl	M	5	111	2	7	182.3	0.49	0.27	0.30	117	2	8	188.7	1.27	0.67	0.79	228	4	15	371.0	1.76	0.47	1.08	
	LepR <sup>flp</sup>	22.2Bl	M	6	85	2	7	177.9	1.09	0.61	0.52	130	2	8	314.2	1.55	0.49	0.64	215	4	15	492.1	2.64	0.54	1.15	
	LepR <sup>flp</sup>	24.4Bl	M	7	93	2	8	176.6	0.53	0.30	0.28	143	2	8	293.5	1.35	0.46	0.66	236	4	16	469.1	1.88	0.40	0.95	
	LepR <sup>flp</sup>	25.1Bl	M	8	74	2	8	166.4	0.59	0.36	0.26	117	2	8	317.8	1.81	0.57	0.66	191	4	16	484.2	2.40	0.50	0.95	
	Average				86.9	2.0	7.6	149.1	0.70	0.48	0.42	107.3	2.0	7.9	213.6	1.21	0.58	0.61	194.1	4.0	15.5	362.7	1.90	0.54	1.05	
	SEM				7.6			12.3	0.09	0.06	0.07	8.5			28.7	0.13	0.04	0.05	13.6			38.6	0.18	0.04	0.09	
LepR <sup>KO</sup>	Ubc Cre LepR <sup>flp</sup>	63.1Bl	F	1	72	2	9	145.4	1.79	1.23	0.89	95	2	7	138.7	1.57	1.13	1.08	167	4	16	284.0	3.36	1.18	1.98	
	Ubc Cre LepR <sup>flp</sup>	64.1Bl	F	2	80	2	7	171.0	1.49	0.87	0.70	111	2	10	201.7	3.52	1.75	1.94	191	4	17	372.8	5.01	1.34	2.57	
	Ubc Cre LepR <sup>flp</sup>	64.2Bl	F	3	101	2	7	194.4	1.39	0.71	0.72	115	2	10	184.7	2.01	1.09	1.25	216	4	17	379.2	3.40	0.90	1.94	
	Ubc Cre LepR <sup>flp</sup>	62.1Bl	M	4	110	2	7	127.6	1.07	0.84	0.92	131	2	7	185.6	1.83	0.99	1.29	241	4	14	313.2	2.90	0.93	2.23	
	Ubc Cre LepR <sup>flp</sup>	62.2Bl	M	5	94	2	9	193.5	1.58	0.82	0.77	119	2	8	181.7	1.73	0.95	1.13	213	4	17	375.2	3.31	0.88	1.88	
	Ubc Cre LepR <sup>flp</sup>	22.1Bl	M	6	133	2	8	259.6	1.89	0.73	0.97	165	2	8	356.7	3.24	0.91	1.50	298	4	16	616.3	5.13	0.83	2.48	
	Ubc Cre LepR <sup>flp</sup>	22.3Bl	M	7	116	2	8	227.9	1.42	0.62	0.72	138	2	8	350.7	4.29	1.22	1.69	254	4	16	578.6	5.71	0.99	2.51	
	Ubc Cre LepR <sup>flp</sup>	22.4Bl	M	8	114	2	8	255.8	1.55	0.61	0.69	137	2	8	298.9	3.26	1.09	1.49	251	4	16	554.6	4.81	0.87	2.18	
	Ubc Cre LepR <sup>flp</sup>	22.5Bl	M	9	140	2	8	307.8	2.92	0.95	1.33	149	2	8	369.1	3.97	1.08	1.60	289	4	16	676.9	6.89	1.02	2.94	
	Ubc Cre LepR <sup>flp</sup>	24.1Bl	M	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Ubc Cre LepR <sup>flp</sup>	24.2Bl	M	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Ubc Cre LepR <sup>flp</sup>	24.3Bl	M	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average				106.7	2.0	7.9	209.2	1.68	0.82	0.86	128.9	2.0	8.2	252.0	2.82	1.13	1.44	235.6	4.0	16.1	461.2	4.50	0.99	2.30		
SEM				7.5			19.5	0.17	0.06	0.07	7.1			30.2	0.35	0.08	0.09	14.4			48.4	0.45	0.06	0.12		
p-value				0.09			0.02	0.0002	0.001	0.0005	0.07			0.38	0.001	3.88E-05	1.48E-06	0.055			0.14	0.0001	8.49E-06	4.34E-07		
		Week 5																								
	Group	ID Number	Sex	#	Head Pancreas						Tail Pancreas						Total Pancreas									
					Pancreas Mass (mg)	Number of Slides Analyzed	Number of Depths Analyzed	Pancreas Area (mm <sup>2</sup> )	Insulin Area (mm <sup>2</sup> )	Beta Cell Area (% Total)	Beta Cell Mass (mg)	Pancreas Mass (mg)	Number of Slides Analyzed	Number of Depths Analyzed	Pancreas Area (mm <sup>2</sup> )	Insulin Area (mm <sup>2</sup> )	Beta Cell Area (% Total)	Beta Cell Mass (mg)	Pancreas Mass (mg)	Number of Slides Analyzed	Number of Depths Analyzed	Pancreas Area (mm <sup>2</sup> )	Insulin Area (mm <sup>2</sup> )	Beta Cell Area (% Total)	Beta Cell Mass (mg)	
Control	LepR <sup>flp</sup>	974.2	F	1	84	2	6	71.9	0.40	0.56	0.47	80	2	6	103.9	1.11	1.07	0.85	164	4	12	175.8	1.51	0.86	1.41	
	LepR <sup>flp</sup>	980.1	F	3	68	2	10	149.8	0.54	0.36	0.25	68	2	7	138.2	0.81	0.59	0.40	136	4	17	288.0	1.35	0.47	0.64	
	LepR <sup>flp</sup>	980.2	F	4	54	2	10	134.4	0.42	0.31	0.17	75	2	10	186.7	1.12	0.60	0.45	129	4	20	321.1	1.54	0.48	0.62	
	LepR <sup>flp</sup>	980.3	F	5	53	2	6	115.1	0.51	0.44	0.23	70	2	8	144.6	0.93	0.64	0.45	123	4	14	259.7	1.44	0.56	0.68	
	LepR <sup>flp</sup>	981.2	F	6	70	2	8	152.5	0.49	0.32	0.22	79	2	10	174.7	1.13	0.65	0.51	149	4	18	327.3	1.62	0.50	0.74	
	LepR <sup>flp</sup>	981.4	F	7	66	2	7	141.2	0.63	0.45	0.29	81	2	10	217.0	1.47	0.68	0.55	147	4	17	358.2	2.10	0.59	0.86	
	Average				65.8	2.0	7.8	127.5	0.50	0.41	0.27	75.5	2.0	8.5	160.9	1.10	0.70	0.54	141.3	4.0	16.3	288.3	1.60	0.57	0.83	
	SEM				4.7			12.4	0.03	0.04	0.04	2.2			16.4	0.09	0.07	0.07	6.1			26.4	0.11	0.06	0.12	
	LepR <sup>KO</sup>	Ubc Cre LepR <sup>flp</sup>	974.1	F	1	52	2	4	77.0	1.16	1.51	0.78	81	2	6	127.6	3.30	2.59	2.10	133	4	10	204.5	4.46	2.18	2.90
		Ubc Cre LepR <sup>flp</sup>	974.4	F	2	86	2	6	128.5	1.95	1.52	1.31	99	2	6	116.1	3.04	2.62	2.59	185	4	12	244.6	4.99	2.04	3.77
Ubc Cre LepR <sup>flp</sup>		974.5	F	3	79	2	6	103.7	1.30	1.25	0.99	85	2	6	72.9	1.13	1.55	1.32	164	4	12	176.6	2.43	1.38	2.26	
Ubc Cre LepR <sup>flp</sup>		978.1	F	4	88	2	5	105.2	1.35	1.28	1.10	117	2	6	109.6	2.68	2.45	2.87	203	4	11	214.8	4.03	1.88	3.81	
Ubc Cre LepR <sup>flp</sup>		978.5	F	5	75	2	6	135.3	2.23	1.65	1.24	112	2	6	152.0	2.43	1.60	1.79	187	4	12	287.3	4.66	1.62	3.03	
Ubc Cre LepR <sup>flp</sup>		981.1	F	6	94	2	8	178.2	1.99	1.12	1.05	112	2	8	247.6	4.41	1.78	1.99	206	4	16	425.8	6.40	1.50	3.10	
Ubc Cre LepR <sup>flp</sup>		981.3	F	7	79	2	8	139.6	1.64	1.17	0.93	113	2	6	162.3	2.70	1.66	1.88	192	4	14	301.9	4.34	1.44	2.76	
Average					78.7	2.0	6.1	123.9	1.66	1.36	1.06	102.7	2.0	6.3	141.1	2.81	2.04	2.08	181.4	4.0	12.4	265.1	4.47	1.72	3.09	
SEM					5.0			12.3	0.15	0.08	0.07	5.5			20.9	0.37	0.19	0.19	9.6			31.7	0.45	0.12	0.21	
p-value					0.09			0.84	2.85E-05	3.98E-07	1.31E-06	0.001			0.48	0.0016	6.31E-05	2.34E-05	0.006			0.59	0.0001	5.57E-06	2.22E-06	