

Table S1

Markers of apoptosis and oxidative stress of human pancreas tail samples obtained before and after preservation with SCS (n=8), HMP (n=8) and HMP O₂ (n=8) compared with their own control (the head pancreas portion) preserved through SCS method.

Position	Antigen	Primary antibody			Secondary antibody		TSA		
		Dilution	Company	Catalog number	Polymer HRP	Company	Company	Catalog number	Dye
Apoptosis mIF panel									
1	Glucagon	1/100	Cell Signaling	2760	Envision anti-rabbit	Agilent (Dako)	Thermo	B40955	AF555
2	Insulin	1/5000	Cell Signaling	3014	Envision anti-rabbit	Agilent (Dako)	Thermo	B40958	AF647
3	Cleaved caspase-3	1/500	Cell Signaling	9664	Envision anti-rabbit	Agilent (Dako)	Thermo	B40957	AF594
4	DeadEnd™ Fluorometric TUNEL System Promega G3250								
Oxidative stress mIF panel									
1	PRDX3	1/500	Sigma	HPA041488	Envision anti-rabbit	Agilent (Dako)	Thermo	B40957	AF594
2	HMOX1	1/500	Sigma	HPA000635	Envision anti-rabbit	Agilent (Dako)	Thermo	B40953	AF488
3	Insulin	1/5000	Cell Signaling	3014	Envision anti-rabbit	Agilent (Dako)	Thermo	B40958	AF647
1	Glucagon	1/100	Cell Signaling	2760	Envision anti-rabbit	Agilent (Dako)	Thermo	B40955	AF555

HMOX1, Heme oxygenase-1; HMP, hypothermic machine perfusion; HMP O₂, Oxygenated machine perfusion; PRDX3, peroxiredoxine 3; SCS, static cold storage.

Table S2

Stimulation Index, Area under the insulin curve at G15 and at G1 of n=15 DBD pancreas donors and n=9 DCD pancreas donors of islet of both head and tail of the SCS group, HMP group and HMP O₂ group

DBD	SCS group n=5			HMP group n=5			HMP O ₂ group n=5		
	Head	Tail	p	Head	Tail	p	Head	Tail	p
DAY 1									
SI	6.8±2.1	4.7±3.2	0.28	5.5±5.6	5.9±4.6	0.79	3.3±2.5	4.5±2.8	0.41
AUC G15	1.4±1.2	1.2±0.65	0.82	0.61±0.22	0.7±0.2	0.36	1.21±0.68	0.8±0.07	0.51
AUC G1	0.17±0.22	0.13±0.06	0.89	0.1±0.04	0.09±0.05	0.77	0.35±0.38	0.17±0.12	0.34
DAY 7									
SI	4.7±2.9	5.8±5	0.71	3±1	3.7±3.6	0.26	2.4±0.3	4.3±3.9	0.58
AUC G15	1.5±1	1.3±1	0.77	0.69±0.39	0.96±0.68	0.25	0.85±0.32	0.53±0.12	0.19
AIUC G1	0.17±0.01	0.31±0.4	0.79	0.19±0.07	0.14±0.02	0.23	0.18±0.06	0.18±0.09	0.57
DCD	SCS group n=3			HMP group n=3			HMP O ₂ group n=3		
	Head	Tail	p	Head	Tail	p	Head	Tail	p
DAY 1									
SI	3.5±2.3	4.3±1.7	0.67	9.4±3.1	6.5±1.5	0.07	1.7±0.6	1.7±0.1	0.99
AUC G15	2.2±2.4	3.1±1.6	0.69	0.66±0.34	0.85±0.13	0.44	1.29±1.01	1.4±0.49	0.88
AUC G1	0.29±0.21	0.26±0.21	0.60	0.03±0.01	0.06±0	0.08	0.5±0.6	0.36±0.39	0.92
DAY 7									
SI	4.5±1.2	3.1±1.6	0.39	3.2±1.3	3±1.3	0.98	1.7±0.5	1.7±0.5	0.97
AUC G15	1±1.2	1.7±1.9	0.69	0.84±0.49	1.2±0.92	0.48	0.97±0.84	1.14±0.3	0.77
AIUC G1	0.24±0.31	0.19±0.22	0.71	0.16±0	0.32±0	0.32	0.17±0.03	0.31±0.17	0.48

Abbreviations: DBD donation of brain death DCD donation of circulatory death, SCS static cold storage, HMP hypothermic machine perfusion, HMP O₂ Oxygenated hypothermic machine perfusion, SI stimulation Index , AUC area under curve

Table S3

Isolation data of SCS group, HMP group and HMP O₂ group from n=15 DBD donors and n=9 DCD donors.

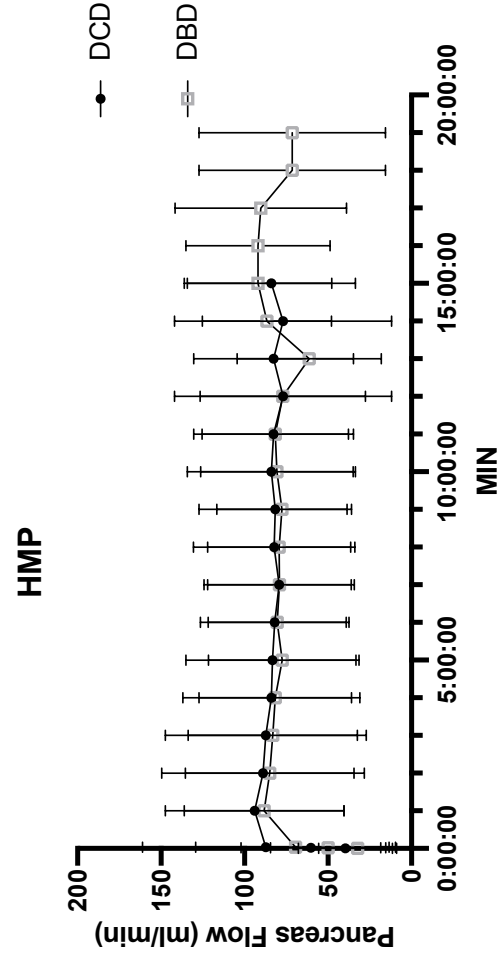
DBD	SCS group N=5			HMP group N=5			HMP O₂ group N=5		
	Head (SCS)	Tail (SCS)	p	Head (SCS)	Tail (HMP)	p	Head (SCS)	Tail (HMP O₂)	p
100/150 size (mean %)	32.2±7.6	29±7.3	0.49	31.5±14.4	22.6±9	0.26	12±6.7	10.2±8.5	0.66
150/200 size (mean %)	29.3±6.9	26.7±4.6	0.50	22.8±14.1	20.6±6	0.77	15.1±7.4	22.7±5.6	0.10
200/250 size (mean %)	20.4±8.2	22.4±6.8	0.64	22.2±8.4	22.8±4.7	0.99	26±1.7	27.3±2.5	0.36
250/300 size (mean %)	8.3±3.9	11.8±5.6	0.28	3.9±4.8	12.8±5.7	0.09	21.5±9.7	23±14.5	0.21
300/350 size (mean %)	6.4±3.9	5.5±2.8	0.82	6.4±7.8	10.5±6.5	0.36	13±10.7	6.6±0.5	0.19
350/ size (mean %)	4±1.3	4.3±3.4	0.95	12±10	10.4±5	0.69	11.4±5.4	9.9±2.3	0.58

DCD	SCS group N=3			HMP group N=3			HMP O₂ group N=3		
	Head (SCS)	Tail (SCS)	p	Head (SCS)	Tail (HMP)	p	Head (SCS)	Tail (HMP O₂)	p
100/150 size (mean %)	36.8±7.3	23.3±11	0.10	12±10.6	8.5±3.6	0.59	51.8±27.2	27.3±8.5	0.20
150/200 size (mean %)	22.7±6.1	28.6±9.8	0.39	16.4±5.7	23.3±10.9	0.40	15.4±5	19.2±6.3	0.45
200/250 size (mean %)	22±1.4	19.3±9	0.63	19.5±5.9	28.4±1.6	0.06	14.4±12.5	20.9±8.6	0.49
250/300 size (mean %)	9±1.5	13.3±4.4	0.18	20.3±6	15.9±9.3	0.52	2.3±4	11.7±0.8	0.17
300/350 size (mean %)	7.5±0.4	9±2.9	0.42	14.6±5.8	12.9±5.6	0.73	2.3±4	9.6±2	0.25
350/ size (mean %)	3.4±1.1	6.2±2.9	0.19	17.1±14.1	10.8±12.8	0.60	13.6±11.8	11.1±5.2	0.86

Following a split model each organ was divided in head- control group- preserved through a SCS method, and tail- study group- preserved through SCS, HMP and HMP O₂ respectively.

BMI, body mass index; CS, cold storadge; CVA, Cerebrovascular Accident; DBD, donation after brain death; DCD, donation after circulatory death; HBP, high blood pressure; HMP, hypthermic machine perfusion; HMP O₂, Oxygenated machine perfusion; IEQ, islet equivalent; SD, standard deviation

a)



b)

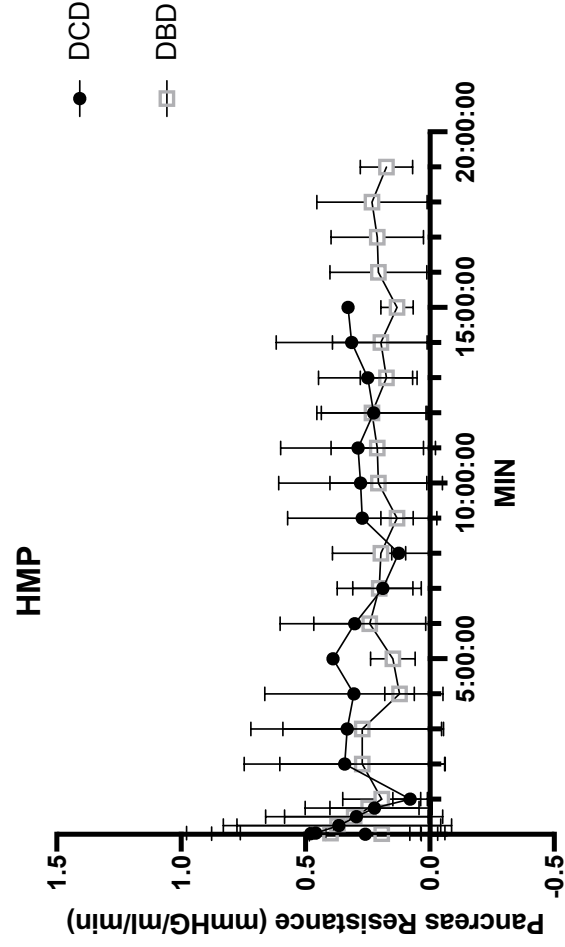
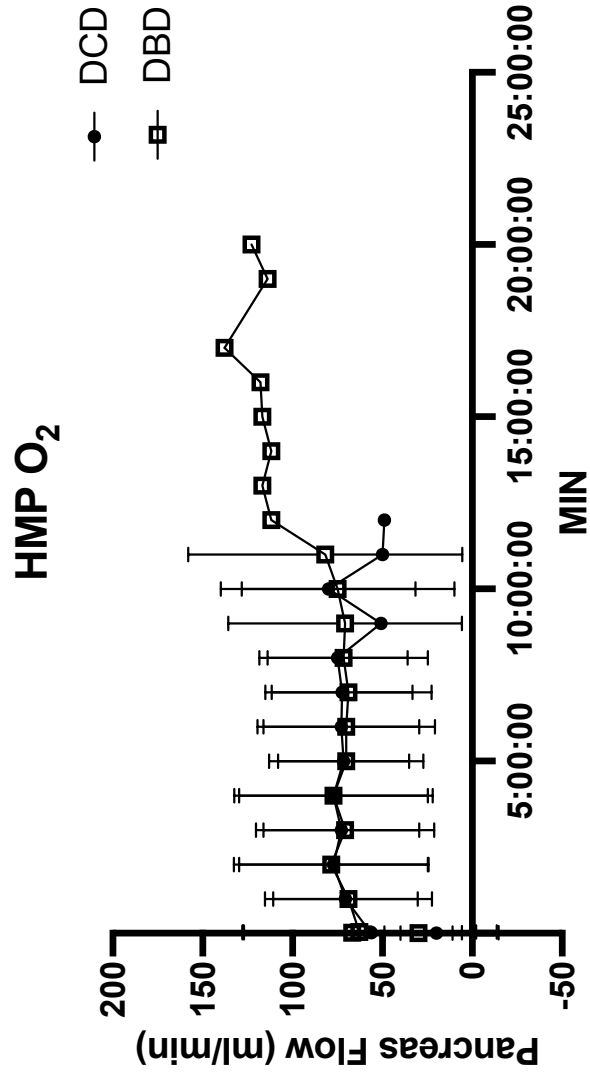


Figure S1

Pancreas flow (A) and pancreas resistance (B) during HMP in DBD organs compared to DCD organs . DBD, donation after brain death, DCD, donation after circulatory death, HMP, hypothermic machine perfusion.

a)



b)

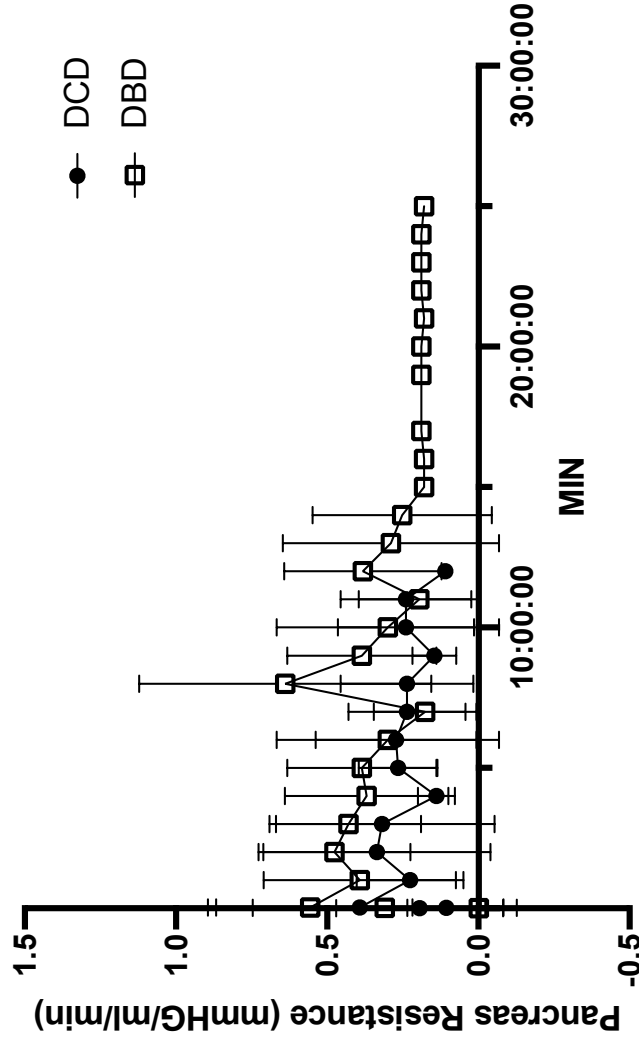


Figure S2

Pancreas flow (A) and pancreas resistance (B) during HMPO₂ in DBD organs compared to DCD organs. DBD, donation after brain death, DCD, donation after circulatory death, HMPO₂, oxygenated hypothermic machine perfusion.