



Adult Islet Allografts in Type-1 Diabetic Recipients

Summary of Adult Islet Allografts in Type-1 Diabetic Recipients According to Institution and Year from 1990 through Dec. 31, 1998

Institution (Transplantation/ Isolation)	Year of Transplantation										Σ
	90	91	92	93	94	95	96	97	98	Σ	
• Giessen	-	-	1	5	5	12	11	17	6	57	
• Minneapolis	1	3	5	5	2	10	5	1	-	32	
• Milan	4	3	2	4	4	4	1	-	5	27	
• Pittsburgh	7	5	3	3	4	3	1	-	-	26	
• Miami	4	2	1	1	1	6	2	-	1	18	
• St. Louis	3	3	2	4	2	-	-	-	-	14	
• Brussels	-	-	-	-	1	3	3	3	?	10	
• Geneva	-	-	-	-	-	-	4	2	4	10	
• Indianapolis	-	-	-	-	-	-	4	5	1	10	
• Madrid	-	-	2	1	1	2	2	-	-	8	
• Oxford	-	1	1	1	1	2	-	1	1	8	
• Edmonton	2	-	1	-	1	1	-	-	-	5	
• Odense/Milan	-	-	-	-	-	5	-	-	-	5	
• Stockholm/Giessen	-	-	-	-	-	-	2	2	1	5	
• Buenos Aires	-	-	-	-	-	1	1	2	-	4	
• London (Ontario)/St. Louis	2	1	1	-	-	-	-	-	-	4	
• Perugia	1	1	-	-	2	-	-	-	-	4	
• Innsbruck/Milano	-	-	-	-	-	2	1	-	-	3	
• Leicester	-	2	1	-	-	-	-	-	-	3	
• Los Angeles (UCLA-VA)	-	-	2	-	-	-	1	-	-	3	
• Paris	3	-	-	-	-	-	-	-	-	3	
• San Francisco/LA (UCLA-VA)	-	-	-	1	1	1	-	-	-	3	
• Charlestown	-	1	-	-	-	-	-	-	-	1	
• Chicago (NMH)	-	-	-	-	-	-	1	-	-	1	
• Homburg (Saar)	-	-	-	1	-	-	-	-	-	1	
• Lille	-	-	-	-	-	-	-	-	1	1	
• Omaha	-	-	-	-	1	-	-	-	-	1	
Σ	27	22	22	26	26	52	39	33	20	267	

Cases transplanted between 1974-1989: 90

Total: 353

98' data on file incomplete

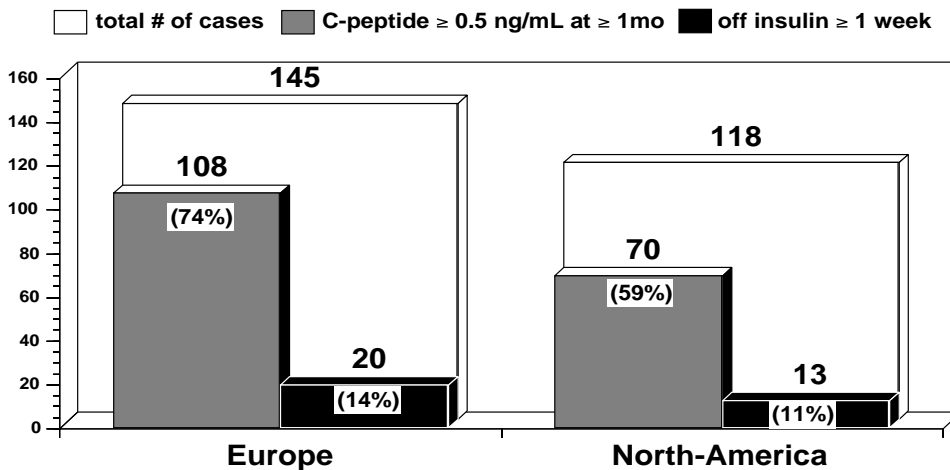


Adult Islet Allografts in Type-1 Diabetic Recipients 1990 - 1998

- No. of cases: 267
- Institutions:
 - Giessen 57
 - Minneapolis 32
 - Milan 27
 - Pittsburgh 26
 - Miami 18
 - St. Louis 14
 - Geneva 10
 - Indianapolis 10
 - 17 additional institutions 73
- Insulin-independent ≥ 7 days (1990-1998): 33 / 267 (12%)
- Insulin-independent at ≥ 1 yr (1990-1997 + one year follow-up): 20 / 245 (8%)
- Insulin-independent after 1:1 tx ≥ 7 days (1990-1998): 17 / 169 (10%)
- Insulin-independent after 1:1 tx at ≥ 1 yr (1990-1997 + one year follow-up): 11 / 156 (7%)
- Longest insulin-independence follow-up: 70 months

98' data on file incomplete

Insulin Independence and Basal C-Peptide after Adult Islet Allotransplantation in 267 Type-1 Diabetic Recipients from 1990 - 1998 according to Continent



Four transplantations performed elsewhere



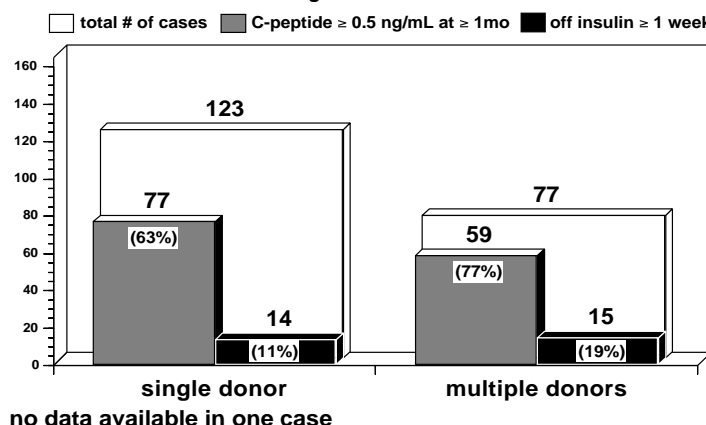
THE 1990-97 CASES

DETAILED DATA ON 200 C-PEPTIDE NEGATIVE TYPE 1 DIABETIC ADULT ISLET ALLOGRAFT RECIPIENTS TRANSPLANTED FROM 1990 TO 1997 (≥ ONE YEAR FOLLOW-UP)

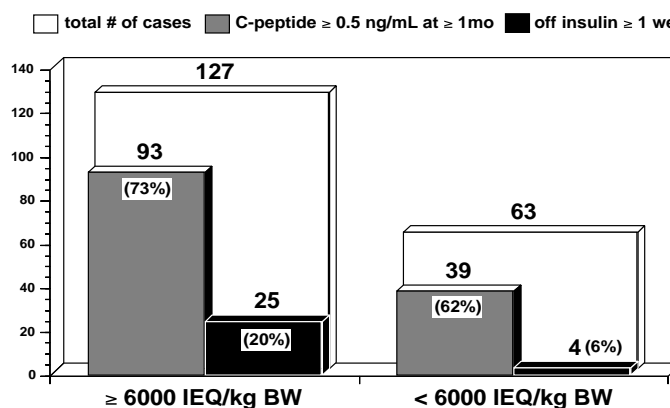
Two hundred patients with complete data records, type-1 diabetes and no residual C-peptide secretion pretransplant who received an islet allograft between 1990 and 1997 were taken into the analysis. Assuming that a large majority of islet allografts performed worldwide during this period were reported to the Registry, the following analysis should reflect the current status of islet allotransplantation in patients with type-1 diabetes mellitus.

The overall outcome assessed at one year after islet transplantation for patient survival was 96 %, for graft survival (basal C-peptide ≥ 0.5 ng/mL) 35 % and for insulin independence (more than 7 days) 10 %.

Insulin Independence and Basal C-Peptide after Adult Islet Allotransplantation in 200 pre Tx C-Peptide negative Type-1 Diabetic Recipients from 1990 - 1997 according to Number of Donors



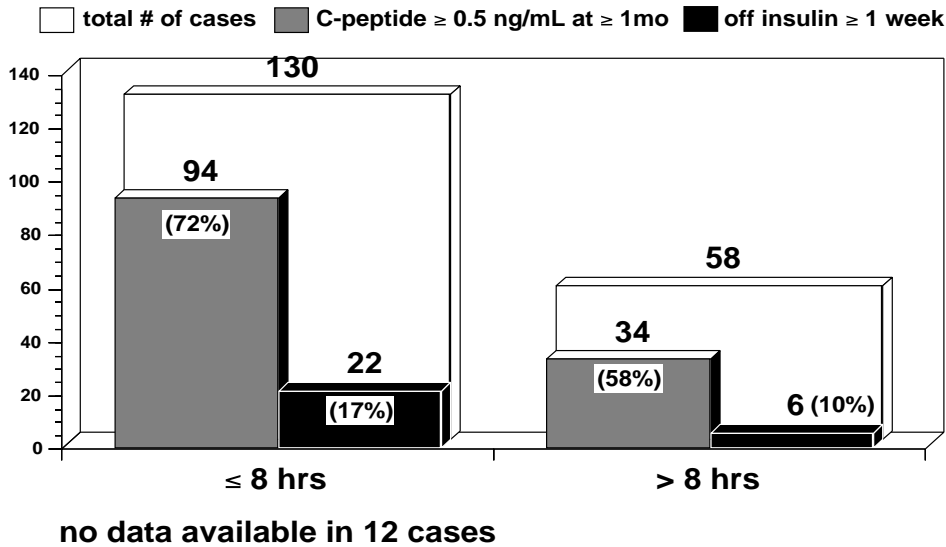
Insulin Independence and Basal C-Peptide after Adult Islet Allotransplantation in 200 pre Tx C-Peptide negative Type-1 Diabetic Recipients from 1990 - 1997 according to Number of Islet Equivalents per kg Body Weight



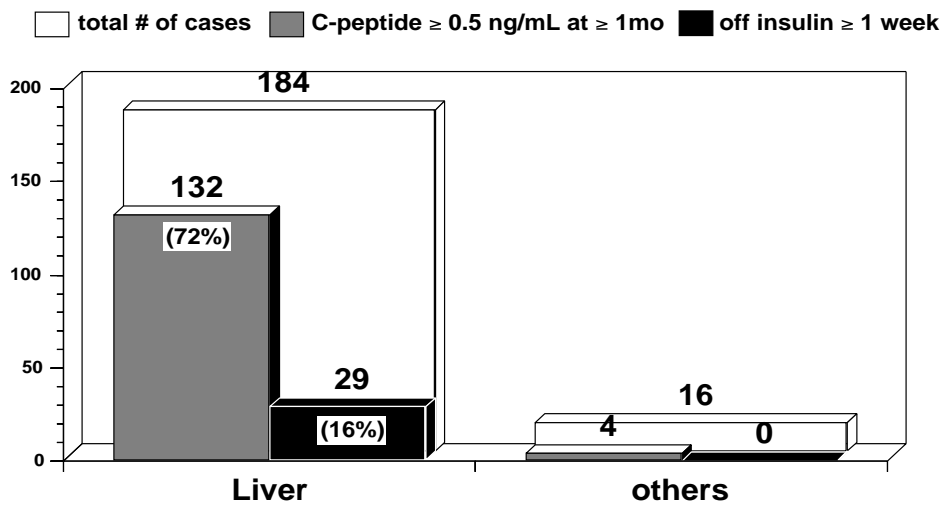


Adult Islet Allografts in Type-1 Diabetic Recipients

Insulin Independence and Basal C-Peptide after Adult Islet Allotransplantation in 200 pre Tx C-Peptide negative Type-1 Diabetic Recipients from 1990 - 1997 according to Cold Ischemia Time

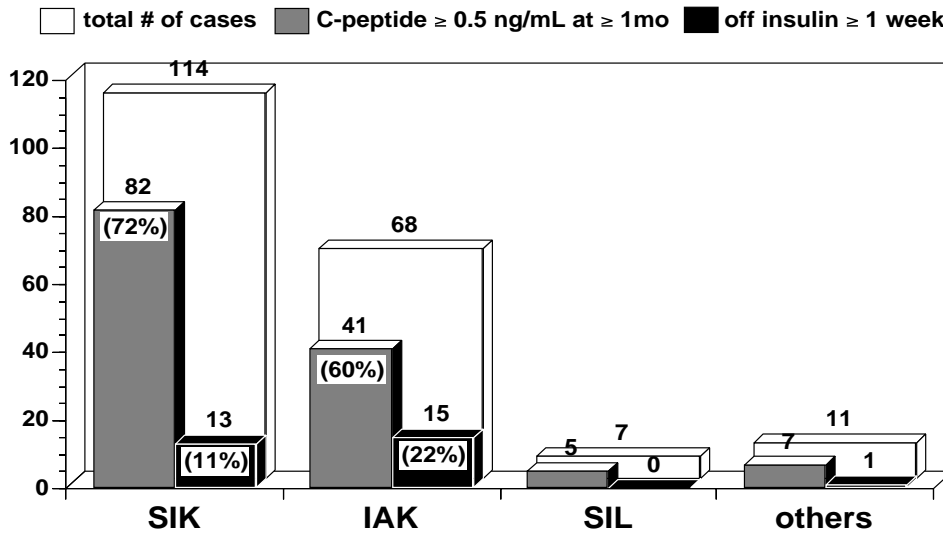


Insulin Independence and Basal C-Peptide after Adult Islet Allotransplantation in 200 pre Tx C-Peptide negative Type-1 Diabetic Recipients from 1990 - 1997 according to Implantation Site

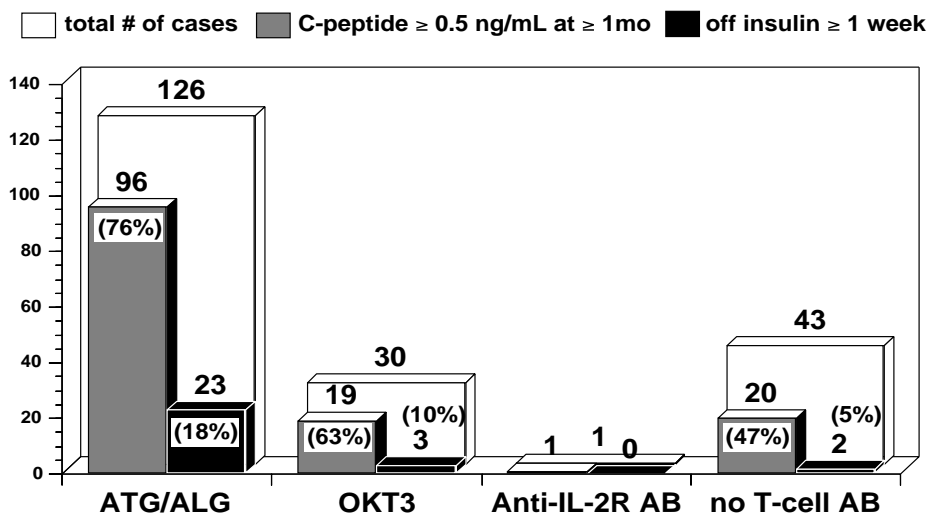




Insulin Independence and Basal C-Peptide after Adult Islet Allotransplantation in 200 pre Tx C-Peptide negative Type-1 Diabetic Recipients from 1990 - 1997 according to Recipient Category



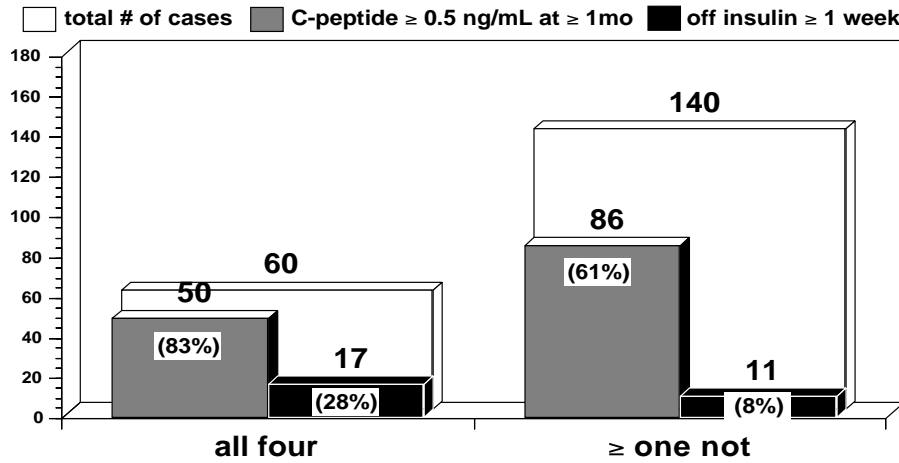
Insulin Independence and Basal C-Peptide after Adult Islet Allotransplantation in 200 pre Tx C-Peptide negative Type-1 Diabetic Recipients from 1990 - 1997 according to Induction Immunosuppression





Adult Islet Allografts in Type-1 Diabetic Recipients

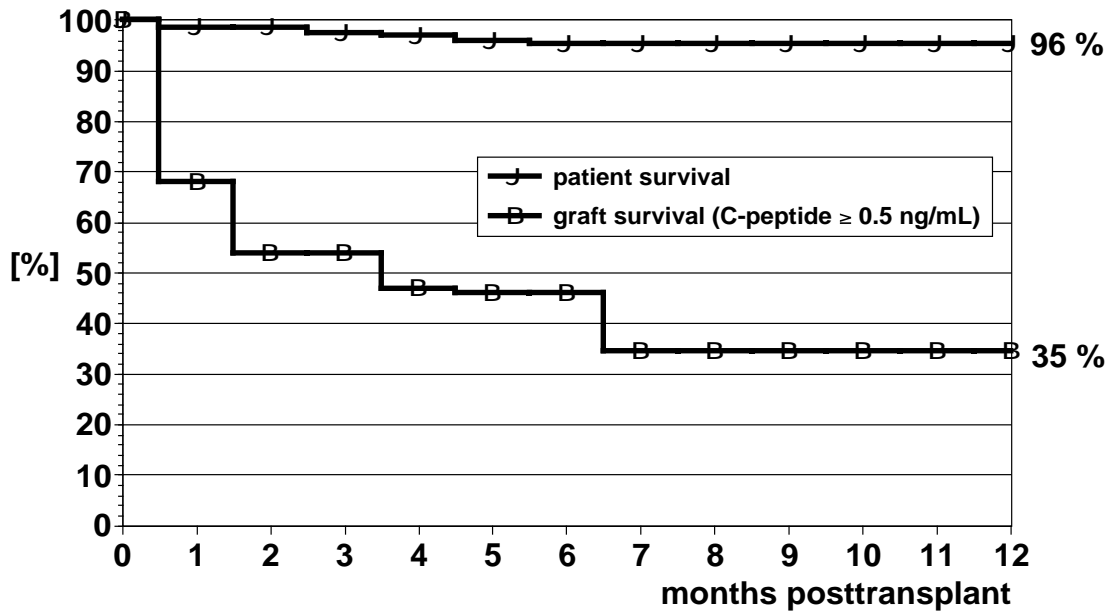
Insulin Independence and Basal C-Peptide after Adult Islet Allotransplantation in 200 pre Tx C-Peptide negative Type-1 Diabetic Recipients from 1990 - 1997 according to Common Criteria



Common Criteria:

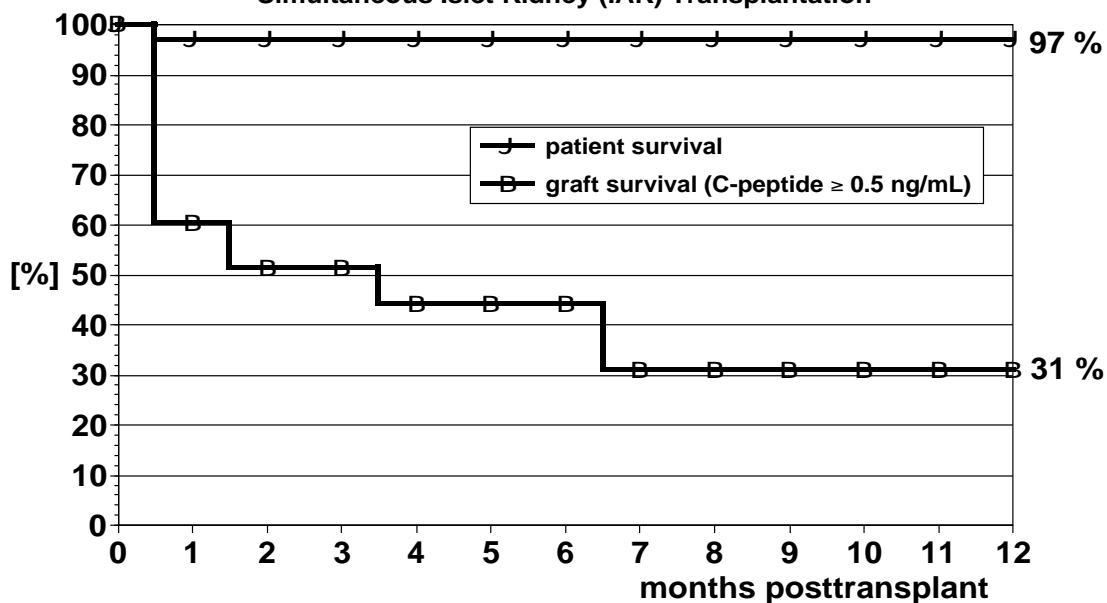
a) IEQ/kg BW $\geq 6,000$; b) CIT ≤ 8 hrs; c) ALG/ATG; Implantation Site: Liver

Cumulative One-Year Patient and Graft Survival in 200 pre Tx C-Peptide Negative Type-1 Diabetic Recipients (1990-1997)

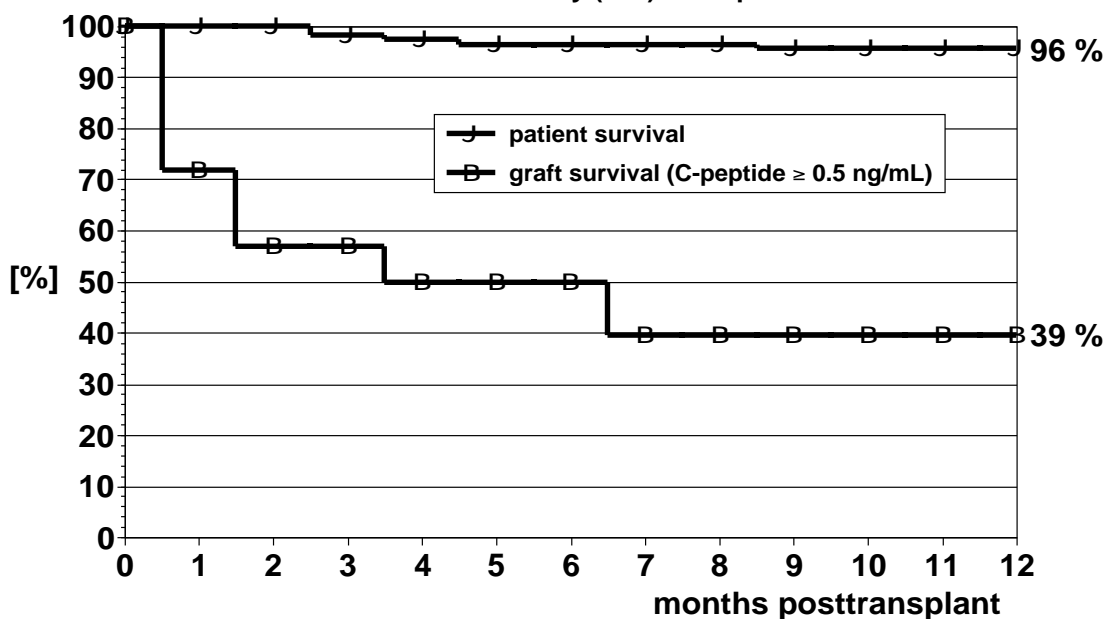




Cumulative One-Year Patient and Graft Survival in 68 pre Tx C-Peptide Negative Type -1 Diabetic Recipients (1990-1997) Simultaneous Islet Kidney (IAK) Transplantation



Cumulative One-Year Patient and Graft Survival in 114 pre Tx C-Peptide Negative Type -1 Diabetic Recipients (1990-1997) Simultaneous Islet Kidney (SIK) Transplantation





Adult Islet Allograft Survival in 200 Type-1 Diabetic Recipients (Pretransplant C-Peptide Negative) with Complete Data Records (1990-1997 Cases)

No. (Percentage) of Cases Functioning

Category	n	at ≥ 1 Month		at ≥ 1 Year			
		Basal C-Peptide 0.5 ng/mL	Insulin Indep. (7 days)	Basal C-Peptide 0.5 ng/mL	P Values	Insulin Indep. (7 days)	P Values
All cases	200	136 (68%)	28 (14%)	69 (35%)		19 (10%)	
A. Continent							
1. North America	87	54 (62%)	9 (10%)	20 (23%)	p=0.0016** 1 vs. 2	4 (5%)	p=0.0496*
2. Europe	109	82 (75%)	19 (17%)	49 (45%)		15 (14%)	
3. others	4						
B. Recipient Sex							
1. male	123	82 (67%)	12 (10%)	35 (28%)	p=0.032*	7 (6%)	p=0.0259*
2. female	77	54 (70%)	16 (21%)	34 (44%)		12 (16%)	
C. Recipient Age							
1. 40 y	124	86 (69%)	18 (15%)	46 (37%)	p=0.3545 1 vs. 2	12 (10%)	p=1.000
2. > 40 y	73	49 (67%)	10 (14%)	22 (30%)		7 (10%)	
3. no data	3						
D. Duration of Diabetes							
1. 20 y	54	34 (63%)	6 (11%)	15 (28%)	p=0.2407 1 vs. 2	3 (6%)	p=0.2873
2. > 20 y	141	100 (71%)	22 (16%)	53 (38%)		16 (11%)	
3. no data	5						
E. Average CIT							
1. 480 min	130	94 (72%)	21 (16%)	49 (38%)	p=0.0478* 1 vs. 2	16 (12%)	p=0.1045
2. > 480 min	58	34 (59%)	6 (10%)	14 (24%)		3 (5%)	
3. no data	12						
F. No. of Donors							
1. 1	123	77 (63%)	13 (11%)	39 (32%)	p=0.2165	10 (8%)	p=0.4608
2. > 1	77	59 (77%)	15 (19%)	30 (39%)		9 (12%)	
G. IEQ / kg BW							
1. < 6,000	63	39 (62%)	4 (6%)	21 (33%)	p=0.4108 1 vs. 2	3 (5%)	p=0.0703
2. 6,000	127	93 (73%)	24 (19%)	46 (36%)		16 (13%)	
3. no data	10						
H. Pre Tx Viab. Tests							
1. yes	121	85 (70%)	18 (15%)	47 (39%)	p=0.2885	12 (10%)	p=0.6238
2. no	79	51 (65%)	10 (13%)	22 (28%)		6 (8%)	
I. Islet Purity (%)							
1. 90	162	110 (68%)	23 (14%)	57 (35%)	p=0.3438 1 vs. 2	16 (10%)	p=0.4565
2. > 90	24	19 (79%)	5 (21%)	10 (42%)		3 (13%)	
3. no data	14						
J. Recipient Category							
1. IAK	68	41 (60%)	15 (22%)	21 (31%)	p=0.2677 1 vs. 2	8 (12%)	p=0.8027
2. SIK	114	82 (72%)	13 (11%)	45 (39%)		11 (10%)	
3. others	18						
K. Induction Immunosupp.							
1. ATG/ALG/IL-2R	127	97 (76%)	23 (18%)	52 (41%)	p= 0.0132* 1 vs. 3	17 (13%)	p=0.0303* 1 vs. 3
2. OKT3	30	19 (63%)	3 (10%)	9 (30%)		1 (3%)	
3. no T-cell antibody	43	20 (47%)	2 (5%)	8 (19%)		1 (2%)	
L. Site of Tx							
1. liver	184	132 (72%)	28 (15%)	67 (36%)	p=0.0426*	19 (10%)	p=0.1894
2. others	16	4 (25%)	0 (0%)	2 (13%)		0 (0%)	
M. Common Charact. of Ins. Indep. Cases							
1. all four fulfilled	60	50 (83%)	17 (28%)	28 (47%)	p=0.0143*	14 (23%)	p<0.0001***
2. 1 not fulfilled	140	86 (61%)	11 (8%)	41 (29%)		5 (4%)	

P values comparing islet graft survival rates between groups at one year after transplantation were calculated by the one-sided (categories E, G, I, K, L, M) and by the two-sided (categories A, B, C, D, F, H, J) Fisher's exact test. * p<0.05 significant, ** p<0.01 very significant, *** p<0.001 highly significant. CIT: Cold Ischemia Time; IEQ: Islet Equivalents (no. of islets if all had a diameter of 150 µm)



123 Single Donor Recipients in 1990 -1997

Out of the selected 200 pre-tx C-peptide negative type-1 diabetic patients with complete data records transplanted from 1990 to 1997, 123 recipients received islets from a single donor, as given in F on page 14.

The impact of HLA-MM (mismatches), sex compatibility and ABO identity on islet allograft survival could - for obvious reasons - only be analyzed in these 123 single donor islet allograft recipients.

No. (%) of Cases Functioning (1:1 Tx)

Category	n	at ≥ 1 Month		at ≥ 1 Year	
		Basal C-Peptide ≥ 0.5 ng/mL	Insulin Indep. (>7 days)	Basal C-Peptide ≥ 0.5 ng/mL	Insulin Indep. (>7 days)
All cases	123	77 (63%)	14 (11%)	39 (32%)	10 (8%)
A. ABDR MM					
0	1	0	0	0	0
1	3	3 (100%)	0	2 (66%)	0
2	8	4 (50%)	0	0	0
3	14	10 (71%)	3 (21%)	7 (50%)	3 (21%)
4	33	19 (58%)	2 (6%)	10 (30%)	2 (6%)
5	38	29 (76%)	6 (16%)	16 (42%)	5 (13%)
6	21	10 (48%)	2 (10%)	3 (14%)	0
no data	5	2 (40%)	0	1 (20%)	0
B. BDR MM					
0	3	2 (66%)	0	1 (33%)	0
1	7	3 (23%)	0	1 (14%)	0
2	18	16 (89%)	3 (17%)	8 (44%)	3 (17%)
3	48	27 (56%)	5 (10%)	14 (29%)	5 (10%)
4	42	27 (64%)	5 (12%)	14 (33%)	2 (5%)
no data	5	2 (40%)	0	1 (20%)	0
C. DR MM					
0	6	2 (33%)	0	2 (33%)	0
1	40	24 (60%)	6 (15%)	14 (35%)	6 (15%)
2	66	43 (65%)	7 (11%)	21 (32%)	4 (6%)
no data	11	8 (73%)	0	2 (18%)	0
D. Sex Compatibility					
1. yes	71	42 (59%)	8 (11%)	19 (27%)	7 (10%)
2. no	40	28 (70%)	4 (10%)	15 (38%)	2 (5%)
3. no data	12	7 (58%)	1 (8%)	5 (42%)	1 (8%)
E. ABO Identity					
1. yes	101	66 (66%)	11 (11%)	32 (32%)	8 (8%)
2. no	15	7 (47%)	2 (13%)	5 (33%)	2 (13%)
3. no data	7	4 (57%)	0	2 (29%)	0