

TABLE A1

Clinical characteristics of affected subjects involved in linkage analysis of T2D and GIT studies

	T2D (n = 159)	GIT (n = 310)
Male / Female	68 / 91	131 / 179
Diabetes (%)	100	65
History of diabetes (father / mother)* (%)		
- / -	0	0
- / unknown	3	2
unknown / -	3	7
+ / -	3	3
+ / unknown	12	16
- / +	0	2
unknown / +	48	40
+ / +	30	30
Age-at-examination (years)	42 ± 9	42 ± 10
Age-at-diagnosis [†] (years)	38 ± 9	38 ± 9
Body mass index (kg/m ²)	27.0 ± 4.6	26.1 ± 4.6
Fasting glucose (mmol/l)	8.2 ± 3.0	7.0 ± 2.7
Fasting insulin (pmol/l)	82 ± 68	77 ± 75
Fasting C-peptide (pmol/l)	613 ± 266	598 ± 321

Data are mean ± SD

* Parental history was assessed for proband. Families with unknown affection status for both parents were excluded. (+: affected; -: unaffected)

[†] for diabetic patients only

TABLE A2

Multipoint linkage analysis for T2D

Marker	Location (cM from pter)	LOD score
Chromosome 1		
D1S468	4.2	0
D1S548	15.1	0
D1S1597	29.9	0
D1S3669	37.1	0
D1S3720	46.6	0.42
ATA79C10	62.7	0.01
D1S3721	72.6	0
D1S2134	75.7	0.05
D1S1150	85.7	0.01
D1S1596	89.5	0.11
D1S1665	102.0	0.02
D1S1728	109.0	0
D1S551	113.7	0
GATA124C08	129.4	0
GATA133A08	137.6	0
D1S1627	139.0	0
D1S453	150.0	0.1
D1S534	151.9	0.21
D1S305	159.3	0.94
D1S1653	164.1	2.15
APOA2	170.8	2.87
D1S194	178.4	2.45
D1S196	181.5	1.72
D1S431	182.4	1.53
D1S210	188.9	1.14
D1S1589	192.1	1.17
D1S518	202.2	0.89
D1S1660	212.4	0.66
GATA124F08	226.0	0.53
D1S549	239.7	0.08
D1S3462	247.2	0
D1S1594	265.5	0
D1S1609	274.3	0
D1S2682	288.3	0
Chromosome 2		
TPO	0	0.59

D2S1780	10.0	0.39
D2S2952	17.9	0.44
D2S1400	27.6	0.42
D2S1360	38.3	0.16
D2S405	48.0	0
D2S1788	55.5	0
D2S1356	64.3	0
D2S1364	78.0	0
D2S441	87.0	0
D2S1394	90.8	0
D2S1790	103.0	0
D2S2972	114.4	0
D2S1328	132.6	0.15
D2S1334	145.1	0
D2S1353	164.5	0.02
D2S1776	173.0	0.01
D2S1391	186.2	0
D2S1384	200.4	0.1
D2S2944	210.4	0
D2S434	215.8	0
D2S1363	227.0	0
D2S427	236.7	0
D2S2968	251.9	0
D2S125	260.6	0
D2S2986	264.5	0.06
Chromosome 3		
D3S2387	5.5	0.97
D3S3630	10.7	0.72
D3S1560	19.0	0.53
D3S4545	26.3	1.27
D3S2403	37.2	0.71
D3S3038	44.8	0.52
D3S2432	57.9	0.01
D3S1768	61.5	0.02
D3S2409	70.6	0
D3S1766	78.6	0
D3S3644	91.2	0
D3S3039	103.7	0
D3S4529	112.4	0
D3S3045	124.2	0
D3S2460	134.6	0

D3S4523	138.0	0
D3S1764	152.6	0
D3S1744	161.0	0
D3S1746	169.6	0
D3S1763	176.5	0
D3S3041	188.3	0
D3S1262	201.1	0
D3S2418	215.8	0
D3S1311	224.9	0

Chromosome 4

D4S3360	0	0.27
D4S2366	12.9	0.4
D4S403	25.9	0.33
GATA70E01	35.0	0.31
D4S2397	42.7	0.11
D4S2632	51.0	0
D4S1627	60.2	0
D4S3248	72.5	0.01
D4S2367	78.4	0.05
D4S3243	88.0	0.07
D4S2361	93.5	0.22
D4S1647	104.9	0.66
D4S2623	114.0	1.28
D4S2394	130.0	2.41
D4S1644	143.3	1.79
D4S1625	146.0	0.92
D4S1629	158.0	0.08
D4S2368	167.6	0.07
D4S2417	181.9	0.08
D4S171	199.9	0.01
D4S1652	208.1	0

Chromosome 5

D5S2488	0	0.05
D5S2849	7.8	0.12
D5S2505	14.3	0.23
D5S1486	21.1	0.03
D5S2845	36.3	0.17
D5S1470	45.3	0.06
D5S1457	59.3	0.43
D5S2500	69.2	0.03
D5S1501	85.3	0.04

D5S1725	97.8	0.14
D5S1462	105.3	0.61
D5S2501	117.0	0.15
D5S1505	129.8	0.04
D5S816	139.3	0.84
D5S812	150.3	0.26
D5S820	159.8	0.01
D5S1456	174.8	0.36
D5S211	182.9	0.15
ATA52D02	189.2	0.16

Chromosome 6

D6S942	0	0
F13A1	9.2	0
D6S1006	26.7	0
D6S1281	44.4	0
D6S1051	50.8	0
D6S1017	63.3	0
D6S2410	73.1	0
D6S1031	88.6	0
D6S1056	102.8	0
D6S1021	112.2	0
D6S474	118.6	0
D6S1040	128.9	0
D6S1009	137.7	0
GATA184A08	146.1	0.44
D6S305	166.4	1.14
D6S1277	173.3	1.72
D6S1027	187.2	1.58
D6S2522	193.1	1.63

Chromosome 7

D7S3056	7.4	0.06
D7S3047	17.2	0
D7S3051	29.3	0
D7S1802	33.0	0
D7S1808	41.7	0
D7S817	50.3	0
D7S2846	57.8	0
D7S1818	69.6	0
D7S3046	78.7	0
D7S2204	91.0	0
D7S820	98.4	0

D7S821	109.1	0
D7S1799	113.9	0
D7S1817	121.4	0
D7S3061	128.4	0
D7S1804	137.0	0
GATA104	155.1	0
D7S3070	163.0	0
D7S3058	173.7	0
D7S559	182.0	0
Chromosome 8		
D8S262	4.3	0
D8S503	16.2	0.02
D8S1130	22.4	0.01
D8S1106	26.4	0.03
D8S261	37.0	0
D8S560	43.4	0.15
D8S1048	54.3	0.16
D8S1110	67.3	0
D8S1136	82.3	0
D8S2324	94.1	0
GATA8B01	103.7	0.16
GAAT1A4	110.2	0
D8S1132	119.0	0
D8S592	125.3	0
D8S1179	135.1	0
D8S1108	154.0	0.24
D8S373	164.5	0.36
Chromosome 9		
D9S1779	0	0
D9S1871	8.4	0
D9S2169	14.2	0
GATA187D09	21.9	0
D9S925	32.0	0
D9S1121	44.3	0.07
D9S1118	58.3	0.17
D9S301	66.3	0
D9S1122	75.9	0.06
D9S922	80.3	0
D9S252	88.9	0
D9S910	104.5	0
D9S930	120.0	0

D9S934	128.0	0
D9S1825	136.5	0
D9S164	147.9	0
D9S1838	163.8	0.07
Chromosome 10		
D10S1435	4.0	0
D10S189	19.0	0
D10S1412	28.3	0
D10S1430	33.2	0
D10S1423	46.0	0
D10S1426	59.0	0
D10S1220	70.2	0
D10S1225	80.8	0
GATA121A08	88.4	0
D10S1432	93.9	0
D10S2327	100.9	0
D10S2470	112.6	0
D10S1239	125.0	0.01
ATA103C06	134.2	0.03
D10S1425	136.7	0.07
D10S1230	142.8	0.02
D10S1213	148.2	0
D10S1222	156.3	0.14
D10S212	170.9	0.52
Chromosome 11		
D11S1984	2.1	0.18
D11S2362	8.9	0.35
D11S1999	17.2	0
D11S1981	21.5	0
ATA34E08	33.0	0.03
D11S1392	43.2	0.19
D11S2365	58.0	0.03
D11S4459	58.2	0.01
D11S2363	58.4	0.01
D11S2006	59.2	0.01
D11S2371	76.1	0
D11S2002	85.5	0
D11S1995	93.1	0
D11S1998	113.1	0
D11S4464	123.0	0
D11S912	131.3	0

D11S1304	141.9	0.03
D11S969	146.6	0.03
Chromosome 12		
D12S372	6.4	0.15
GATA49D12	17.7	0.12
D12S269	30.3	0.47
D12S1042	48.7	1.99
D12S1301	56.3	0.89
D12S390	67.6	1.15
D12S1294	78.0	0.15
D12S1052	83.2	0.26
D12S1064	95.0	0
D12S1300	104.0	0
PAH	109.5	0
D12S2070	125.3	0.04
D12S395	136.8	0
D12S2078	150.0	0.06
D12S1045	160.7	0
D12S1638	168.8	0.19
Chromosome 13		
D13S787	8.9	0
ATA5A09	20.4	0
D13S1493	25.8	0
D13S894	33.0	0.19
D13S1807	47.2	0.01
D13S800	55.3	0.02
D13S317	63.9	0.42
D13S793	76.0	0
D13S779	82.9	0
D13S796	93.5	0.06
D13S285	105.6	0.3
Chromosome 14		
D14S742	12.5	0
D14S1280	25.9	0
D14S608	28.0	0
D14S599	40.7	0
D14S747	55.8	0
D14S52	57.4	0
D14S592	66.8	0
D14S588	75.6	0
D14S606	91.6	0

GATA193A07	95.9	0
D14S1434	113.2	0
D14S1426	125.9	0.03
D14S1007	138.2	0
Chromosome 15		
D15S128	6.1	0.15
D15S822	12.3	0.05
D15S165	20.2	0.11
GATA50C03	34.8	0.48
D15S659	43.5	0.07
D15S643	52.3	0.02
D15S1507	60.2	0.04
D15S818	71.8	0.02
D15S652	90.0	0.12
D15S816	100.6	0.03
D15S1515	109.3	0
D15S87	115.9	0
Chromosome 16		
D16S3401	0	0
D16S2616	11.5	0
D16S748	22.7	0
D16S764	30.0	0.02
D16S403	43.9	0
D16S769	50.6	0
D16S753	57.8	0
D16S3396	63.8	0
D16S3253	71.8	0
GATA138C05	81.2	0
D16S2624	87.6	0
D16S516	100.4	0.03
D16S422	111.1	0.01
D16S539	124.7	0
D16S2621	130.4	0.02
Chromosome 17		
D17S1308	0.6	0
D17S1298	10.7	0.34
D17S974	22.2	0.06
ATA78D02	32.0	0
D17S2196	44.6	0
D17S1299	62.0	0
D17S2180	66.9	0

D17S1290	82.0	0
D17S2193	89.3	0
D17S1301	100.0	0.01
D17S784	116.9	0
D17S928	126.5	0

Chromosome 18

GATA178F11	2.8	0.1
D18S1370	6.9	0.15
D18S391	18.7	0.64
D18S843	28.1	1
D18S71	43.5	0.21
D18S877	54.4	0
D18S535	64.5	0.01
D18S851	75.0	0
D18S858	80.4	0.1
D18S1357	88.6	0.02
D18S1371	115.9	0
D18S70	126.0	0

Chromosome 19

D19S591	9.8	0
D19S1034	20.8	0
D19S586	32.9	0
D19S714	42.0	0
D19S245	58.7	0
D19S559	68.1	0
D19S246	78.1	0
D19S589	87.7	0.11
D19S254	100.6	0.01

Chromosome 20

D20S103	2.1	0
D20S482	12.0	0
D20S95	16.7	0
D20S851	24.7	0
D20S1143	35.5	0
D20S477	48.0	0
D20S478	54.1	0
D20S481	62.3	0
D20S480	79.9	0
D20S451	90.1	0
D20S164	101.2	0

Chromosome 21

D21S1432	3.0	0
D21S1437	13.1	0.03
D21S1270	27.4	0.13
D21S1440	36.8	0.19
D21S1411	51.5	0.49
Chromosome 22		
GATA198B05	1.8	0.13
D22S686	13.6	0.04
D22S689	28.6	0
D22S1045	42.8	0
D22S532	52.6	0
D22S1169	60.6	0

TABLE A3

Family structure in T2D (64 families) and GIT (102 families) studies

	T2D Study	GIT Study
Number of subjects with		
NGT (%)	161 (40.1)	245 (40.4)
IGT/IFG (%)	49 (12.2)	117 (19.3)
T2D (%)	191 (47.6)	245 (40.4)
Number of members per family*	6.3 ± 2.6	6.0 ± 2.5
Number of affected members per family included in linkage analysis *	2.5 ± 0.7	3.0 ± 1.1

NGT, normal glucose tolerance; IGT, impaired glucose tolerance; IFG, impaired fasting glucose; and T2D, type 2 diabetes (20).

*mean ± SD

TABLE A4

Numbers of possible relative pairs in linkage studies for T2D and GIT

Relative pair	Number of possible pairs*	
	T2D Study (64 families)	GIT Study (102 families)
Full-siblings †	126	306
Half-siblings	0	5
Grandparent-grandchild	0	6
Avuncular	3	30
First cousins	1	5
Total	130	352

* There were 77 and 159 parent-offspring pairs for T2D and GIT studies respectively. These pairs are not informative for non-parametric linkage analysis.

† For T2D study, there were 39, 19 and 5 families with 1, 3 and 6 possible full sibpairs, respectively. For GIT study, there were 46, 32, 1, 13, 1, 6 and 1 families with 1, 3, 4, 6, 7, 10 and 15 possible full sibpairs, respectively