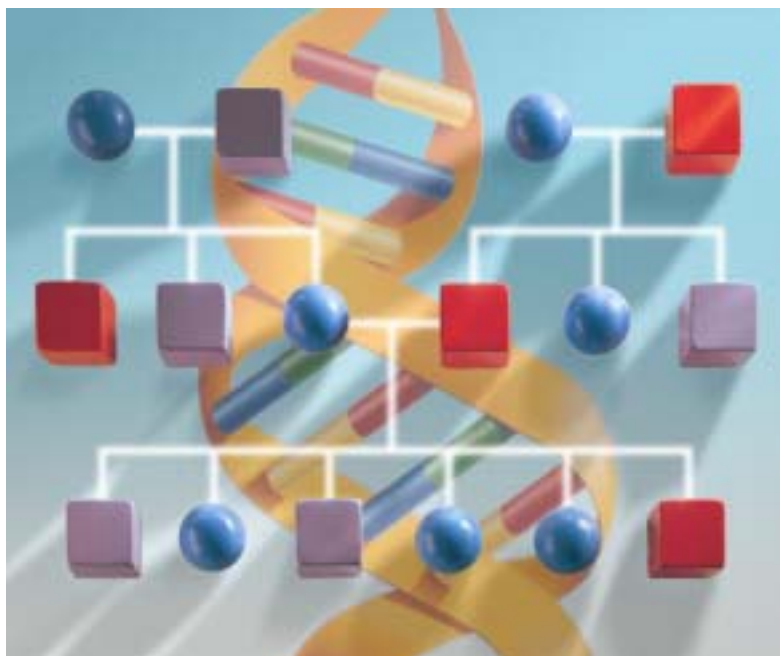




ABI PRISM[®] Linkage Mapping Set

Version 2.5

Panel Guide

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Version 2.5

Panel Guide

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Contents

1 Introduction

Overview	1-1
In This Chapter	1-1
Intended Use of This Document	1-1
Product Overview	1-2
Product Description	1-2
Product Configurations	1-2
About Linkage Mapping Set v2.5	1-2
About Linkage Mapping Set Panels	1-2
Panel Guide Overview	1-3
About This Guide	1-3
Maps	1-3
Panel Description	1-3

2 Panels and Markers by Chromosome Number

Overview	2-1
In This Chapter	2-1
Chromosome 1	2-2
Marker Map	2-2
Associated Panels	2-3
Chromosome 2	2-4
Marker Map	2-4
Associated Panels	2-5
Chromosomes 3 and 4	2-6
Marker Maps	2-6
Associated Panels	2-7
Marker Maps Repeated	2-8
Associated Panels Continued	2-9
Chromosomes 5 and 6	2-10
Marker Maps	2-10
Associated Panels	2-11
Chromosomes 7 and 8	2-12
Marker Maps	2-12
Associated Panels	2-13
Chromosomes 9, 10, and 11	2-14
Marker Maps	2-14
Associated Panels	2-15

Marker Maps Repeated	2-16
Associated Panels Continued	2-17
Chromosomes 12 and 13	2-18
Marker Maps	2-18
Associated Panels	2-19
Chromosome 14	2-20
Marker Map	2-20
Associated Panels	2-21
Chromosomes 15 and 16	2-22
Marker Maps	2-22
Associated Panels	2-23
Chromosomes 17 and 18	2-24
Marker Maps	2-24
Associated Panels	2-25
Chromosomes 19, 20, 21, and 22	2-26
Marker Maps	2-26
Associated Panels	2-27
Chromosome X	2-28
Marker Map	2-28
Associated Panels	2-29

Introduction

1

Overview

In This Chapter The following topics are covered in this chapter:

Topic	See Page
Product Overview	1-2
Panel Guide Overview	1-3

Intended Use of This Document

The following information is contained in this document:

- ◆ A brief description of the ABI PRISM® Linkage Mapping Set version 2.5
- ◆ A visual display of the location of each marker on the chromosomes with relative spacing of markers
- ◆ Tables of each panel that list the loci, indicate the dye label, heterozygosity, allelic size range, and genotype data of each marker

This is not a stand-alone document. Use this document as a companion to the *ABI PRISM Linkage Mapping Set v2.5 User Guide* (P/N 4330202). The user guide contains important information on how to order, use, analyze, and troubleshoot the Linkage Mapping Set v2.5.

Note Revised November, 2002. The ABI PRISM® Linkage Mapping Set version 2.5 Panel Guide was revised to reflect more accurate marker-specific information. Revised information includes updated allelic size ranges for each marker, as well as reference genotypes for CEPH individual 1347-02 derived using the ABI PRISM® 3100 Genetic Analyzer and the GeneScan™-500 LIZ® Size Standard.

Product Overview

Product Description The Linkage Mapping Set v2.5 comprises 811 fluorescently labeled PCR primer pairs (markers) that define a ~5 centiMorgan (cM) resolution human index map.

The loci were selected from the Génethon human linkage map,^{1,2,3} based on chromosomal locations and heterozygosity. The map positions were generated from the same CEPH genotype data used for the 1996 Génethon map³.

Product Configurations The Linkage Mapping Set v2.5 is available in two configurations:

- ◆ Linkage Map Set v2.5 HD5 defines an approximately 5-cM resolution human index map.
- ◆ Linkage Mapping Set v2.5 MD10 defines an approximately 10-cM resolution human index map.

About Linkage Mapping Set v2.5 The Linkage Mapping Set v2.5 contains fluorescent dye-labeled primer pairs that generate PCR products that can be combined and detected in a single lane or capillary injection.

These primers have been designed to ensure efficient PCR amplification under a single set of conditions and to produce products over a broad molecular weight range.

Sources of Mapping Information

The majority of population and mapping data used in the development of these markers was obtained from the CEPH database:

<http://www.cephb.fr/>

Other sources of mapping information that you may want to use are the:

- ◆ National Center for Biotechnology Information (NCBI)
<http://www.ncbi.nlm.nih.gov/>
- ◆ Genome Database
<http://www.gdb.org>

Overlapping alleles are distinguished by labeling with three different fluorescent dyes: [FAM]TM, [VIC][®], and [NED]TM, which are displayed on ABI PRISM genetic analysis systems as blue, green, and yellow respectively.

About Linkage Mapping Set Panels The Linkage Mapping Set v2.5 markers are organized into 86 panels. All 86 panels comprise Linkage Mapping Set v2.5 HD5, but only panels 1 through 28 comprise Linkage Mapping Set v2.5 MD10.

You can order these markers as kits or as individual primer pairs. For product ordering information, see the *ABI PRISM Linkage Mapping Set v2.5 User Guide*.

1. Weissenbach, J., et. al. 1992. A second-generation linkage map of the human genome. *Nature* **359**:794–801.

2. Gyapay, G. et. al. 1994. Génethon Human Genetic Linkage Map. *Nature Genet.* **7**:246–339.

3. Dib, C., et. al. 1996. *Nature* **380**:6570, 152–154.

Panel Guide Overview

About This Guide This panel guide is designed as a reference tool for researcher scientists using the Linkage Mapping Set v2.5.

Maps The chromosome maps in Chapter 2 are sex-averaged maps that list the distance between markers in centiMorgans (cM) as determined from the CEPH data and the marker's panel number.

Panel Description Each panel consists of a group of markers that can be loaded into one capillary or into one lane in a gel. To gain the most efficiency, panels may contain markers from more than one chromosome. In this guide, each panel is represented by a table with the information below.

Panel Table Description

Column Heading	Description								
Panel Number	An orderable group of markers.								
Locus	The location of marker on the chromosome.								
Dye Label	Marker dye labels are distinguished by the Dye Label column and by the shading of the rows in the tables. <table><tr><th>Dye Label</th><th>Color of Rows</th></tr><tr><td>[FAM]</td><td>Blue</td></tr><tr><td>[VIC]</td><td>Green</td></tr><tr><td>[NED]</td><td>Yellow</td></tr></table>	Dye Label	Color of Rows	[FAM]	Blue	[VIC]	Green	[NED]	Yellow
Dye Label	Color of Rows								
[FAM]	Blue								
[VIC]	Green								
[NED]	Yellow								
Heterozygosity	Marker heterozygosity (het) is given to enable users to see the informativeness of a particular marker. Note The values provided are based on the CEPH data and may vary for other populations.								
Allele Size Range	The allele size range is based on the range of sizes seen for this marker in the CEPH database. Because we have optimized and tailed the markers and because the range has been extrapolated from the control values, the sizes seen for 1347-02 will not match those in the CEPH database. For more details on sizing precision, see the <i>ABI PRISM Linkage Mapping Set v2.5 User Guide</i> .								

Panel Table Description (continued)

Column Heading	Description
Control Genotype	The control genotypes (GT) are from CEPH individual 1347-02. These values were observed when the products were run on an ABI PRISM® 3100 Genetic Analyzer using a 36-cm array, POP-4™ polymer, and the GeneScan™-500 LIZ® size standard. The fragments were sized using ABI PRISM® GeneScan® Analysis Software v3.7 using the local southern algorithm. IMPORTANT You may observe sizes other than those stated in this panel guide. Sizing variation may occur when you run your sample under conditions that are slightly different from those used for the control genotype of the CEPH individual (stated above). For example, the following conditions may vary in your laboratory: ◆ Sequencing instrument ◆ Sequencing buffer and/or conditions ◆ Sizing algorithm ◆ Mathematical rounding To account for variation resulting from varying run conditions, we recommend that you load a control sample for each panel in a run. This control should give a consistent size (standard deviation of 0.15 bp) for the specific run conditions that you use. If the size that you determine varies from the size given in this guide, then the base pair separation of the two alleles of each marker should be consistent. For example, this guide lists a marker that has two alleles, one at 284 bp and one at 288 bp, giving a separation of 4 bp. If you observe a consistent allele call of 283 bp and 287 bp, this should not be of concern because the allelic separation is still 4 bp.

Note Revised November, 2002. The ABI PRISM® Linkage Mapping Set version 2.5 Panel Guide was revised to reflect more accurate marker-specific information. Revised information includes updated allelic size ranges for each marker, as well as reference genotypes for CEPH individual 1347-02 derived using the ABI PRISM® 3100 Genetic Analyzer and the new GeneScan™-500 LIZ® Size Standard.

Panels and Markers by Chromosome Number

2

Overview

In This Chapter The following topics are covered in this chapter:

Topic	See Page
Chromosome 1	2-2
Chromosome 2	2-4
Chromosomes 3 and 4	2-6
Chromosomes 5 and 6	2-10
Chromosomes 7 and 8	2-12
Chromosomes 9, 10, and 11	2-14
Chromosomes 12 and 13	2-18
Chromosome 14	2-20
Chromosomes 15 and 16	2-22
Chromosomes 17 and 18	2-24
Chromosomes 19, 20, 21, and 22	2-26
Chromosome X	2-28

Chromosome 1

Marker Map

	Chromosome 1	Panel No.
5.0	D1S468	2
3.9	D1S2660	31
6.6	D1S214	2
3.8	D1S450	1
2.8	D1S2667	1
6.9	D1S434	32
4.7	D1S507	31
5.4	D1S2697	2
2.0	D1S2644	29
4.1	D1S199	2
4.5	D1S2864	31
6.2	D1S234	1
5.5	D1S233	29
3.5	D1S255	1
4.3	D1S2892	30
1.9	D1S2713	30
3.7	D1S2797	1
5.5	D1S2652	29
3.9	D1S2890	1
1.3	D1S2873	30
0.1	D1S2737	32
3.9	D1S2846	32
4.5	D1S230	2
7.0	D1S198	32
0.7	D1S2841	2
6.8	D1S500	29
3.6	D1S207	2
8.3	D1S2766	31
0.8	D1S435	29
2.9	D1S2868	2
4.8	D1S2793	32
2.9	D1S206	1
9.4	D1S495	31
5.0	D1S2726	1
5.4	D1S252	2
9.4	D1S498	2
3.2	D1S2635	29
9.2	D1S484	1
4.2	D1S2878	1
4.4	D1S196	1
4.2	D1S452	29
8.1	D1S218	2
3.2	D1S2818	32
2.4	D1S238	2
4.2	D1S2877	30
2.3	D1S412	32
8.8	D1S413	2
2.1	D1S249	1
5.7	D1S2692	29
3.7	D1S245	32
7.2	D1S425	2
3.3	D1S227	31
2.5	D1S213	1
1.7	D1S2833	31
3.8	D1S2709	32
5.1	D1S2800	1
8.8	D1S2850	30
2.0	D1S2670	29
3.8	D1S2785	1
4.6	D1S304	30
4.9	D1S2842	1
7.3	D1S423	32
	D1S2836	1

Associated Panels The following panels cover chromosome 1.

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
1	D1S2797	FAM	0.74	97	135	117	129
	D1S249	FAM	0.87	160	190	166	176
	D1S2800	FAM	0.77	205	221	207	207
	D1S234	FAM	0.81	262	284	270	274
	D1S450	FAM	0.81	315	341	331	339
	D1S255	VIC	0.75	85	107	89	99
	D1S2667	VIC	0.82	122	152	138	142
	D1S2785	VIC	0.76	171	185	179	183
	D1S2890	VIC	0.81	211	235	211	215
	D1S484	VIC	0.64	272	286	274	276
	D1S196	VIC	0.74	321	337	327	327
	D1S213	NED	0.86	103	129	105	115
	D1S2878	NED	0.84	148	176	154	168
	D1S206	NED	0.82	205	223	215	221
	D1S2836	NED	0.79	242	256	244	248
	D1S2726	NED	0.75	280	294	282	282
	D1S2842	NED	0.76	336	358	342	344
2	D1S199	FAM	0.83	94	120	96	104
	D1S207	FAM	0.84	146	176	158	164
	D1S2868	FAM	0.76	206	220	208	210
	D1S413	FAM	0.76	249	265	251	255
	D1S238	FAM	0.86	292	326	294	304
	D1S252	VIC	0.81	86	112	88	88
	D1S230	VIC	0.78	150	164	156	160
	D1S468	VIC	0.76	191	211	193	203
	D1S2841	VIC	0.78	230	250	236	240
	D1S2697	VIC	0.7	286	302	290	298
	D1S214	NED	0.78	117	147	121	143
	D1S498	NED	0.82	187	209	187	201
	D1S218	NED	0.83	265	291	275	277
	D1S425	NED	0.81	332	358	350	356
29	D1S2644	FAM	0.8	116	132	125	125
	D1S435	FAM	0.73	162	182	164	164
	D1S500	VIC	0.62	116	134	125	129
	D1S2670	VIC	0.83	156	182	156	166
	D1S2652	NED	0.62	93	111	95	99
	D1S452	NED	0.75	119	131	124	126
	D1S2635	NED	0.87	146	164	150	159
	D1S233	NED	0.85	196	212	206	212
	D1S2692	NED	0.86	276	316	304	310

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
30	D1S2892	FAM	0.88	97	133	107	111
	D1S2850	FAM	0.64	150	158	151	153
	D1S304	FAM	0.6	170	180	172	176
	D1S2713	FAM	0.76	257	283	269	269
	D1S2877	NED	0.71	143	157	150	150
	D1S2873	NED	0.69	170	186	172	172
31	D1S2833	FAM	0.82	91	113	93	103
	D1S2864	FAM	0.81	144	172	144	144
	D1S507	FAM	0.78	187	207	187	197
	D1S2660	VIC	0.78	116	124	122	122
	D1S227	NED	0.69	61	75	71	73
	D1S495	NED	0.87	143	169	152	156
32	D1S2766	NED	0.74	187	199	187	197
	D1S2793	FAM	0.77	96	132	107	115
	D1S198	FAM	0.79	313	327	313	317
	D1S412	VIC	0.7	129	147	135	135
	D1S2709	VIC	0.72	197	203	199	201
	D1S245	VIC	0.81	239	257	242	242
	D1S423	NED	0.6	89	95	91	93
	D1S434	NED	0.61	130	144	136	138
	D1S2846	NED	0.54	167	181	173	175
	D1S2737	NED	0.75	194	224	218	222
	D1S2818	NED	0.7	258	268	257	267

Chromosome 2

Marker Map

Chromosome 2	Panel No.
1.6	D2S323 35
3.8	D2S319 4
4.5	D2S2166 33
7.1	D2S2211 3
5.9	D2S162 4
7.4	D2S168 4
5.5	D2S149 36
0.8	D2S305 4
7.1	D2S2150 33
3.5	D2S165 3
4.2	D2S352 34
5.0	D2S367 3
4.8	D2S2163 36
6.9	D2S2259 4
4.9	D2S391 4
6.1	D2S2369 34
5.0	D2S337 3
3.1	D2S2368 4
2.7	D2S303 36
2.7	D2S2110 36
10.7	D2S286 3
3.8	D2S2333 3
3.6	D2S388 34
3.7	D2S2216 4
3.1	D2S2264 35
4.3	D2S293 34
9.2	D2S160 3
1.5	D2S347 4
10.7	D2S2271 33
9.1	D2S112 4
7.3	D2S151 4
3.6	D2S2241 34
5.1	D2S142 3
2.9	D2S306 33
7.1	D2S2330 4
5.0	D2S335 4
5.1	D2S2188 35
4.4	D2S364 3
4.5	D2S118 33
9.0	D2S117 3
1.3	D2S2358 33
0.0	D2S325 3
5.6	D2S2321 33
3.0	D2S2361 36
5.0	D2S2382 4
3.5	D2S163 35
2.4	D2S126 3
4.0	D2S133 36
3.5	D2S2354 36
2.6	D2S362 33
4.8	D2S396 4
1.7	D2S2344 35
9.4	D2S206 3
1.6	D2S2202 34
8.6	D2S338 4
1.5	D2S2285 34
3.8	D2S125 3
	D2S140 33

Associated Panels The following panels cover chromosome 2.

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
3	D2S286	FAM	0.66	80	102	82	92
	D2S165	FAM	0.85	141	175	153	159
	D2S160	FAM	0.78	206	224	212	214
	D2S2211	FAM	0.74	236	258	244	246
	D2S367	FAM	0.86	306	340	312	318
	D2S125	VIC	0.82	87	109	95	97
	D2S206	VIC	0.8	125	163	149	151
	D2S117	VIC	0.82	190	220	192	210
	D2S142	VIC	0.76	235	255	239	243
	D2S2333	NED	0.82	79	101	93	99
	D2S126	NED	0.82	113	145	133	137
	D2S325	NED	0.82	154	184	158	168
	D2S364	NED	0.8	230	256	234	238
	D2S337	NED	0.88	291	315	305	307
4	D2S112	FAM	0.71	73	89	75	81
	D2S162	FAM	0.75	119	148	120	132
	D2S2330	FAM	0.81	166	186	168	176
	D2S2216	FAM	0.76	208	224	210	220
	D2S347	FAM	0.8	267	299	289	289
	D2S2259	FAM	0.79	321	341	321	339
	D2S319	VIC	0.73	128	140	130	132
	D2S168	VIC	0.82	156	180	162	174
	D2S151	VIC	0.82	224	252	242	246
	D2S2382	VIC	0.81	296	336	308	316
	D2S2368	NED	0.83	93	117	103	105
	D2S391	NED	0.79	143	159	151	153
	D2S335	NED	0.79	183	205	193	197
	D2S396	NED	0.83	232	250	237	241
	D2S338	NED	0.81	264	288	274	274
	D2S305	NED	0.72	314	336	322	336
33	D2S2321	FAM	0.75	85	107	96	96
	D2S140	FAM	0.76	156	172	157	161
	D2S118	FAM	0.78	176	220	182	182
	D2S2166	FAM	0.84	236	254	246	250
	D2S362	VIC	0.77	105	121	106	106
	D2S2150	VIC	0.77	169	201	169	187
	D2S2271	NED	0.81	132	164	142	142
	D2S2358	NED	0.80	183	205	196	200
	D2S306	NED	0.70	223	250	227	249

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
34	D2S2241	FAM	0.77	86	102	91	96
	D2S293	FAM	0.83	170	196	170	178
	D2S388	FAM	0.64	218	236	227	231
	D2S2285	VIC	0.64	130	151	141	150
	D2S2202	VIC	0.67	240	250	246	250
	D2S2369	NED	0.68	107	161	151	151
	D2S352	NED	0.78	267	295	275	285
35	D2S2188	FAM	0.66	128	150	136	142
	D2S323	FAM	0.57	181	197	193	193
	D2S163	FAM	0.78	217	235	220	226
	D2S2264	VIC	0.77	245	260	248	250
	D2S2344	NED	0.78	278	298	286	288
36	D2S2110	FAM	0.78	132	146	136	140
	D2S2354	FAM	0.8	260	280	264	270
	D2S2163	VIC	0.84	119	129	123	123
	D2S133	VIC	0.66	223	249	230	238
	D2S2361	NED	0.76	128	156	135	143
	D2S303	NED	0.68	169	197	184	192
	D2S149	NED	0.81	214	232	219	221

Chromosomes 3 and 4

Marker Maps

Chromosome 3	Panel No.	Chromosome 4	Panel No.
3.6	D3S1270	3.2	D4S2936
1.7	D3S1297		D4S412
	D3S3630	2.9	D4S3023
9.4		4.7	D4S2935
1.8	D3S3706		
	D3S1304		D4S403
2.2	D3S3728		
5.7		14.1	
6.0	D3S1597		D4S419
	D3S1263	8.9	D4S2994
4.5	D3S2338	2.0	D4S3022
4.7	D3S3659	3.1	D4S391
5.8		5.1	D4S2912
	D3S1266	3.6	D4S1587
2.2	D3S1609	3.3	
1.7	D3S3567	6.7	D4S405
6.8		3.6	D4S2971
1.2	D3S1277	3.9	D4S428
4.2	D3S3521	2.2	D4S1592
3.5	D3S3685	6.0	
0.0	D3S1581		D4S398
	D3S1289	2.7	D4S3004
9.2		3.8	D4S392
	D3S1300	4.2	D4S3042
4.5	D3S1600		D4S2964
6.9		4.2	D4S1534
4.2	D3S1285	3.7	D4S2460
3.1	D3S3697	2.7	D4S414
	D3S1566	4.3	D4S2986
10.9		2.0	D4S1572
	D3S3681	11.1	
2.1	D3S1276		D4S406
3.2	D3S3634	6.7	D4S402
0.0	D3S1603	4.4	D4S1615
3.3	D3S1271	3.3	D4S1575
3.4	D3S3574	10.3	
			D4S1579
6.1		3.0	D4S424
	D3S2496	1.2	D4S1586
2.6	D3S1278	7.8	
4.4			D4S2962
3.5	D3S1558	4.9	D4S413
7.8	D3S1267	4.4	D4S3046
1.0	D3S3606	3.2	D4S2952
4.5	D3S1292	4.3	D4S1597
2.8	D3S3637	4.6	D4S1595
4.9	D3S1309	3.6	D4S1539
3.0	D3S1569	4.5	D4S415
3.7	D3S1593	8.4	
3.2	D3S1555		D4S2920
3.2	D3S1279	5.3	D4S1535
7.2		5.5	D4S2924
	D3S3668	4.2	D4S3051
2.5	D3S1614	2.4	D4S426
4.8	D3S3725	1.5	D4S2930
6.8			
	D3S1565		
2.8	D3S3715		
4.7			
	D3S3609		
2.7	D3S3592		
2.8	D3S1262		
3.1	D3S3686		
3.8	D3S1580		
6.6			
1.8	D3S1601		
	D3S2748		
6.7			
	D3S1265		
1.1	D3S1311		

Associated Panels The following panels cover chromosomes 3 and 4.

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
5	D4S392	FAM	0.82	79	109	87	91
	D3S1311	FAM	0.83	133	159	145	147
	D3S1565	FAM	0.64	178	194	180	182
	D4S406	FAM	0.87	242	268	250	258
	D4S1575	FAM	0.65	287	305	295	297
	D3S1271	VIC	0.73	84	104	92	94
	D3S3681	VIC	0.83	121	161	151	151
	D4S414	VIC	0.89	231	249	237	237
	D4S405	VIC	0.86	281	309	293	297
	D3S1614	NED	0.83	101	125	115	115
	D4S1534	NED	0.77	147	169	149	159
	D3S1263	NED	0.86	191	211	199	205
	D3S1285	NED	0.73	233	251	237	243
	D4S1597	NED	0.76	274	300	278	278
6	D3S1262	FAM	0.80	110	132	116	122
	D3S1569	FAM	0.80	150	174	156	168
	D4S1572	FAM	0.84	195	213	199	205
	D3S1300	FAM	0.82	230	262	232	252
	D4S413	FAM	0.85	282	334	284	298
	D4S2935	VIC	0.62	85	105	87	101
	D4S1592	VIC	0.72	113	141	127	135
	D4S391	VIC	0.85	150	170	156	158
	D3S1304	VIC	0.80	254	276	264	264
	D3S1601	VIC	0.85	298	330	314	316
	D3S1297	VIC	0.82	351	369	353	359
	D3S1292	NED	0.85	111	145	119	133
	D4S426	NED	0.76	160	180	160	172
	D4S419	NED	0.77	225	245	229	235
	D4S415	NED	0.80	264	300	266	290
7	D4S402	FAM	0.91	106	146	118	128
	D4S403	FAM	0.77	170	186	172	182
	D3S1580	FAM	0.84	215	235	219	227
	D3S1279	FAM	0.85	268	286	268	270
	D4S1539	FAM	0.68	316	326	318	324
	D3S2338	VIC	0.86	89	109	93	105
	D4S2964	VIC	0.76	119	143	121	133
	D4S412	VIC	0.77	158	176	160	166
	D4S424	VIC	0.83	194	212	196	196
	D3S1278	VIC	0.87	232	260	236	240
	D3S1266	VIC	0.73	289	305	295	295
	D3S1267	NED	0.88	93	131	105	109
	D3S1566	NED	0.84	155	177	159	169
	D3S1289	NED	0.81	202	224	212	216
	D4S1535	NED	0.77	248	262	252	252
	D3S1277	NED	0.82	289	311	295	295

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
37	D3S1581	FAM	0.87	75	105	77	91
	D3S3606	FAM	0.82	160	186	175	175
	D3S1265	FAM	0.84	216	240	237	237
	D3S3706	VIC	0.63	103	119	112	112
	D3S1558	VIC	0.77	158	172	166	170
	D3S2748	NED	0.73	83	115	112	112
	D3S3592	NED	0.79	164	178	171	171
	D3S3685	NED	0.89	199	225	211	217
	D3S3659	NED	0.65	251	263	252	256
38	D3S3634	FAM	0.78	140	164	144	150
	D3S3574	VIC	0.84	92	112	97	101
	D3S1600	VIC	0.72	186	202	186	188
	D3S1597	NED	0.79	166	184	174	180
	D3S2496	NED	0.76	201	215	202	204
	D3S1609	NED	0.64	246	262	259	259
39	D3S3686	FAM	0.80	111	137	120	124
	D3S3609	FAM	0.87	168	190	171	173
	D3S1555	FAM	0.79	221	241	222	224
	D3S1309	VIC	0.75	134	152	142	144
	D3S3725	NED	0.84	75	103	76	82
	D3S1270	NED	0.75	168	190	168	168
	D3S3728	NED	0.67	226	234	226	226
	D3S3567	NED	0.70	263	285	282	284
40	D3S1276	FAM	0.71	98	114	104	108
	D3S1593	FAM	0.76	137	157	139	155
	D3S3630	FAM	0.81	177	193	184	186
	D3S3521	FAM	0.82	265	299	285	299
	D3S1603	VIC	0.70	166	184	170	170
	D3S3697	VIC	0.88	200	225	205	205
	D3S3715	NED	0.78	138	150	142	142
	D3S3637	NED	0.89	180	210	181	203
41	D3S3668	NED	0.82	239	261	244	252
	D4S398	FAM	0.82	128	150	128	140
	D4S2952	FAM	0.58	187	209	189	193
	D4S3004	FAM	0.80	266	280	268	274
	D4S3046	VIC	0.76	95	107	95	101
	D4S2971	VIC	0.80	139	161	151	157
	D4S1587	VIC	0.74	222	234	229	231
	D4S3022	NED	0.88	124	152	137	149
	D4S428	NED	0.76	191	207	193	197
	D4S3051	NED	0.51	230	244	231	231

Note The panels for chromosomes 3 and 4 continue on page 2-9.

Marker Maps
Repeated

Chromosome 3	Panel No.	Chromosome 4	Panel No.
3.6 ——— D3S1270	39	3.2 ——— D4S2936	43
1.7 ——— D3S1297	6	2.9 ——— D4S412	7
9.4 ——— D3S3630	40	4.7 ——— D4S3023	43
1.8 ——— D3S3706	37	14.1 ——— D4S2935	6
2.2 ——— D3S1304	6	8.9 ——— D4S403	7
5.7 ——— D3S3728	39	2.0 ——— D4S419	6
6.0 ——— D3S1597	38	3.1 ——— D4S2994	42
4.5 ——— D3S1263	5	5.1 ——— D4S3022	41
4.7 ——— D3S2338	7	3.6 ——— D4S391	6
5.8 ——— D3S3659	37	3.3 ——— D4S2912	42
2.2 ——— D3S1266	7	6.7 ——— D4S1587	41
1.7 ——— D3S1609	38	3.6 ——— D4S405	5
6.8 ——— D3S3567	39	3.9 ——— D4S2971	41
1.2 ——— D3S1277	7	2.2 ——— D4S428	41
4.2 ——— D3S3521	40	6.0 ——— D4S1592	6
3.5 ——— D3S3685	37	2.7 ——— D4S398	41
0.0 ——— D3S1581	37	3.8 ——— D4S3004	41
9.2 ——— D3S1289	7	4.2 ——— D4S392	5
4.5 ——— D3S1300	6	7.4 ——— D4S3042	42
6.9 ——— D3S1600	38	4.2 ——— D4S2964	7
4.2 ——— D3S1285	5	3.7 ——— D4S1534	5
3.1 ——— D3S3697	40	2.7 ——— D4S2460	42
10.9 ——— D3S1566	7	4.3 ——— D4S414	5
2.1 ——— D3S3681	5	2.0 ——— D4S2986	43
3.2 ——— D3S1276	40	11.1 ——— D4S1572	6
0.0 ——— D3S3634	38	6.7 ——— D4S406	5
3.3 ——— D3S1603	40	4.4 ——— D4S402	7
3.4 ——— D3S1271	5	3.3 ——— D4S1615	43
6.1 ——— D3S3574	38	10.3 ——— D4S1575	5
2.6 ——— D3S2496	38	3.0 ——— D4S1579	42
4.4 ——— D3S1278	7	1.2 ——— D4S424	7
3.5 ——— D3S1558	37	7.8 ——— D4S1586	42
7.8 ——— D3S1267	7	4.9 ——— D4S2962	42
1.0 ——— D3S3606	37	4.4 ——— D4S413	6
4.5 ——— D3S1292	6	4.4 ——— D4S3046	41
2.8 ——— D3S3637	40	3.2 ——— D4S2952	41
4.9 ——— D3S1309	39	4.3 ——— D4S1597	5
3.0 ——— D3S1569	6	4.6 ——— D4S1595	43
3.7 ——— D3S1593	40	3.6 ——— D4S1539	7
3.2 ——— D3S1555	39	4.5 ——— D4S415	6
7.2 ——— D3S1279	7	8.4 ——— D4S2920	43
2.5 ——— D3S3668	40	5.3 ——— D4S1535	7
4.8 ——— D3S1614	5	5.5 ——— D4S2924	43
6.8 ——— D3S3725	39	4.2 ——— D4S3051	41
2.8 ——— D3S1565	5	2.4 ——— D4S426	6
4.7 ——— D3S3715	40	1.5 ——— D4S2930	42
2.7 ——— D3S3609	39		
2.8 ——— D3S3592	37		
3.1 ——— D3S1262	6		
3.8 ——— D3S3686	39		
6.6 ——— D3S1580	7		
1.8 ——— D3S1601	6		
6.7 ——— D3S2748	37		
1.1 ——— D3S1265	37		
5.1 ——— D3S1311	5		

Associated Panels
Continued

The following panels are continued from page 2-7.

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
42	D4S2994	FAM	0.82	94	126	95	95
	D4S2912	FAM	0.67	171	197	181	192
	D4S3042	FAM	0.84	211	235	211	213
	D4S2962	VIC	0.82	103	129	113	115
	D4S2460	VIC	0.72	184	196	190	190
	D4S1586	NED	0.77	103	121	104	116
	D4S1579	NED	0.65	146	164	149	151
	D4S2930	NED	0.80	220	238	221	223
43	D4S2920	FAM	0.68	109	119	111	113
	D4S1595	FAM	0.72	202	212	206	208
	D4S2924	FAM	0.72	258	274	262	264
	D4S2936	VIC	0.83	172	190	174	182
	D4S1615	NED	0.74	118	128	120	124
	D4S3023	NED	0.69	147	159	148	158
	D4S2986	NED	0.80	217	233	227	229

Chromosomes 5 and 6

Marker Maps	Chromosome 5		Panel No.	Chromosome 6		Panel No.	
5.7		D5S1981	9	1.4		D6S1617	49
2.3		D5S417	44			D6S1574	9
3.1		D5S2088	46	4.7		D6S309	8
		D5S406	8	4.8		D6S470	10
4.2		D5S1953	44				
3.3		D5S630	10	8.0			
				1.6		D6S1721	48
9.5						D6S259	49
		D5S416	10	2.2		D6S289	8
8.8				5.3			
		D5S2031	46	5.2		D6S422	8
4.2		D5S419	8			D6S1660	47
5.9		D5S1993	45	3.7		D6S276	9
1.0		D5S674	46	3.6		D6S291	48
4.8		D5S426	9	5.1			
3.2		D5S2021	46			D6S1610	8
2.9		D5S418	10	6.0		D6S1575	47
1.7		D5S1969	46	1.2		D6S1549	47
4.6		D5S407	8	5.2			
5.9		D5S427	45	1.9		D6S282	48
3.3		D5S647	10	3.8		D6S1650	47
				2.2		D6S452	49
9.1		D5S424	8	3.2		D6S272	49
2.2		D5S672	46			D6S1573	47
				2.4		D6S257	9
9.3				8.5			
3.0		D5S641	9	3.0		D6S460	10
4.1		D5S428	10			D6S1609	47
		D5S618	45	6.2		D6S462	10
5.5		D5S644	8	5.6		D6S300	47
3.6		D5S495	45	4.3		D6S1671	47
3.8		D5S433	8	1.6		D6S434	9
3.0		D5S2084	45				
3.5		D5S2027	10	9.5		D6S1698	49
6.9		D5S2055	44	3.9		D6S287	9
4.5		D5S471	10	8.4			
						D6S262	8
7.5		D5S2115	10	1.0		D6S1656	48
5.7		D5S2011	44	3.8		D6S270	49
3.1		D5S436	10	1.0		D6S292	9
2.4		D5S2090	44			D6S1569	48
6.6		D5S410	10	5.1		D6S308	9
3.9		D5S2049	45	3.8			
2.9		D5S422	8	5.0			
5.6		D5S2040	45			D6S1654	48
2.6		D5S2050	44	4.6		D6S441	10
3.9		D5S400	8	3.3		D6S1577	48
6.7		D5S1960	45	6.2			
						D6S1581	8
14.7		D5S2073	45	2.0		D6S305	48
1.0		D5S408	9	3.6		D6S1599	49
				7.8			
						D6S1719	47
				1.1		D6S264	9
				5.1			
						D6S1697	47
				2.2		D6S446	9
				12.6			
						D6S281	8

Associated Panels The following panels cover chromosomes 5 and 6.

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
8	D5S407	FAM	0.86	82	110	100	102
	D6S289	FAM	0.79	160	182	170	172
	D6S1610	FAM	0.84	200	214	204	208
	D6S1581	FAM	0.72	257	271	261	261
	D6S422	FAM	0.77	298	320	304	306
	D5S644	VIC	0.85	82	112	84	96
	D6S281	VIC	0.68	131	151	135	135
	D6S262	VIC	0.82	169	189	171	173
	D5S424	VIC	0.76	212	234	216	218
	D5S419	VIC	0.81	255	287	271	277
	D5S433	NED	0.86	63	93	77	85
	D5S422	NED	0.84	113	135	115	131
	D5S406	NED	0.79	164	192	176	188
	D5S400	NED	0.82	217	239	223	227
	D6S309	NED	0.83	304	330	310	318
9	D6S264	FAM	0.70	108	130	112	114
	D6S1574	FAM	0.84	146	172	152	154
	D6S276	FAM	0.83	201	233	207	223
	D5S408	FAM	0.73	249	285	251	257
	D6S308	FAM	0.75	326	354	336	342
	D6S287	VIC	0.85	105	139	131	135
	D6S292	VIC	0.83	155	177	159	159
	D6S434	VIC	0.86	202	246	206	208
	D5S426	VIC	0.80	275	299	289	293
	D5S1981	NED	0.73	115	125	119	123
	D6S257	NED	0.87	167	195	181	183
	D6S446	NED	0.62	217	229	217	223
	D5S641	NED	0.77	299	339	313	315
10	D5S2027	FAM	0.78	180	202	192	194
	D5S436	FAM	0.83	238	258	240	246
	D6S460	FAM	0.81	279	303	289	299
	D5S410	FAM	0.79	329	351	331	341
	D6S462	VIC	0.68	104	121	110	112
	D5S2115	VIC	0.76	142	170	168	168
	D5S418	VIC	0.80	208	228	210	212
	D5S428	VIC	0.76	241	259	245	245
	D5S630	VIC	0.89	283	393	285	318
	D6S470	NED	0.80	120	140	128	132
	D6S441	NED	0.86	162	196	176	182
	D5S471	NED	0.76	235	255	245	249
	D5S416	NED	0.77	285	297	289	291
	D5S647	NED	0.82	326	365	340	345
	D5S417	FAM	0.71	89	107	91	97
	D5S2011	FAM	0.86	140	158	142	148

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
44 <i>cont'd</i>	D5S2090	FAM	0.83	194	210	192	192
	D5S2055	FAM	0.83	272	300	280	288
	D5S2050	NED	0.70	192	210	191	195
	D5S1953	NED	0.77	251	271	253	253
45	D5S2049	FAM	0.77	82	100	84	92
	D5S1960	FAM	0.80	121	159	128	138
	D5S1993	FAM	0.77	175	195	177	193
	D5S2073	FAM	0.78	240	256	246	246
	D5S427	FAM	0.83	285	307	293	303
	D5S618	VIC	0.79	157	177	161	161
	D5S495	VIC	0.81	223	245	224	224
	D5S2084	NED	0.70	116	142	120	132
	D5S2040	NED	0.77	224	242	226	238
46	D5S2088	FAM	0.82	134	162	144	148
	D5S2031	FAM	0.75	191	215	201	209
	D5S1969	FAM	0.86	251	273	259	261
	D5S672	VIC	0.63	177	183	175	179
	D5S2021	NED	0.57	111	125	113	117
	D5S674	NED	0.77	270	280	270	276
47	D6S1575	FAM	0.82	108	130	110	122
	D6S300	FAM	0.75	187	213	192	206
	D6S1573	FAM	0.78	275	295	285	295
	D6S1609	VIC	0.81	78	104	83	97
	D6S1719	VIC	0.74	168	182	180	180
	D6S1660	VIC	0.77	204	222	206	214
	D6S1697	VIC	0.55	253	259	253	253
	D6S1650	NED	0.79	111	131	113	121
	D6S1549	NED	0.61	193	209	199	201
	D6S1671	NED	0.88	258	284	269	271
48	D6S282	FAM	0.87	102	128	114	122
	D6S1577	FAM	0.86	151	173	164	168
	D6S291	FAM	0.7	202	214	202	204
	D6S1721	FAM	0.78	257	277	257	267
	D6S1656	VIC	0.73	198	216	211	211
	D6S1569	NED	0.78	128	146	139	139
	D6S305	NED	0.83	208	234	221	229
	D6S1654	NED	0.82	225	247	235	239
49	D6S270	FAM	0.75	146	162	147	147
	D6S259	FAM	0.72	271	289	282	282
	D6S1698	VIC	0.81	167	193	167	175
	D6S1617	NED	0.86	82	104	88	88
	D6S1599	NED	0.69	134	158	131	133
	D6S272	NED	0.71	182	200	182	192
	D6S452	NED	0.84	265	284	267	277

Chromosomes 7 and 8

Marker Maps	Chromosome 7	Panel No.	Chromosome 8	Panel No.
3.2	D7S531	12	D8S264	11
7.2	D7S517	11	D8S277	12
2.6	D7S641	50	D8S503	52
0.0	D7S513	11	D8S520	53
3.3	D7S2464	52	D8S550	12
2.3	D7S664	52	D8S552	53
5.7	D7S2557	51	D8S1827	53
6.0	D7S507	12	D8S549	11
7.7	D7S493	12	D8S258	11
5.8	D7S516	11	D8S1734	55
3.7	D7S2496	51	D8S1771	11
3.3	D7S2252	52	D8S1820	53
5.2	D7S484	11	D8S1769	53
5.1	D7S510	11	D8S505	12
4.5	D7S691	51	D8S532	53
0.9	D7S2427	52	D8S285	12
4.9	D7S519	12	D8S260	11
5.0	D7S506	52	D8S543	54
5.0	D7S502	11	D8S1705	53
2.5	D7S2476	52	D8S275	54
3.8	D7S1870	51	D8S270	12
9.3	D7S669	11	D8S1778	55
6.2	D7S630	11	D8S1762	54
9.2	D7S657	11	D8S1784	11
7.3	D7S515	12	D8S1779	53
5.1	D7S2459	52	D8S514	11
10.3	D7S486	12	D8S1799	55
3.5	D7S530	11	D8S1720	55
8.5	D7S640	11	D8S284	12
3.1	D7S2560	51	D8S256	54
3.6	D7S684	12	D8S272	11
3.0	D7S2513	50	D8S1837	54
7.5	D7S661	12	D8S1743	55
2.8	D7S636	12	D8S1836	53
3.9	D7S483	52		
10.4	D7S798	12		
1.5	D7S2465	11		
	D7S2423	50		

Associated Panels The following panels cover chromosomes 7 and 8.

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
11	D7S484	FAM	0.74	97	115	105	105
	D8S264	FAM	0.83	136	160	144	150
	D8S260	FAM	0.81	191	217	201	211
	D7S517	FAM	0.83	243	261	257	257
	D8S1784	FAM	0.67	276	292	280	280
	D7S2465	FAM	0.83	319	343	327	333
	D8S549	VIC	0.63	73	83	77	77
	D7S530	VIC	0.78	105	123	113	115
	D8S258	VIC	0.70	142	156	150	152
	D7S669	VIC	0.80	172	194	182	184
	D8S272	VIC	0.81	211	261	245	255
	D7S502	VIC	0.84	289	309	297	301
	D7S630	VIC	0.73	327	355	349	351
	D7S510	NED	0.77	79	95	89	91
	D7S640	NED	0.85	110	150	114	142
	D7S513	NED	0.83	168	198	190	192
	D8S514	NED	0.77	212	232	220	224
	D7S657	NED	0.81	244	270	248	260
	D7S516	NED	0.76	306	326	320	320
	D8S1771	NED	0.75	343	367	351	351
12	D7S507	FAM	0.89	81.69	109.76	88	90
	D7S515	FAM	0.82	139.865	201.865	198	198
	D7S486	FAM	0.81	221.895	235.925	232	234
	D7S519	FAM	0.81	257	284.785	259	271
	D7S661	FAM	0.75	305.24	337.415	317	321
	D7S798	VIC	0.84	71.26	93.36	75	77
	D8S505	VIC	0.79	110.83	124.88	113	115
	D8S277	VIC	0.73	151.67	185.12	162	179
	D7S493	VIC	0.88	203.885	235.28	212	223
	D8S284	VIC	0.83	272.7	306.7	297	297
	D7S684	VIC	0.81	341.285	363.4	355	357
	D8S270	NED	0.79	101.505	117.505	108	110
	D7S636	NED	0.90	136.715	172.815	151	153
	D8S550	NED	0.87	187.035	217	195	211
	D7S531	NED	0.77	276	294	280	286
	D8S285	NED	0.78	314.01	330.135	322	324
50	D7S641	FAM	0.71	87	103	89	93
	D7S2513	VIC	0.74	162	186	166	176
	D7S2423	NED	0.71	229	247	233	233
51	D7S2557	FAM	0.74	152	166	160	160
	D7S691	VIC	0.74	133	151	143	149
	D7S1870	NED	0.75	111	135	122	126
	D7S2560	NED	0.86	153	199	161	161
	D7S2496	NED	0.71	212	237	212	223

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
52	D7S2459	FAM	0.76	124	138	128	130
	D7S2464	FAM	0.66	192	210	194	202
	D7S2252	FAM	0.78	251	263	251	253
	D7S2476	VIC	0.63	138	156	143	145
	D7S2427	VIC	0.80	220	252	222	224
	D7S506	NED	0.87	120	146	135	135
	D7S483	NED	0.81	170	192	183	185
	D7S664	NED	0.70	207	219	209	211
53	D8S1820	FAM	0.73	107	121	113	113
	D8S532	FAM	0.83	141	157	150	150
	D8S1705	FAM	0.83	192	212	194	204
	D8S1769	FAM	0.83	244	260	247	259
	D8S1836	VIC	0.84	124	159	138	151
	D8S1779	VIC	0.75	195	209	201	201
	D8S552	NED	0.79	110	124	124	124
	D8S1827	NED	0.66	158	168	160	164
	D8S520	NED	0.77	184	203	192	195
54	D8S543	FAM	0.75	112	136	126	126
	D8S1837	FAM	0.80	193	210	193	210
	D8S256	VIC	0.81	105	133	125	133
	D8S1762	VIC	0.76	224	242	226	236
	D8S275	NED	0.75	143	161	155	157
55	D8S1734	FAM	0.67	107	117	109	113
	D8S1720	FAM	0.81	136	150	139	139
	D8S1743	VIC	0.82	88	118	94	112
	D8S503	VIC	0.73	134	150	144	146
	D8S1778	NED	0.87	129	155	143	143
	D8S1799	NED	0.83	201	231	228	228

Chromosomes 9, 10, and 11

Marker Maps

Chromosome 9				Panel No.		Chromosome 10				Panel No.		Chromosome 11				Panel No.	
0.0		D9S1858	56	3.1	D10S249	13	5.3	D11S1363	63								
		D9S1779	57		D10S1745	60		D11S4046	14								
8.6				9.9			5.0										
		D9S288	14		D10S591	15		D11S4146	62								
		D9S1810	58	5.3	D10S189	15	3.9	D11S1760	62								
		D9S286	15				0.9	D11S1338	15								
				7.7			1.5	D11S4149	63								
4.2		D9S168	58		D10S1649	60	5.6	D11S4116	62								
3.0		D9S269	57	3.4	D10S547	13	0.6	D11S902	13								
5.6				5.0			6.1	D11S4190	63								
		D9S285	13	3.8	D10S570	61	5.0										
3.5		D9S157	14	3.2	D10S191	59	1.2	D11S915	62								
					D10S1653	14	4.9	D11S904	13								
9.8				5.2				D11S914	62								
		D9S171	13		D10S548	16	6.4										
		D9S259	57	6.5			3.4	D11S935	13								
2.0		D9S169	56		D10S197	14		D11S4102	62								
2.0		D9S161	14				5.0	D11S905	13								
3.3		D9S1853	58	5.3			6.6	D11S4191	15								
					D10S213	59	4.9	D11S987	13								
4.7		D9S1817	16	3.5	D10S208	14	6.2										
		D9S1874	58	3.7			1.0	D11S4162	62								
4.0		D9S273	13	2.7	D10S1780	61	2.6	D11S1314	13								
				5.3	D10S578	61	4.3	D11S4207	62								
3.6		D9S175	14	4.6	D10S196	16		D11S937	13								
4.3		D9S1834	56	4.2	D10S1790	61	4.4	D11S901	14								
3.3				1.7	D10S1652	16	3.3	D11S4147	63								
2.3		D9S1674	56	4.5	D10S581	60	3.1	D11S4175	13								
		D9S1843	57	6.1	D10S210	61	4.1	D11S917	62								
4.7		D9S167	14	3.7	D10S537	15	2.5	D11S898	16								
5.6				3.8	D10S580	61	6.0										
		D9S1812	58		D10S1730	59	3.8	D11S4090	63								
5.0		D9S283	16	5.1			2.6	D11S908	16								
2.7		D9S1796	57	3.8	D10S1686	14		D11S4127	62								
1.8		D9S1781	56		D10S1765	59	6.8	D11S925	15								
4.6		D9S1781	56	7.6			4.9	D11S4094	63								
		D9S287	14	3.5	D10S185	14	4.2	D11S4151	15								
2.8		D9S1690	15	4.4	D10S1709	60	4.9	D11S912	63								
		D9S1674	56	4.1	D10S192	13	5.3	D11S4126	63								
4.3		D9S271	58		D10S597	16	3.3	D11S1320	15								
				8.2			8.1										
7.8					D10S1693	16		D11S968	15								
3.3		D9S1677	13	10.8													
		D9S289	56	1.2	D10S587	15											
4.1		D9S1776	15		D10S1656	59											
				4.6	D10S575	61											
7.6		D9S1682	16	3.1	D10S217	16											
				4.9													
7.9		D9S290	16		D10S1655	59											
				7.4													
7.9		D9S164	15	2.6	D10S1651	16											
3.1		D9S1818	58		D10S212	14											
9.5																	
		D9S1826	16														
2.8		D9S158	16														
3.5		D9S1838	58														

Associated Panels The following panels cover chromosomes 9, 10, and 11.

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
13	D11S987	FAM	0.82	94	134	116	120
	D11S937	FAM	0.88	144	180	160	162
	D11S935	FAM	0.73	196	218	200	210
	D9S1677	FAM	0.81	229	255	231	253
	D11S1314	VIC	0.78	93	121	95	101
	D11S902	VIC	0.80	148	170	152	158
	D11S904	VIC	0.83	183	213	185	197
	D10S547	VIC	0.74	236	257	240	249
	D11S905	VIC	0.75	269	297	275	275
	D9S285	NED	0.78	80	110	104	108
	D10S249	NED	0.74	117	139	131	131
	D9S171	NED	0.79	160	186	162	162
	D9S273	NED	0.74	202	222	206	208
	D10S192	NED	0.77	238	264	240	248
	D11S4175	NED	0.89	288	340	322	332
14	D9S161	FAM	0.78	122	139	122	133
	D10S197	FAM	0.75	166	180	170	174
	D10S185	FAM	0.77	201	219	207	209
	D9S175	FAM	0.85	255	289	261	267
	D11S901	FAM	0.82	311	327	315	319
	D10S1653	VIC	0.77	118	132	124	124
	D10S212	VIC	0.71	189	207	199	199
	D10S1686	VIC	0.86	243	281	255	259
	D9S287	VIC	0.67	295	315	299	301
	D11S4046	NED	0.86	101	125	109	119
	D9S288	NED	0.84	132	154	136	144
	D10S208	NED	0.79	173	193	185	187
	D9S157	NED	0.84	225	249	225	231
	D9S167	NED	0.87	304	338	316	332
15	D9S164	FAM	0.80	84	102	92	94
	D9S286	FAM	0.88	136	170	148	162
	D9S1690	FAM	0.78	226	240	236	238
	D11S1320	FAM	0.68	259	277	263	269
	D11S4151	FAM	0.79	331	345	333	335
	D11S4191	VIC	0.87	89	119	91	95
	D11S968	VIC	0.81	140	162	150	150
	D9S1776	VIC	0.84	172	210	176	178
	D11S1338	VIC	0.74	253	271	265	265
	D10S591	VIC	0.71	309	339	317	331
	D10S587	NED	0.80	92	114	96	100
	D10S537	NED	0.83	139	165	149	153
	D10S189	NED	0.72	179	197	185	191
	D11S925	NED	0.84	260	290	262	262

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
16	D10S217	FAM	0.81	96	120	102	106
	D11S898	FAM	0.85	141	165	149	156
	D10S548	FAM	0.70	182	198	186	190
	D9S1826	FAM	0.69	215	231	219	219
	D9S290	FAM	0.83	240	262	246	248
	D9S1817	FAM	0.88	279	315	297	303
	D9S158	FAM	0.69	330	356	338	340
	D10S196	VIC	0.77	103	115	109	109
	D9S1682	VIC	0.68	147	159	149	151
	D11S908	VIC	0.76	172	190	180	182
	D10S1693	VIC	0.80	213	227	217	219
	D10S597	VIC	0.64	273	297	289	289
	D9S283	NED	0.80	89	115	89	91
	D10S1651	NED	0.80	206	230	208	224
	D10S1652	NED	0.78	269	295	287	289
56	D9S289	FAM	0.74	72	90	74	80
	D9S1834	FAM	0.69	186	201	187	189
	D9S1674	FAM	0.73	218	238	220	228
	D9S169	FAM	0.82	262	278	262	272
	D9S1858	VIC	0.58	241	253	251	251
	D9S1781	NED	0.79	237	257	241	251
57	D9S259	FAM	0.67	133	147	138	138
	D9S1796	VIC	0.79	155	183	163	163
	D9S1779	NED	0.63	125	149	127	143
	D9S269	NED	0.74	176	194	177	183
58	D9S1843	NED	0.80	236	252	248	252
	D9S271	FAM	0.64	138	162	154	156
	D9S1810	FAM	0.77	202	218	204	214
	D9S1853	FAM	0.63	251	269	253	255
	D9S1818	VIC	0.71	199	207	201	205
	D9S1812	VIC	0.69	274	284	280	282
	D9S1838	NED	0.83	165	181	167	171
59	D9S1874	NED	0.83	194	206	195	199
	D9S168	NED	0.75	240	259	234	243
	D10S1656	FAM	0.75	140	158	143	149
	D10S213	FAM	0.82	178	195	188	189
	D10S1730	FAM	0.83	232	266	242	244
	D10S191	VIC	0.81	121	149	122	130
	D10S1765	VIC	0.83	169	191	171	185
	D10S1655	NED	0.67	307	323	253	253

Note The panels for chromosomes 9, 10, and 11 continued on page 2-17.

Marker Maps *Repeated*

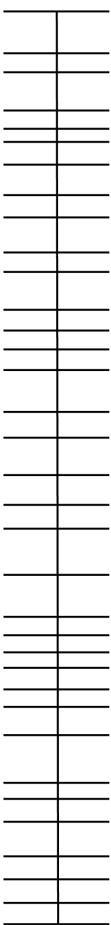
Chromosome 9		Panel No.	Chromosome 10		Panel No.	Chromosome 11		Panel No.			
0.0		D9S1858 D9S1779	56 57	3.1		D10S249 D10S1745	13 60	5.3		D11S1363	63
8.6				9.9				5.0		D11S4046	14
1.5		D9S288	14	5.3		D10S591	15	3.9		D11S4146	62
6.6		D9S1810	58	7.7		D10S189	15	0.9		D11S1760	62
		D9S286	15	3.4		D10S1649	60	1.5		D11S1338	15
4.2		D9S168	58	5.0		D10S547	13	5.6		D11S4149	63
3.0		D9S269	57	3.8		D10S570	61	0.6		D11S4116	62
5.6		D9S285	13	3.2		D10S191	59	6.1		D11S902	13
3.5		D9S157	14	5.2		D10S1653	14	5.0		D11S4190	63
9.8				6.5		D10S548	16	1.2		D11S915	62
4.2		D9S171	13	5.3		D10S197	14	4.9		D11S904	13
		D9S259	57	3.5				6.4		D11S914	62
2.0		D9S169	56	3.7		D10S213	59	3.4		D11S935	13
2.0		D9S161	14	2.7		D10S208	14	5.0		D11S4102	62
3.3		D9S1853	58	5.3		D10S1780	61	6.6		D11S905	13
4.7		D9S1817	16	4.6		D10S578	61	4.9		D11S4191	15
2.0		D9S1874	58	4.2		D10S196	16	6.2		D11S987	13
4.0		D9S273	13	1.7		D10S1790	61	1.0		D11S4162	62
3.6		D9S175	14	4.5		D10S1652	16	2.6		D11S1314	13
4.3		D9S1834	56	6.1		D10S581	60	4.3		D11S4207	62
3.3		D9S1674	56	3.7		D10S210	61	4.4		D11S937	13
2.3		D9S1843	57	3.8		D10S537	15	3.3		D11S901	14
4.7		D9S167	14	5.1		D10S580	61	3.1		D11S4147	63
5.6		D9S1812	58	3.8		D10S1730	59	4.1		D11S4175	13
5.0		D9S283	16	3.8		D10S1686	14	2.5		D11S917	62
2.7		D9S1796	57	7.6		D10S1765	59	6.0		D11S898	16
1.8		D9S1781	56	3.5				3.8		D11S4090	63
4.6		D9S287	14	4.4		D10S185	14	2.6		D11S908	16
2.8		D9S1690	15	4.1		D10S1709	60	6.8		D11S4127	62
4.3		D9S271	58	8.2		D10S192	13	4.9		D11S925	15
7.8		D9S1677	13	10.8		D10S597	16	4.2		D11S9925	15
3.3		D9S289	56	1.2		D10S1693	16	4.9		D11S4094	63
4.1		D9S1776	15	4.6				4.2		D11S4151	15
7.6		D9S1682	16	3.1		D10S185	14	5.3		D11S912	63
7.9		D9S290	16	4.9		D10S1709	60	3.3		D11S4126	63
3.1		D9S164	15	7.4		D10S192	13	8.1		D11S1320	15
9.5		D9S1818	58	2.6		D10S597	16				
2.8		D9S1826	16			D10S1655	59				
3.5		D9S158	16								
		D9S1838	58			D10S1651	16				
						D10S212	14				

Associated Panels
Continued

The following panels are continued from page 2-15.

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
60	D10S1745	FAM	0.84	154	180	164	166
	D10S581	VIC	0.79	127	153	136	142
	D10S1649	NED	0.84	123	147	135	137
	D10S1709	NED	0.74	160	178	163	165
61	D10S580	FAM	0.72	133	143	136	140
	D10S578	FAM	0.65	165	189	171	173
	D10S570	FAM	0.81	292	310	298	308
	D10S1790	VIC	0.83	185	207	189	195
	D10S575	VIC	0.63	255	273	253	253
	D10S210	NED	0.78	123	137	125	125
	D10S1780	NED	0.65	226	242	228	234
62	D11S1760	FAM	0.75	84	104	90	90
	D11S4102	FAM	0.77	140	172	144	162
	D11S4116	FAM	0.80	202	221	206	206
	D11S4207	FAM	0.89	254	292	264	266
	D11S4162	VIC	0.64	159	165	163	163
	D11S914	VIC	0.71	279	291	281	289
	D11S4127	NED	0.71	91	107	99	99
	D11S917	NED	0.80	146	162	151	155
	D11S4146	NED	0.70	193	209	195	195
	D11S915	NED	0.81	221	277	269	273
63	D11S912	FAM	0.80	105	127	110	112
	D11S4090	FAM	0.83	161	189	163	175
	D11S4149	FAM	0.77	212	224	213	219
	D11S1363	FAM	0.59	239	249	244	244
	D11S4190	VIC	0.82	228	248	237	237
	D11S4126	NED	0.59	133	147	143	143
	D11S4094	NED	0.80	184	198	188	192
	D11S4147	NED	0.81	224	246	235	239

Chromosomes 12 and 13

Marker Maps	Chromosome 12	Panel No.	Chromosome 13	Panel No.
		D12S352 19		
9.1		D12S1725 64	5.7	D13S1236 67
3.5		D12S99 18	3.7	D13S175 17
7.6		D12S336 18	2.7	D13S1243 67
3.8		D121697 64	3.9	D13S1304 67
2.6		D12S358 66	5.6	D13S217 17
3.7		D12S364 19	3.3	D13S289 67
5.3		D12S310 19	4.8	D13S171 19
3.7		D12S1682 66	3.4	D13S219 67
5.6		D12S1617 17	4.9	D13S218 17
2.3		D12S1640 65	9.6	D13S263 17
6.4		D12S345 18	2.8	D13S153 19
4.2		D12S1663 64	2.9	D13S1320 67
4.2		D12S85 18	3.2	D13S1296 67
3.8		D12S368 18	3.8	D13S156 18
8.7		D12S83 17	3.8	D13S1306 67
4.8		D12S313 65	4.5	D13S170 17
8.5		D12S326 19	7.4	D13S265 19
4.7		D12S1708 65	5.9	D13S1241 67
4.8		D12S351 18	2.4	D13S159 19
9.5		D12S346 17	8.8	D13S158 19
7.4		D12S78 17	1.8	D13S1322 67
3.4		D12S1613 64	4.9	D13S173 19
3.7		D12S1583 65	5.0	D13S1265 18
2.3		D12S1646 66	11.8	D13S285 17
3.1		D12S79 18	5.1	D13S293 67
4.4		D12S1718 66		
4.6		D12S86 18		
10.3		D12S304 65		
3.0		D12S324 19		
4.0		D12S1675 66		
5.1		D12S1659 17		
4.5		D12S367 66		
3.3		D12S1723 17		
3.2		D12S1638 66		

Associated Panels The following panels cover chromosomes 12 and 13.

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
17	D12S83	FAM	0.81	102	122	104	110
	D13S218	FAM	0.66	141	153	143	145
	D12S78	FAM	0.91	174	212	188	190
	D13S217	FAM	0.68	242	262	252	256
	D12S1659	FAM	0.78	290	316	302	302
	D13S285	VIC	0.81	89	115	101	103
	D13S170	VIC	0.90	143	173	151	167
	D12S1723	VIC	0.67	198	216	202	208
	D13S175	NED	0.76	101	119	105	107
	D13S263	NED	0.84	146	174	152	166
	D12S346	NED	0.84	188	214	196	198
	D12S1617	NED	0.80	245	265	257	257
18	D12S85	FAM	0.67	99	131	117	125
	D12S351	FAM	0.75	147	169	155	159
	D12S368	FAM	0.81	202	222	206	214
	D13S1265	FAM	0.80	275	305	281	293
	D12S86	VIC	0.89	129	169	141	143
	D13S156	VIC	0.80	277	297	285	287
	D12S336	NED	0.82	111	129	113	123
	D12S79	NED	0.87	160	186	162	174
	D12S345	NED	0.87	211	247	213	215
	D12S99	NED	0.83	264	296	274	282
19	D13S158	FAM	0.82	116	133	122	129
	D13S159	FAM	0.90	154	196	158	180
	D13S173	FAM	0.82	232	252	238	246
	D12S364	FAM	0.87	298	326	308	308
	D13S265	VIC	0.70	89	127	109	115
	D12S352	VIC	0.73	154	174	164	166
	D12S326	VIC	0.80	207	233	223	229
	D12S310	VIC	0.69	244	252	246	250
	D13S153	NED	0.81	89	121	93	97
	D13S171	NED	0.73	177	205	187	187
64	D12S1613	FAM	0.62	254	270	262	266
	D12S1725	VIC	0.79	221	244	221	236
	D12S1663	NED	0.77	154	181	168	176
	D12S1697	NED	0.83	222	238	230	230
65	D12S1708	FAM	0.72	172	180	172	172
	D12S1583	FAM	0.87	224	251	227	240
	D12S304	FAM	0.70	311	325	313	317
	D12S313	NED	0.79	141	157	145	153
	D12S1640	NED	0.65	266	278	268	268

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
66	D12S1718	FAM	0.43	160	172	160	160
	D12S1675	FAM	0.74	214	228	219	227
	D12S358	FAM	0.76	242	274	259	261
	D12S367	VIC	0.76	139	153	139	145
	D12S1638	VIC	0.68	204	220	209	215
	D12S1646	VIC	0.71	252	264	259	261
	D12S1682	NED	0.77	136	154	142	146
67	D13S1322	FAM	0.63	86	96	91	95
	D13S1236	FAM	0.67	122	136	124	126
	D13S1320	FAM	0.76	260	270	266	266
	D13S1241	FAM	0.82	327	347	332	336
	D13S1296	VIC	0.86	90	118	104	110
	D13S289	VIC	0.67	148	168	152	156
	D13S293	NED	0.50	93	101	95	95
	D13S219	NED	0.64	120	130	121	125
	D13S1304	NED	0.73	154	170	154	156
	D13S1306	NED	0.85	199	215	208	210
	D13S1243	NED	0.78	247	261	248	248

Chromosome 14

Marker Map

Chromosome 14		Panel No.
1.1	D14S261	20
6.2	D14S1023	68
0.7	D14S283	20
7.0	D14S990	69
0.0	D14S972	68
11.1	D14S275	20
7.1	D14S1040	69
4.3	D14S70	20
2.6	D14S75	69
8.1	D14S288	20
4.3	D14S276	20
3.1	D14S980	68
6.2	D14S274	69
5.2	D14S63	20
8.4	D14S258	20
3.7	D14S1036	69
4.8	D14S74	20
4.1	D14S1037	68
4.0	D14S68	20
6.0	D14S1044	69
1.4	D14S280	20
5.1	D14S1050	68
3.3	D14S1054	68
13.7	D14S65	20
4.3	D14S985	20
2.7	D14S1051	69
3.1	D14S292	20
	D14S1007	68

Associated Panels The following panels cover chromosome 14.

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
20	D14S292	FAM	0.73	83.54	99.59	88	90
	D14S275	FAM	0.70	145.49	159	147	147
	D14S258	FAM	0.79	192.945	213.3	195	205
	D14S280	FAM	0.68	237.9	257.91	242	244
	D14S70	VIC	0.75	98.27	114	104	104
	D14S283	VIC	0.81	127.185	158	135	148
	D14S63	VIC	0.76	177.275	195.32	187	193
	D14S985	VIC	0.76	240.935	255.085	249	253
	D14S74	VIC	0.79	297.285	321.355	301	303
	D14S65	NED	0.79	124.4	156	148	148
	D14S288	NED	0.83	192.105	215.215	200	204
	D14S276	NED	0.76	236.65	248.845	241	247
	D14S261	NED	0.75	273	305.31	273	297
	D14S68	NED	0.91	318	346.415	318	332
68	D14S1023	FAM	0.81	97	113	101	103
	D14S980	FAM	0.86	159	189	161	163
	D14S972	FAM	0.75	202	215	204	208
	D14S1007	VIC	0.77	90	108	98	100
	D14S1054	VIC	0.76	158	172	160	162
	D14S1037	NED	0.82	93	143	121	125
	D14S1050	NED	0.80	215	237	217	223
69	D14S274	FAM	0.71	118	138	120	122
	D14S1051	FAM	0.31	170	190	170	172
	D14S1044	FAM	0.65	224	238	232	234
	D14S1036	VIC	0.79	128	146	131	135
	D14S1040	NED	0.73	86	116	106	108
	D14S990	NED	0.84	148	166	151	151
	D14S75	NED	0.76	196	222	204	212

Chromosomes 15 and 16

Marker Maps

Chromosome 15		Panel No.	Chromosome 16		Panel No.		
1.3		D15S128 D15S986	22 70	7.4		D16S521	72
6.0				1.6		D16S3027 D16S423	73 22
2.0		D15S975	71	4.5		D16S418	73
4.0		D15S1002	21	2.9		D16S404	22
0.8		D15S1019 D15S165	71 21	5.4		D16S3075 D16S3102	21 72
6.4				1.0			
2.3		D15S1007	22	5.0		D16S500	73
4.2		D15S1040	71	4.4		D16S3103	22
3.9		D15S118	70	5.9		D16S3041	73
2.2		D15S1012	22	1.4		D16S3046	22
		D15S994	22	3.4		D16S403	73
8.4				5.8		D16S3068	21
0.8		D15S978	22	4.1		D16S3100	72
3.7		D15S1016	70	8.7		D16S3136	21
1.6		D15S117	21	5.3		D16S415	22
4.8		D15S1033	71	0.0		D16S3034	72
		D15S1036	70	7.0			
5.0						D16S3140	73
3.5		D15S153	21	3.5		D16S3057	72
3.9		D15S988	70	4.0		D16S514	73
		D15S131	21	1.3		D16S503	21
8.5				6.2		D16S3066	73
4.4		D15S205	22	2.4		D16S515	21
		D15S979	71	5.9		D16S3049	72
3.1		D15S127	21	4.0		D16S516	22
12.8				4.8		D16S3040	72
		D15S130	21	3.6		D16S505	72
8.2				1.9		D16S3091	21
1.2		D15S1014	70	18.7			
		D15S212	71			D16S520	21
3.1		D15S120	22				

Associated Panels The following panels cover chromosomes 15 and 16.

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
21	D16S3075	FAM	0.79	76	94	78	78
	D16S3136	FAM	0.69	173	185	177	179
	D16S3068	FAM	0.77	219	235	221	223
	D15S130	FAM	0.66	285	299	293	295
	D16S515	FAM	0.8	325	357	331	337
	D15S1002	VIC	0.78	104	134	106	108
	D16S520	VIC	0.84	149	165	153	159
	D15S165	VIC	0.79	182	213	202	211
	D15S131	VIC	0.83	240	281	254	264
	D16S503	VIC	0.81	299	319	309	309
	D15S127	NED	0.86	118	154	138	138
	D16S3091	NED	0.73	166	182	176	180
	D15S153	NED	0.87	240	274	258	260
	D15S117	NED	0.78	321	339	335	337
22	D16S3046	FAM	0.74	83	109	99	99
	D15S205	FAM	0.88	126	166	144	162
	D16S415	FAM	0.72	213	241	227	229
	D15S1012	VIC	0.72	94	112	96	100
	D16S423	VIC	0.73	137	161	139	139
	D15S978	VIC	0.83	184	212	184	188
	D16S404	VIC	0.80	261	281	275	275
	D16S3103	VIC	0.81	315	343	327	331
	D15S1007	NED	0.86	84	108	96	100
	D15S120	NED	0.73	155	183	169	171
	D15S128	NED	0.78	197	215	209	211
	D16S516	NED	0.73	245	267	251	255
70	D15S988	FAM	0.79	96	116	96	96
	D15S986	FAM	0.71	183	201	185	191
	D15S118	FAM	0.74	218	234	220	228
	D15S1036	NED	0.80	118	144	120	122
	D15S1014	NED	0.73	188	200	193	195
	D15S1016	NED	0.87	277	305	287	291
71	D15S979	FAM	0.85	139	171	143	155
	D15S1040	FAM	0.76	202	216	211	213
	D15S975	FAM	0.44	250	258	253	253
	D15S1033	NED	0.69	87	99	90	90
	D15S1019	NED	0.59	206	222	208	208
	D15S212	NED	0.71	343	357	345	353

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
72	D16S521	FAM	0.71	158	178	160	174
	D16S3102	FAM	0.69	190	208	205	205
	D16S3100	FAM	0.66	270	284	273	279
	D16S3040	VIC	0.74	88	107	95	105
	D16S3034	VIC	0.65	259	267	262	264
	D16S505	NED	0.76	137	159	154	154
	D16S3057	NED	0.72	192	210	197	205
	D16S3049	NED	0.76	232	258	234	250
73	D16S514	FAM	0.82	121	137	124	128
	D16S418	FAM	0.82	170	192	176	182
	D16S3027	FAM	0.87	210	234	210	220
	D16S403	VIC	0.85	138	157	141	152
	D16S3066	VIC	0.79	187	199	194	196
	D16S3140	VIC	0.82	283	321	288	288
	D16S500	NED	0.80	185	201	189	197
	D16S3041	NED	0.82	247	277	268	270

Chromosomes 17 and 18

Marker Maps

Chromosome 17	Panel No.	Chromosome 18	Panel No.
6.6	D17S849	1.8	D18S59
2.9	D17S831	4.7	D18S476
1.8	D17S1828		D18S63
3.1	D17S1876	3.5	D18S1132
3.5	D17S938	6.6	D18S452
4.1	D17S1791	14.7	D18S464
	D17S1852		D18S1150
13.7		7.6	D18S53
0.0	D17S799	2.5	D18S453
	D17S921	2.8	D18S1107
8.2	D17S1857	7.8	D18S478
4.8	D17S1824	1.8	D18S56
5.1	D17S798	3.9	D18S1102
5.5	D17S927	7.0	D18S468
8.2	D17S1868	0.9	D18S450
1.3	D17S1795	3.8	D18S474
7.6	D17S787	2.3	D18S1127
5.7	D17S957	6.1	D18S1129
1.9	D17S944	5.4	D18S64
3.7	D17S1816	1.7	D18S1147
7.1	D17S949	5.9	D18S68
4.2	D17S1862	5.3	D18S465
2.1	D17S1807	4.1	D18S61
4.6	D17S785	5.7	D18S469
7.0	D17S1847	7.7	D18S1161
1.2	D17S836	2.8	D18S462
3.6	D17S784	4.3	D18S70
11.7	D17S928	7.1	

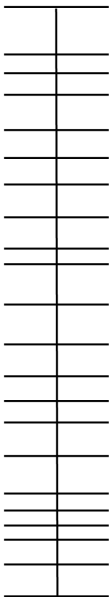
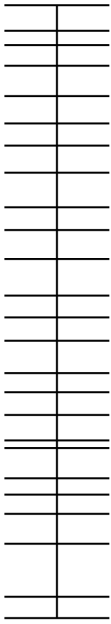
Associated Panels The following panels cover chromosomes 17 and 18.

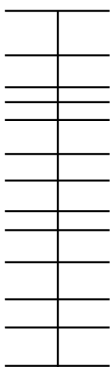
Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
23	D18S70	FAM	0.83	111	131	113	113
	D17S949	FAM	0.80	210	228	216	216
	D18S478	FAM	0.64	242	256	246	252
	D17S1852	FAM	0.87	279	310	295	308
	D17S831	VIC	0.82	107	129	111	115
	D17S1857	VIC	0.64	164	174	166	168
	D17S799	VIC	0.68	186	208	190	196
	D17S1868	VIC	0.73	254	268	260	260
	D17S798	VIC	0.80	298	322	308	314
	D18S1102	NED	0.79	90	102	94	94
	D17S787	NED	0.81	138	174	144	154
	D18S61	NED	0.87	209	239	225	227
	D17S849	NED	0.67	253	267	257	261
	D18S462	NED	0.70	296	318	302	302
24	D18S474	FAM	0.82	121	143	125	137
	D18S53	FAM	0.79	152	182	164	166
	D17S938	FAM	0.76	238	258	248	250
	D18S464	FAM	0.65	298	314	308	308
	D18S63	VIC	0.79	74	100	92	96
	D18S59	VIC	0.81	152	174	164	168
	D17S921	VIC	0.72	193	211	199	207
	D17S784	VIC	0.77	230	244	238	238
	D18S64	VIC	0.74	319	345	323	327
	D17S928	NED	0.76	68	102	82	86
	D18S452	NED	0.83	126	144	128	138
	D17S785	NED	0.83	165	193	171	173
	D18S1161	NED	0.82	211	237	227	229
	D18S68	NED	0.68	269	295	287	289
	D17S944	NED	0.75	318	334	320	330
74	D17S1876	FAM	0.82	99	131	114	126
	D17S1791	FAM	0.85	270	293	272	274
	D17S1795	VIC	0.71	136	146	136	144
	D17S1828	NED	0.79	95	115	105	109
	D17S1847	NED	0.65	161	167	167	167
75	D17S1807	FAM	0.86	256	284	271	275
	D17S927	VIC	0.72	113	129	114	116
	D17S836	VIC	0.63	204	214	208	210
	D17S1824	NED	0.83	91	111	99	105
	D17S957	NED	0.44	153	185	155	157
	D17S1862	NED	0.83	202	232	212	218
	D17S1816	NED	0.82	269	300	281	285

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
76	D18S1132	FAM	0.67	107	131	119	121
	D18S465	FAM	0.78	234	252	235	239
	D18S468	FAM	0.79	275	287	276	280
	D18S1150	VIC	0.71	96	104	96	96
	D18S450	VIC	0.79	217	233	218	222
	D18S1107	NED	0.72	81	95	89	91
	D18S469	NED	0.65	236	256	238	244
77	D18S1147	FAM	0.85	120	148	134	142
	D18S1127	FAM	0.86	181	207	195	197
	D18S1129	FAM	0.84	236	260	248	256
	D18S56	NED	0.73	104	118	105	107
	D18S453	NED	0.82	137	167	155	155
	D18S476	NED	0.76	266	278	270	274

Chromosomes 19, 20, 21, and 22

Marker Maps

Chromosome 19	Panel No.	Chromosome 20	Panel No.
10.9  D19S886	79	4.3  D20S117	25
D19S209	27	D20S906	80
D19S894	78	D20S842	80
D19S216	26	D20S889	25
D19S884	26	D20S882	80
D19S865	79	D20S846	80
D19S221	25	D20S115	25
D19S226	27	D20S851	80
D19S566	79	D20S186	26
D19S931	78	D20S898	80
D19S414	25	D20S112	25
D19S220	25	D20S912	80
D19S420	25	D20S871	80
D19S903	78	D20S195	27
D19S902	26	D20S107	26
D19S904	79	D20S861	80
D19S571	27	D20S119	26
D19S888	78	D20S178	27
D19S921	79	D20S891	80
D19S572	78	D20S887	80
D19S418	27	D20S196	25
D19S210	25	D20S902	80
		D20S100	25
		D20S171	27
		D20S173	25

Chromosome 21	Panel No.	Chromosome 22	Panel No.
0.0  D21S1904	81	10.0  D22S420	26
D21S1911	81	D22S539	26
D21S1256	27	D22S1174	82
D21S1899	81	D22S315	27
D21S1922	81	D22S1154	82
D21S1884	81	D22S1163	82
D21S1914	27	D22S280	26
D21S263	27	D22S277	82
D21S1252	26	D22S283	27
D21S1919	81	D22S423	26
D21S1255	81	D22S274	26
D21S266	26	D22S1170	82
		D22S1169	82

Associated Panels The following panels cover chromosomes 19, 20, 21, and 22.

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
25	D20S889	FAM	0.83	87	123	101	111
	D20S117	FAM	0.84	151	187	157	175
	D20S112	FAM	0.81	213	237	223	227
	D19S220	FAM	0.84	267	291	277	279
	D19S221	VIC	0.86	87	110	97	104
	D20S171	VIC	0.78	127	155	137	141
	D19S210	VIC	0.74	172	192	180	186
	D20S100	VIC	0.76	209	235	221	223
	D19S420	NED	0.79	95	117	105	107
	D19S414	NED	0.78	164	194	166	184
	D20S115	NED	0.66	234	246	238	238
	D20S196	NED	0.81	259	295	261	283
	D20S119	FAM	0.82	103	123	111	117
26	D21S266	FAM	0.59	156	178	160	172
	D20S107	FAM	0.80	197	221	205	213
	D19S902	FAM	0.79	237	273	241	253
	D20S186	VIC	0.86	113	139	115	135
	D22S420	VIC	0.77	153	169	157	157
	D22S280	VIC	0.82	213	225	219	219
	D19S216	VIC	0.76	256	274	264	264
	D22S423	VIC	0.82	287	309	305	305
	D19S884	NED	0.86	93	113	97	103
	D21S1252	NED	0.80	144	176	146	162
	D22S539	NED	0.58	199	217	201	201
	D22S274	NED	0.77	276	298	284	288
	D20S195	FAM	0.81	128	154	140	140
27	D22S315	FAM	0.78	180	210	194	196
	D19S209	FAM	0.77	238	254	240	250
	D19S418	VIC	0.66	87	107	91	91
	D20S173	VIC	0.67	128	182	174	174
	D21S263	VIC	0.75	194	229	196	201
	D21S1914	VIC	0.86	258	280	262	272
	D21S1256	NED	0.65	96	116	110	110
	D22S283	NED	0.89	127	155	131	151
	D20S178	NED	0.83	179	195	187	187
	D19S226	NED	0.85	238	270	242	248
	D19S571	NED	0.81	287	319	307	313
	D19S572	FAM	0.80	120	138	133	133
	D19S903	FAM	0.78	210	232	222	232
78	D19S931	VIC	0.77	151	179	168	174
	D19S894	NED	0.77	127	151	143	143
	D19S888	NED	0.81	174	194	176	178
	D19S566	FAM	0.86	145	167	155	157
	D19S904	FAM	0.64	213	227	217	219
79	D19S921	VIC	0.78	186	212	188	196
	D19S886	NED	0.63	143	159	155	157
	D19S865	NED	0.88	195	231	206	208
	D20S906	FAM	0.71	86	104	96	98
	D20S891	FAM	0.85	193	219	211	213
	D20S902	FAM	0.81	300	316	308	310
	D20S851	VIC	0.76	66	87	70	83
	D20S871	VIC	0.74	130	162	146	152
	D20S898	VIC	0.88	235	269	247	253
	D20S912	VIC	0.80	284	302	296	300
	D20S882	NED	0.72	68	80	76	76
	D20S861	NED	0.66	123	135	125	125
	D20S842	NED	0.86	159	183	170	172
80	D20S846	NED	0.77	212	230	214	220
	D20S887	NED	0.82	246	270	248	258
	D21S1904	FAM	0.52	131	149	137	139
	D21S1899	FAM	0.86	170	190	179	185
	D21S1884	FAM	0.59	242	252	244	244
	D21S1911	VIC	0.69	133	157	137	143
	D21S1919	NED	0.81	168	198	170	178
	D21S1922	NED	0.65	244	256	248	248
	D21S1255	NED	0.80	308	329	310	316
	D22S1169	FAM	0.78	65	81	67	67
	D22S1163	FAM	0.75	143	159	152	154
	D22S1170	FAM	0.64	197	211	211	211
	D22S1154	FAM	0.72	247	263	259	259
81	D22S1174	NED	0.82	121	147	141	145
	D22S277	NED	0.85	161	197	195	195
82	D22S1169	FAM	0.78	65	81	67	67
	D22S1163	FAM	0.75	143	159	152	154
	D22S1170	FAM	0.64	197	211	211	211
	D22S1154	FAM	0.72	247	263	259	259
	D22S1174	NED	0.82	121	147	141	145
	D22S277	NED	0.85	161	197	195	195

Chromosome X

Marker Map

Chromosome X

		DXS1060
4.8		DXS1223
1.1		DXS8051
2.2		DXS7108
3.8		DXS1224
3.8		DXS987
2.4		DXS8019
5.3		DXS7593
4.1		DXS1226
6.9		DXS1061
5.9		DXS1214
6.1		DXS8102
0.0		DXS8090
0.9		DXS1068
1.2		DXS8015
7.3		DXS993
5.7		DXS8080
3.6		DXS8083
3.3		DXS1055
7.3		DXS1039
2.6		DXS991
5.4		DXS1216
4.7		DXS986
1.1		DXS1196
3.8		DXS1217
2.7		DXS990
4.6		DXS8077
5.6		DXS8020
1.1		DXS1106
6.8		DXS1059
1.5		DXS8088
4.3		DXS8055
5.7		DXS8064
4.8		DXS8067
2.7		DXS1001
7.6		DXS8009
3.0		DXS1047
2.7		DXS1062
8.4		DXS984
3.0		DXS1205
1.1		DXS1227
8.8		DXS8106
4.8		DXS8043
2.2		DXS8045
4.1		DXS998
2.7		DXS8091
5.6		DXS8069
5.4		DXS1073

Associated Panels The following panels cover chromosome X.

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
28	DXS1227	FAM	0.73	79	99	87	93
	DXS990	FAM	0.74	122	132	122	126
	DXS986	FAM	0.77	151	181	163	163
	DXS987	FAM	0.83	205	229	207	217
	DXS993	FAM	0.79	267	293	269	271
	DXS1073	FAM	0.80	306	334	310	316
	DXS8091	VIC	0.78	80	102	82	88
	DXS1106	VIC	0.67	126	140	130	130
	DXS1047	VIC	0.81	156	172	158	166
	DXS1001	VIC	0.82	191	211	195	205
	DXS1068	VIC	0.79	244	264	252	254
	DXS1214	VIC	0.79	284	298	290	290
	DXS8055	VIC	0.65	312	324	314	316
	DXS8051	NED	0.88	104	134	116	120
	DXS8043	NED	0.80	146	180	146	164
	DXS1060	NED	0.84	244	268	248	254
	DXS1226	NED	0.84	280	302	284	298
	DXS991	NED	0.80	313	341	313	327
83	DXS1224	VIC	0.55	160	174	162	162
	DXS7593	VIC	0.74	214	237	218	227
	DXS8009	VIC	0.63	252	266	257	259
	DXS8067	NED	0.73	91	115	103	103
	DXS8019	NED	0.82	160	178	165	169
	DXS8088	NED	0.62	250	266	262	264
84	DXS1223	FAM	0.77	139	161	147	157
	DXS1039	FAM	0.56	177	201	185	189
	DXS8045	FAM	0.54	215	227	220	220
	DXS7108	FAM	0.74	236	258	238	256
	DXS1196	VIC	0.79	212	232	214	216
	DXS1062	NED	0.75	89	115	102	102
	DXS8077	NED	0.72	179	199	187	187
	DXS8064	NED	0.60	214	230	216	220
	DXS1216	NED	0.68	242	256	246	246
85	DXS1205	FAM	0.65	184	202	186	192
	DXS8106	FAM	0.72	264	290	270	278
	DXS8102	VIC	0.56	99	105	100	102
	DXS984	VIC	0.71	160	190	182	184
	DXS8069	NED	0.66	134	148	134	140
	DXS8083	NED	0.73	163	181	165	165
	DXS8020	NED	0.80	216	246	230	236

Panel	Locus	Dye Label	Het	ASR		GT (1347-02)	
86	DXS8080	FAM	0.69	76	104	92	96
	DXS1055	FAM	0.68	142	158	146	150
	DXS8015	FAM	0.77	179	195	189	189
	DXS1061	FAM	0.78	228	248	240	244
	DXS1217	VIC	0.60	235	253	239	247
	DXS8090	VIC	0.77	288	306	298	302
	DXS998	NED	0.58	114	122	116	118
	DXS1059	NED	0.71	184	204	200	202

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