

Comparative map for mice and humans

Joseph H. Nadeau, Muriel T. Davisson, Donald P. Doolittle, Patricia Grant, Alan L. Hillyard, Michael R. Kosowsky, and Thomas H. Roderick

The Jackson Laboratory, Bar Harbor, Maine 04609, USA

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This report summarizes the status of the comparative map for genes and anonymous loci that have been mapped in mice and humans. Table 1 provides a listing of loci that compose the comparative map together with references documenting homology, chromosomal assignment, and genetic linkage. Criteria proposed by the Comparative Mapping Committee (Davisson et al., *Cytogenet Cell Genet* 58: 1152–1189, 1992) were used to identify homologous genes and anonymous loci. A matrix (Fig. 1) provides a guide for identifying homologous segments in the mouse and human genomes. Finally, a map illustrates the location of each mouse locus and its homolog on humans (Fig. 2).

Two major changes have been made in the representation of comparative mapping information. The first change is that *conserved synteny* (conservation of synteny regardless of gene order) are now highlighted; previous maps highlighted conserved linkages (conservation of gene order and synteny). The second change involves brackets around candidate *conserved linkages*. Because of ambiguity in the manner in which conserved linkages are identified when specific chromosomal localizations of human genes are considered, several alternatives are often possible. For example, *Pep-3* on mouse Chr 1 has a human homolog on Chr 1q25. The loci that immediately flank *Pep-3* have homologs on human Chr 1q32 and 1q31–41. If we assume that these linkage and cytogenetic assignments in mice and humans are correct, two alternative conserved linkages are possible—one involving *Pep-3* and the proximal locus, and another involving *Pep-3* and distal loci. Brackets highlight this ambiguity. These changes

represent part of our effort to develop algorithms for identifying conserved synteny and conserved linkages.

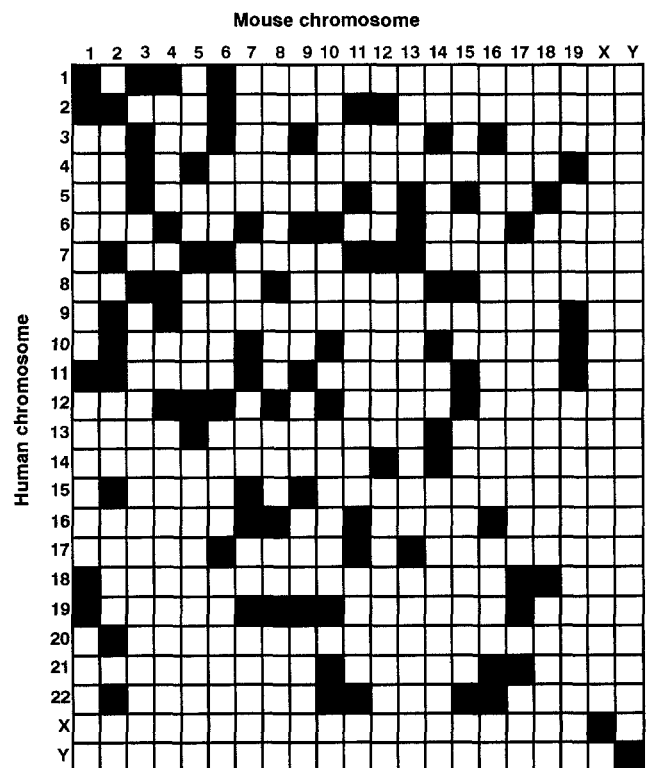


Fig. 1. Chromosomal location of loci that have been mapped in both mice and humans. Each blackened cell in the matrix signifies at least one locus that has been mapped to the respective chromosomes in mice and humans. For example, loci on mouse Chr 1 have homologs on human Chrs 1, 2, 11, 18, and 19.

Table 1. Listing of homologous genes and anonymous loci in mice and humans together with chromosomal assignment and references documenting homology and chromosomal assignment, and recombination distances. This listing was prepared from information in GBASE—The Genomic Database of the Mouse, HMDP—Homology Database and Programs, GDB—the Human Genome Database, mouse chromosome committee reports, and the primary literature.

Table with 12 columns: Mouse Gene, Chr, References, Human Gene, Chr, References, Mouse Gene, Chr, References, Human Gene, Chr, References. The table lists numerous homologous genes between mice and humans, such as Aat, Abl, Abil, Acp-1, Acr, Acra, Acra-3, Acra-5, Acrb, Acrb-4, Acrd, Acrg, Actb, Actc-1, Actg, Acts, Acty-1, Ada, Adh-1, Adh-3, Adh-5, Adk, Adprp, Adra-1, Adra-2, Adrb-1, Adrb-2, Adrb-3, Afp, Ags, Ah, Ahd-2, Ahd-4, Ak-1, Ak-2, Akp-3, Akt, Alias-2, Alb-1, Amel, Amh, Ampd-1, Amy-1, Amy-2, Ang, Ank-1, Apmh, Apoa-1, Apoa-2, Apoa-4, Apob, Apoe, App, Aprt, Araf, Arnt, As-1s, As-2, Asl, Pi, ABL1, ABL2, ACO1, ACP1, ACP2, ACR, CHRNA1, CHRNA3, CHRNAS, CHRNb1, CHRNb4, CHRNA5, CHRNG, ACTB, ACTC, ACTG1, ACTA1, ACY1, ADA, ADH1, ADH3, ADH5, ADK, PPOL, ADRA1A, ADRA2, ADRB1, ADRB2, ADRB3, AFP, GLA, AHHR, ALDH1, ALDH3, AK1, AK2, ALP1, AKT1, ALAS2, ALB, AMELX, AMH, AMPD1, AMY1A, AMY2A, APOA1, APOA2, APOA4, APOB, APOE, APP, APRT, ARAF1, ARNT, ARSB, ARSA, ASL, Ass-1, At-3, Atp1a1, Atp1a2, Atp1a3, Atp1b1, Atp1b2, B2m, Bcl-2, Bcm-1, Bcr, Bdnf, Bf, Bgl, Bivr, Bmp1, Bmp2a, Bmp3, Bpa, C2, C3, C4, C4bp, C6, C7, C8b, Cacy, Calb, Calc, Camk4, Capl, Car-1, Car-2, Car-3, Cas-1, Cbl-2, Cbs, Ccg-1, Cchlla2, Cck, Cdl4, Cdl8, Cd28, Cdc2a, Cf-5, Cf-8, Cf-9, Cf-10, Cfh, Ckmm, Col2a-1, Col3a-1, Col6a-1, Col6a-2, Col6a-3.

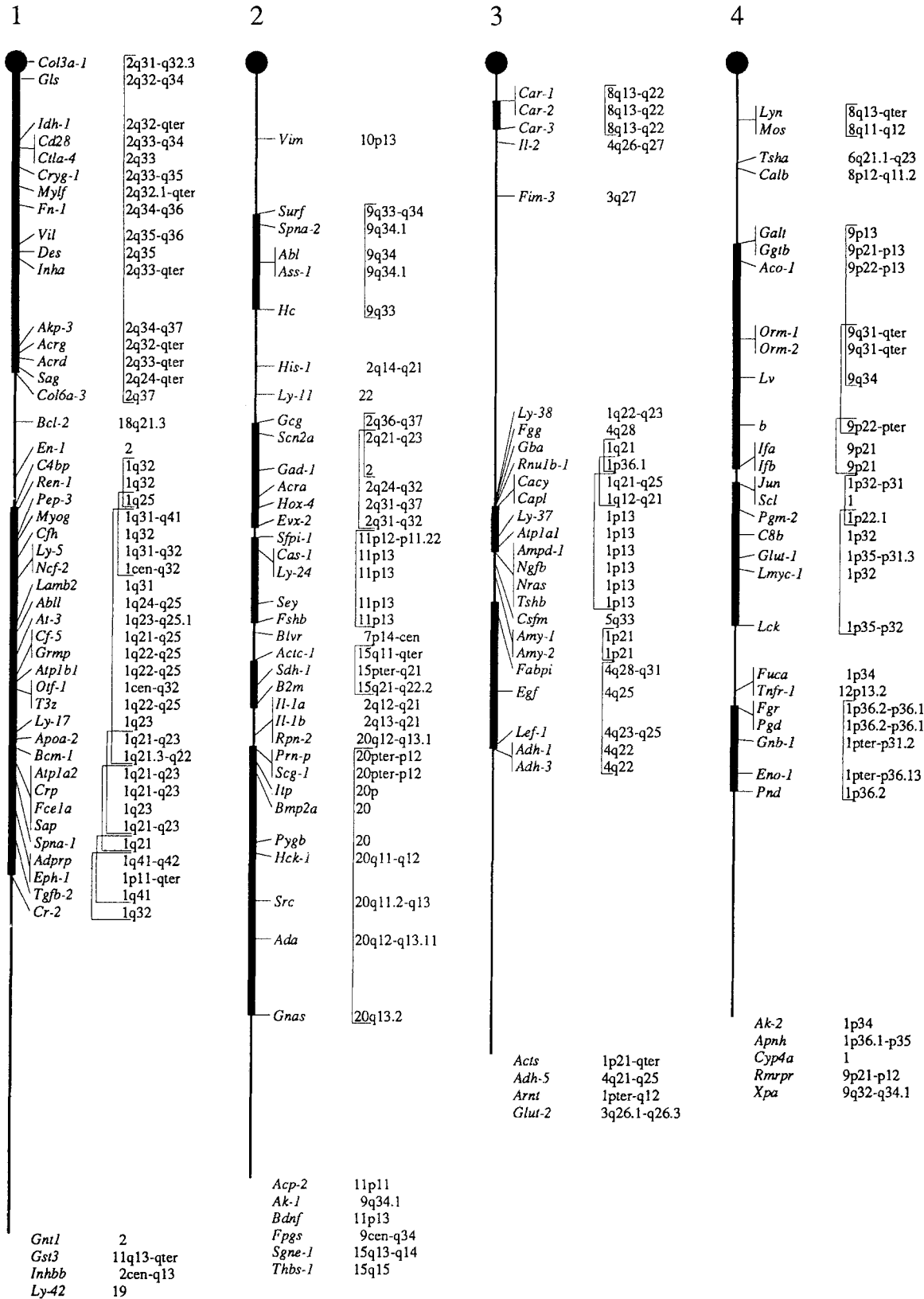


Fig. 2. Comparative map showing the chromosomal location of genes and anonymous loci that have been mapped in both mice and humans. The mouse map is used as the reference map. The chromosomal assignment for the human homolog is listed to the right of

each mouse symbol. Recombination distances were obtained from GBASE, mouse chromosome committee reports, and the primary literature.

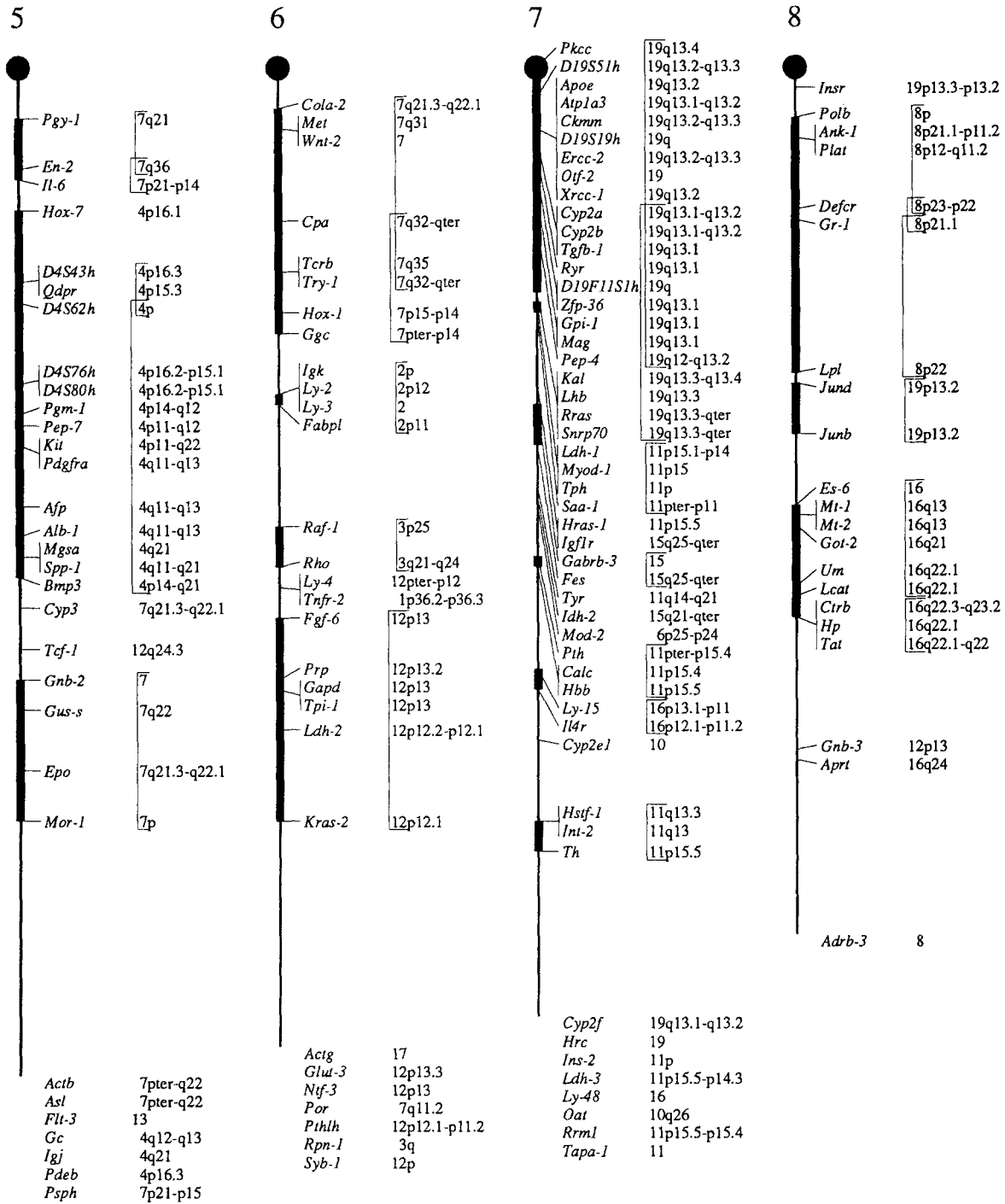


Fig. 2. Continued.

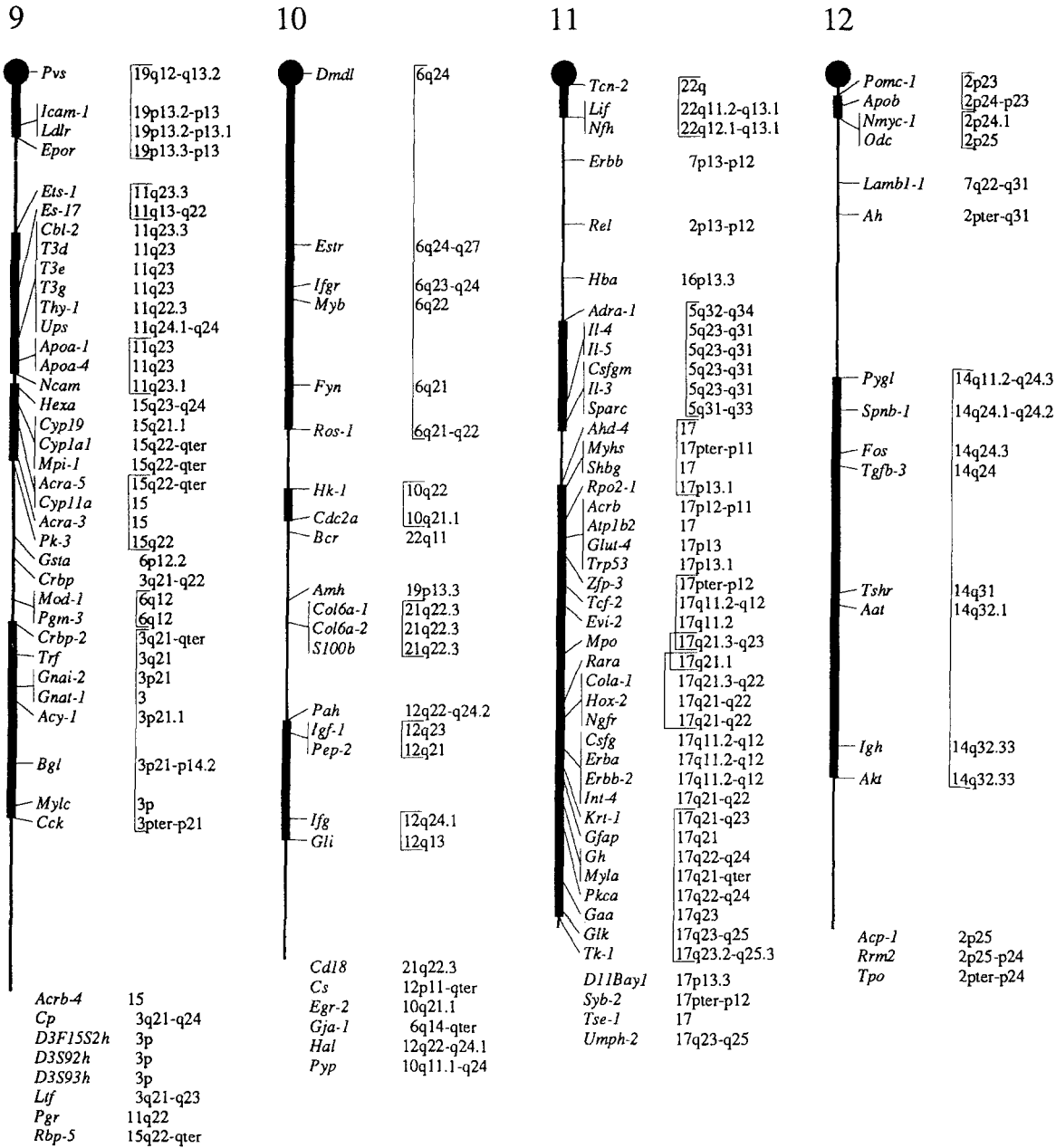


Fig. 2. Continued.

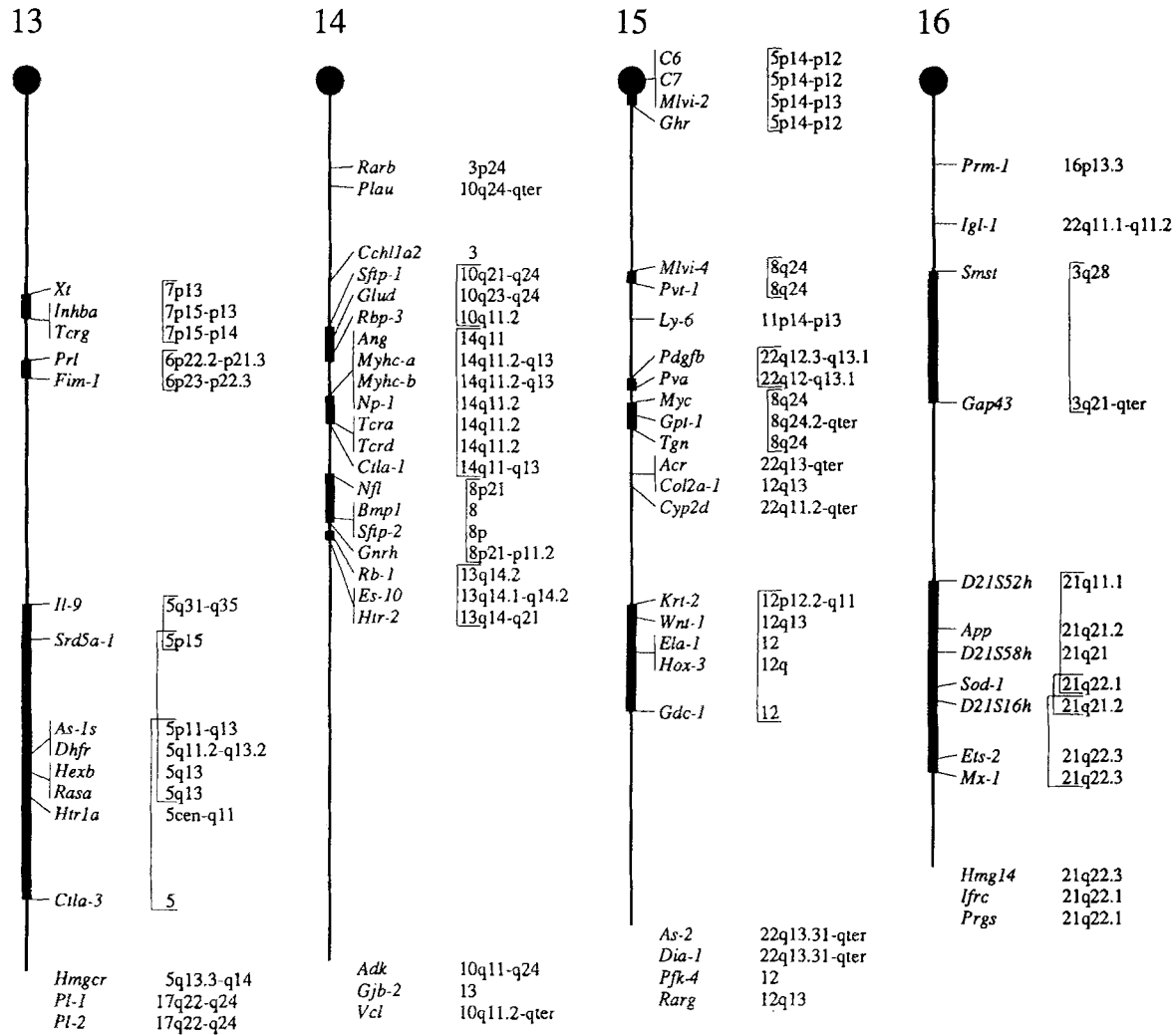


Fig. 2. Continued.

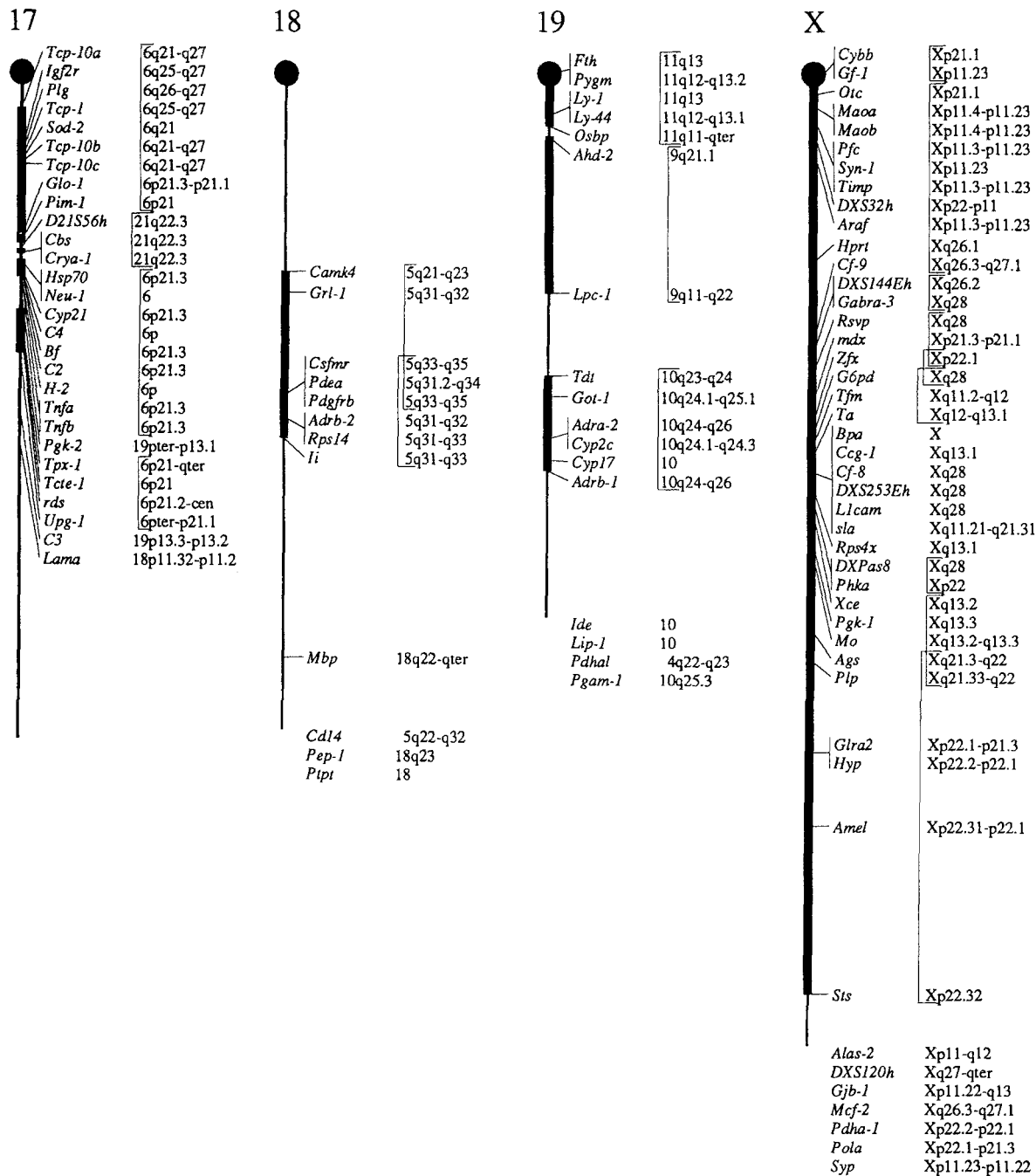


Fig. 2. Continued.

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