Chromosomal localization of **SLC12A5/*Slc12a5***, the human and mouse genes for the neuron-specific **K⁺-Cl⁻** cotransporter (**KCC2**) defines a new region of conserved homology

R. Sallinen, J. Tornberg, M. Putkiranta, N. Horelli-Kuitunen, M.S. Airaksinen, and M. Wessman

Assignment of *Slc12a5* to mouse chromosome 2H2-H3 by fluorescence in situ hybridization

The international Mouse Genome Sequencing Consortium (MGSC) deposited an advanced draft sequence of the mouse genome into public databases last spring. After this publication we decided to test our mouse *Slc12a5* gene assignment by conducting database queries. When BLASTing the complete mouse *Slc12a5* mRNA (GenBank accession number AF332064) and human SLC12A5 mRNA sequence (NCBI RefSeq accession number NM_020708) against the mouse genome sequence (the MGSCv3 assembly, Ensembl BLAST), the highest scoring hit for each sequence was found on mouse Chr 2 (165–166 Mb). This region corresponds to mouse chromosomal band 2H3 and is contradictory to our previous *Slc12a5* assignment to chromosome 5G2–G3. In order to elucidate this inconsistency, we cohybridized a reference probe 426A18 for mouse Chr 5 and clones λ A and λ C specific for *Slc12a5* on mouse metaphase spreads. The Chr 5 reference probe hybridized to a different chromosome than the *Slc12a5* probes (Fig. 1). This shows that we have previously mixed up mouse Chr 2 with Chr 5 and that our *Slc12a5* assignment to 5G2–G3 is incorrect. According to this as well as our reanalyzed earlier hybridization data, the mouse *Slc12a5* is assigned to chromosomal bands 2H2–H3, which is consistent with the present NCBI Human-Mouse Homology Map (<http://www.ncbi.nlm.nih.gov/Homology/>). These results disprove our previous suggestion of the first putative region of conserved homology between human Chr 20 and mouse Chr 5.

References

- Sallinen R, Latvanlehto A, Kvist AP, Rehn M, Eerola I, Chu ML, Bonaldo P, Saitta B, Bressan GM, Pihlajaniemi T, Vuorio E, Palotie A, Wessman M, Horelli-Kuitunen N: Physical mapping of mouse collagen genes on chromosome 10 by high-resolution FISH. Mammal Genome 12:340–346 (2001).

Fig. 1. Localization of *Slc12a5* to mouse chromosome 2H2–H3 by metaphase-FISH: **(A)** A color image showing mouse Chr 2 with hybridization signals (red) for *Slc12a5* specific probes λ A and λ C and Chr 5 with hybridization signals (green) for Chr 5 reference probe 426A18. *Slc12a5* was assigned to chromosomal bands 2H2–H3 and 426A18 to 5G2–G3. The reference mouse PAC clone 426A18 mapping to 5G was obtained from the YAC Screening Center (Milan, Italy). Clone information is found on <http://www.biologia.uniba.it/rmc/>. Probes λ A and λ C specific for *Slc12a5* have been described in our original article. The FISH procedure was performed as previously described in detail (Sallinen et al., 2001). **(B)** A grayscale image of the color image **(A)** with idiograms of mouse Chr 2 and Chr 5.