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The Mouse Mutations Circling and Spinner are Allelic

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Circling mice were recorded to display profound deafness and a head-tossing and bidirectional circling behavior, showing an autosomal recessive mode of inheritance. In addition, the histological examination of inner ears revealed that the region around organ of Corti, spiral ganglion neurons and outer hair cells showed definite abnormality. On the other hand, a genetic linkage map was constructed in an intraspecific backcross between *cir* and C57BL/6J mice. The *cir* gene was mapped to a region between *D9Mit116/D9Mit15* and *D9Mit38* on the mouse chromosome 9. Estimated distances between *cir* and *D9Mit116,* and between *cir* and *D9Mit38* are 0.70 ± 0.40 and 0.23 ± 0.23 cM, respectively. The markers in order was defined as follows: centromere-*D9Mit182- D9Mit51/ D9Mit79/ D9Mit310- D9Mit212/ D9Mit184- D9Mit116/ D9Mit15- cir- D9Mit38- D9Mit20- D9Mit243- D9Mit16- D9Mit55/ D9Mit125- D9Mit281.* Based on genetic mapping, we constructed for a YAC contig across *cir* region. They covered the entire region of *cir* and *cir* gene was located on between the lactotransferrin (*ltf*) and the macrotubule-associated protein (*map4*). It is known that sr gene is localized in 64cM of mouse chromosome 9. The two mouse were found to be allelic by complementation test. Recently the spinner mouse has been mapped to our cir region, and tmie gene were elucidated. And further study will be needed in circling mouse to prove tmie gene mutaiton.

Key words) ***Circling mice, Deafness, Spinner mouse***