

**DGAP166: 46,XX,inv(2)(p23q31)****Revised: 46,XX,inv(2)(p22.1q24.3)**

This female has a phenotype including a seizure disorder, developmental delay, microcephaly, slight bilateral epicanthal folds, a slightly upturned nose, a thin upper lip with slightly upturned corners of the mouth, and very mild micrognathia. A split clone, AC008270, has been identified at the 2p breakpoint. There are no known genes in this region, although *SLC8A1* is less than 500 kb telomeric to the breakpoint. FISH mapping of the 2q24.3 breakpoint has defined a breakpoint region within the split BAC RP11-218 and refined the critical interval to within fosmid G248P83522H10. This breakpoint directly disrupts *SCN1A*, a membrane protein, which forms part of a voltage gated sodium channel essential for the generation and propagation of action potentials, particularly in nerve and muscle. Mutations in this gene have been identified in several families with generalized epilepsy and febrile seizures. Further studies are planned to identify mRNA and protein products of this gene, and to determine whether a truncated protein is produced.

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