

**DGAP001: 46,XX,inv(2)(p11.2q13)**

The phenotype in this eight year-old female includes aqueductal stenosis (hydrocephalus), absent septum pellucidum, dysgenesis of the posterior corpus callosum, dolicocephaly, fibrotic and incompletely closed anterior fontanelle, facial dysmorphism, developmental delay, temper tantrums and episodes of head-banging. The *inv(2)* bears similarity to an inversion often considered clinically insignificant. We undertook breakpoint mapping for this case because of the extensive phenotype, and because we were enrolling another case with a similar pericentric inversion and a shared phenotype of significant, well-documented behavioral problems (DGAP136). The 2q13 region contains extensive duplicated sequence, complicating interpretation of FISH with standard BAC clones and necessitating the use of long-range PCR (covering interspersed, non-duplicated sequences) to generate effective probes. FISH with a 6 kb PCR-generated probe from the centromeric end of RP11-330B16 (AC062027) showed split signals on the *inv(2)*, narrowing the breakpoint to a single clone. The closest gene, *ANAPC1*, maps ~100 kb distally and encodes a subunit of the anaphase promoting complex (APC) involved in metaphase to anaphase progression; no other known genes map directly within RP11-330B16. The 2p11.2 breakpoint has been narrowed by FISH to an approximately 133 kb interval flanked proximally by RP11-81F3 and distally by RP11-21P18. Known genes in this interval include *CD8B1* (CD8 antigen, beta polypeptide 1) and *PLGL* (plasminogen-related protein B precursor).

For more information:

Email: [dgap@rics.bwh.harvard.edu](mailto:dgap@rics.bwh.harvard.edu)

Internet: <http://dgap.harvard.edu>