

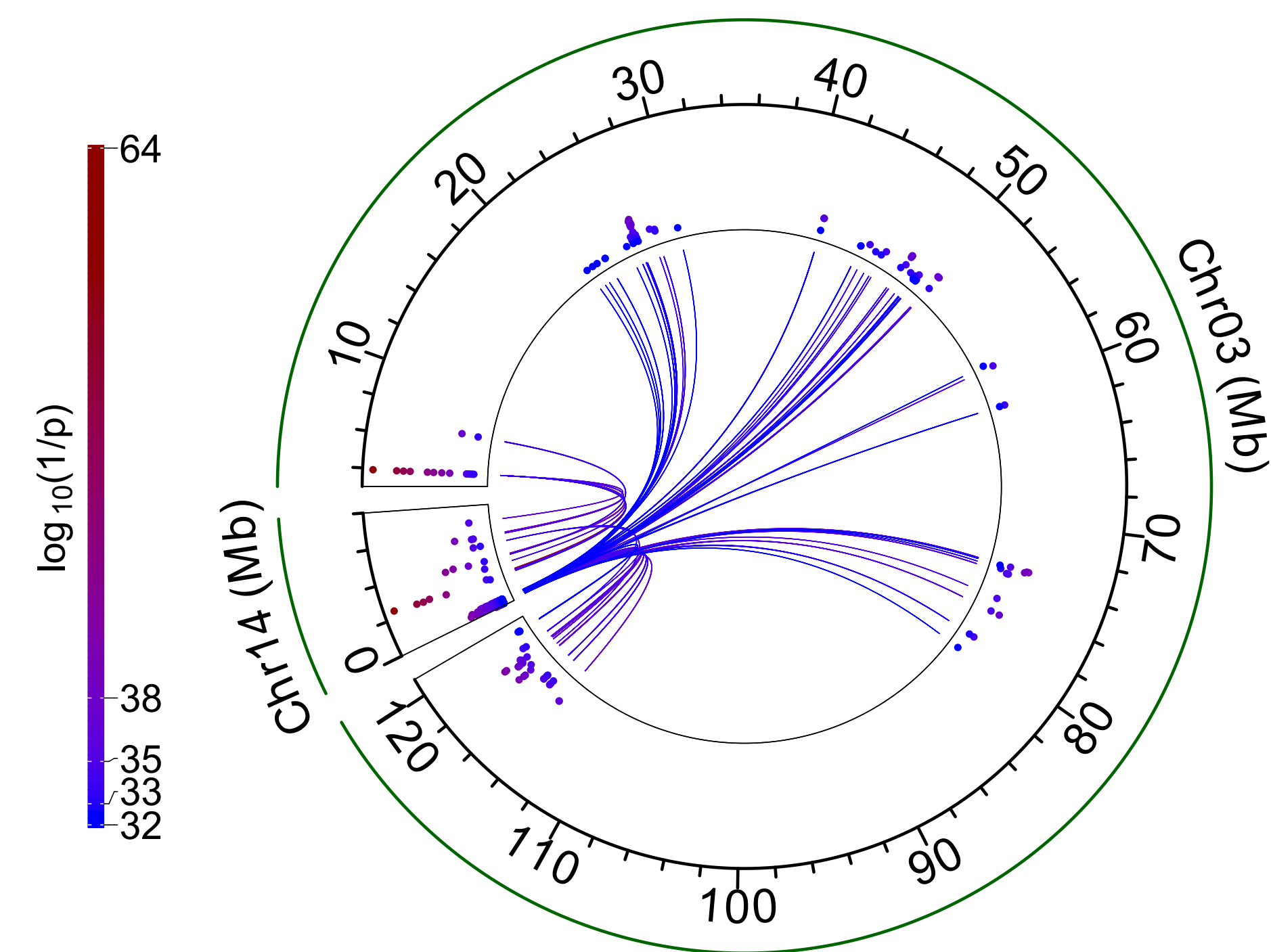
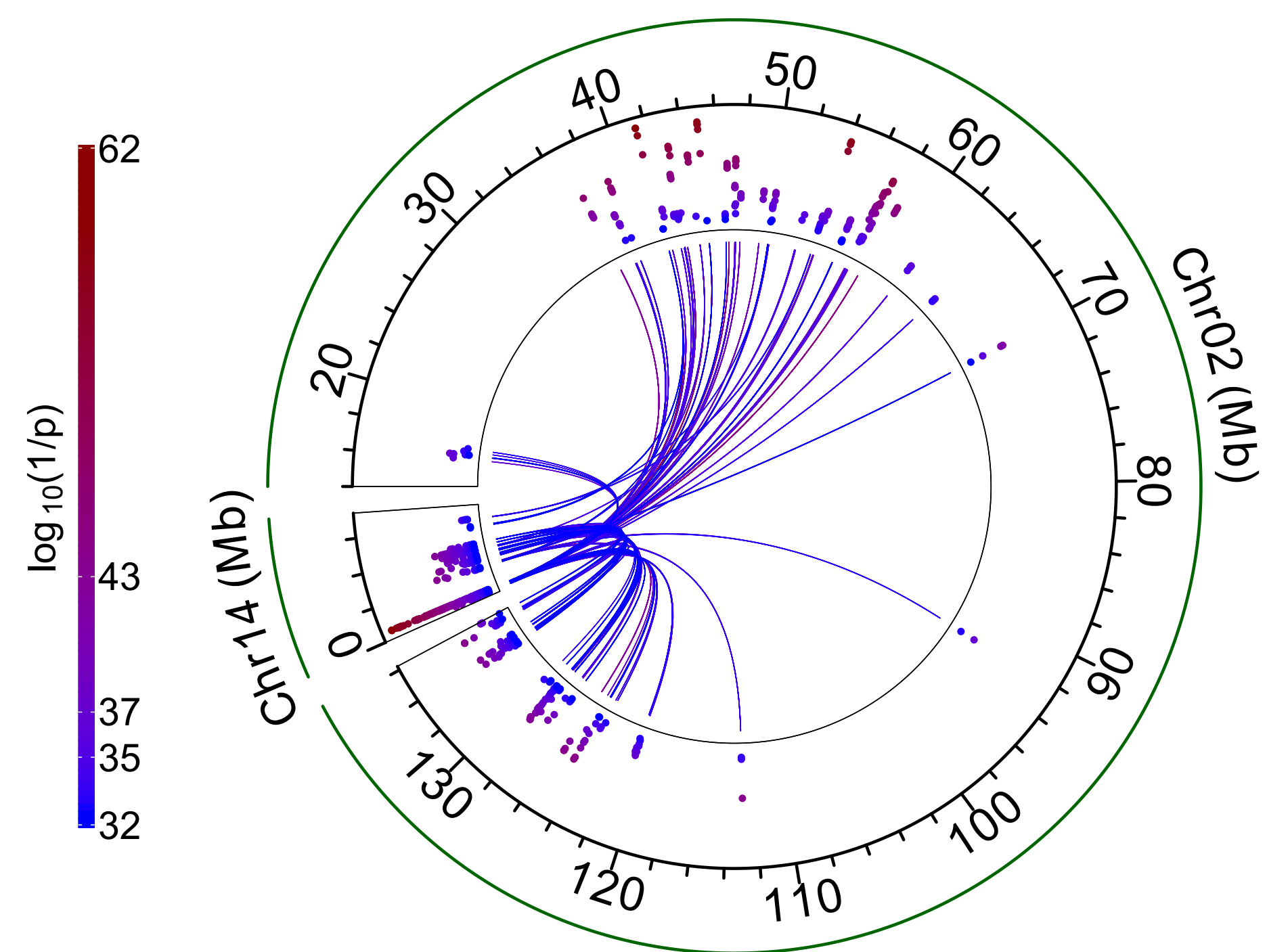
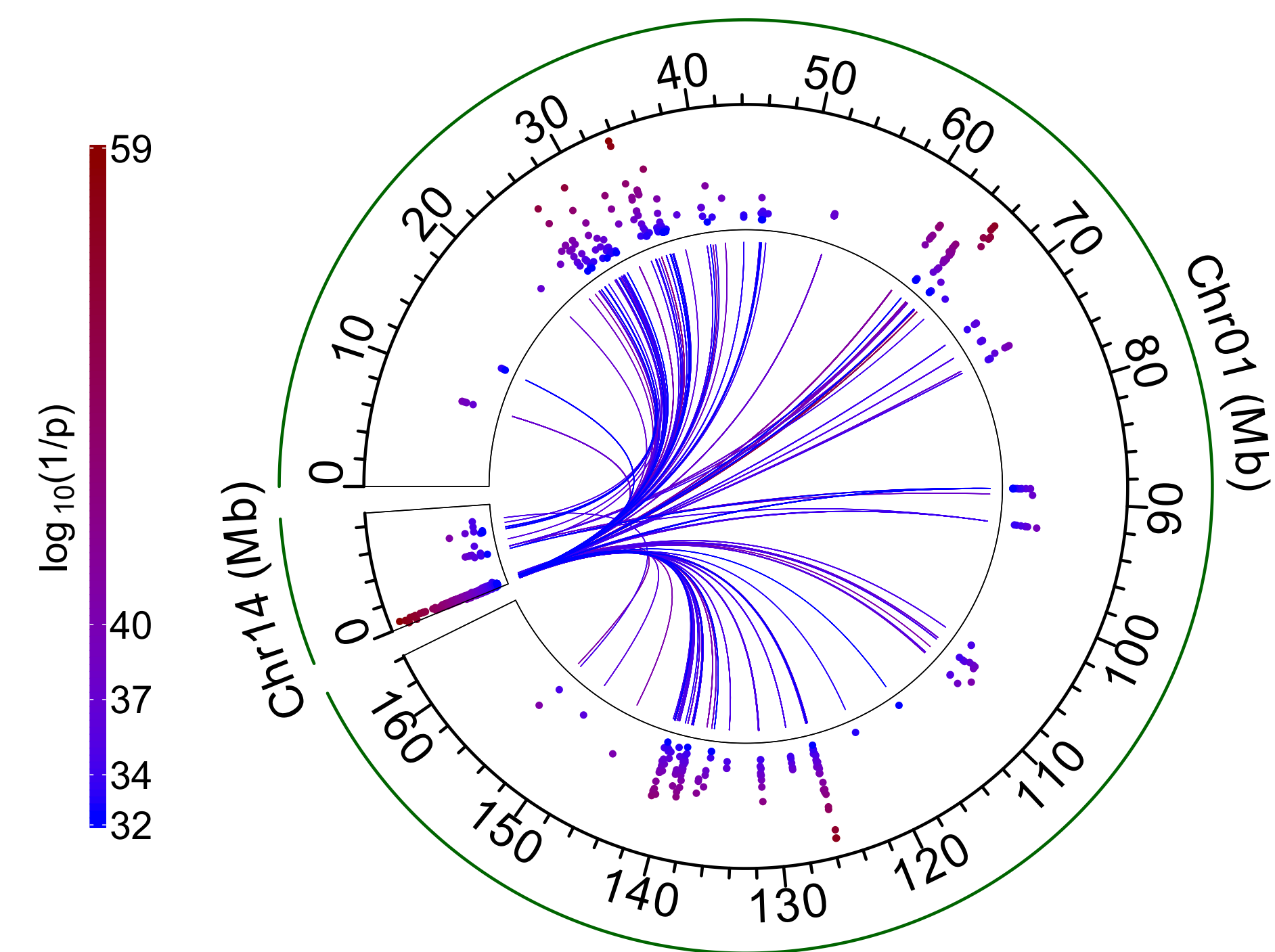
**Table S1.** Significant inter-chromosome A×A effects with  $\log_{10}(1/p) > 32$ . (Excel file)

(AC1-AC4 are the four allelic combinations of the two loci. aa1-aa4 are the A×A epistasis values of AC1-AC4. frq1-frq4 are the frequencies of AC1-AC4.)

**Table S2.** Basic statistics of AFC phenotypic residuals after removing fixed nongenetic effects from the 12/2022 U.S. Holstein genetic evaluation.

Trait	Number of cows	Mean (%)	Min (%)	Max (%)	SD (%)
FPC	1,231,898	-0.042	-1.712	4.938	0.179

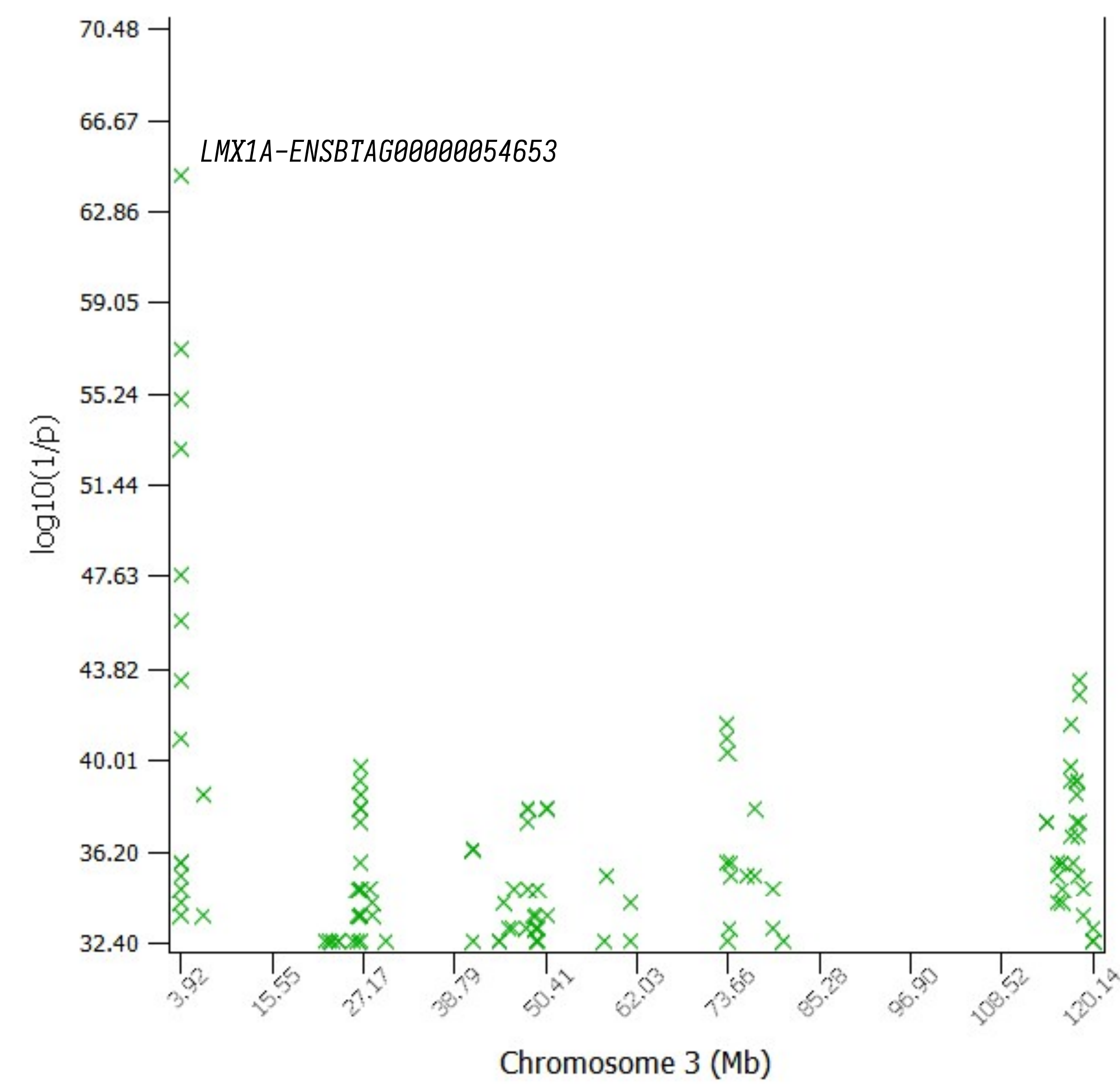
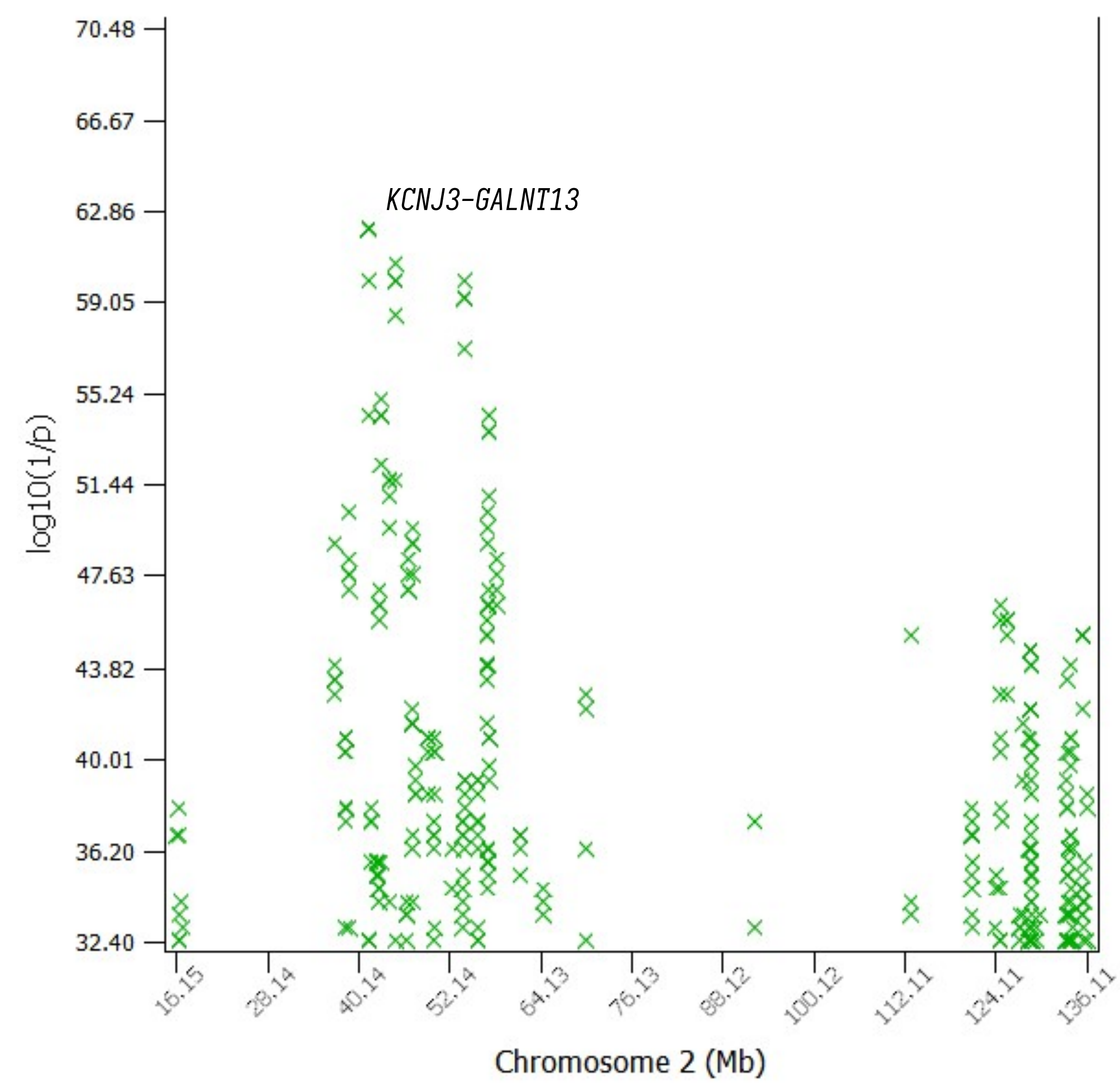
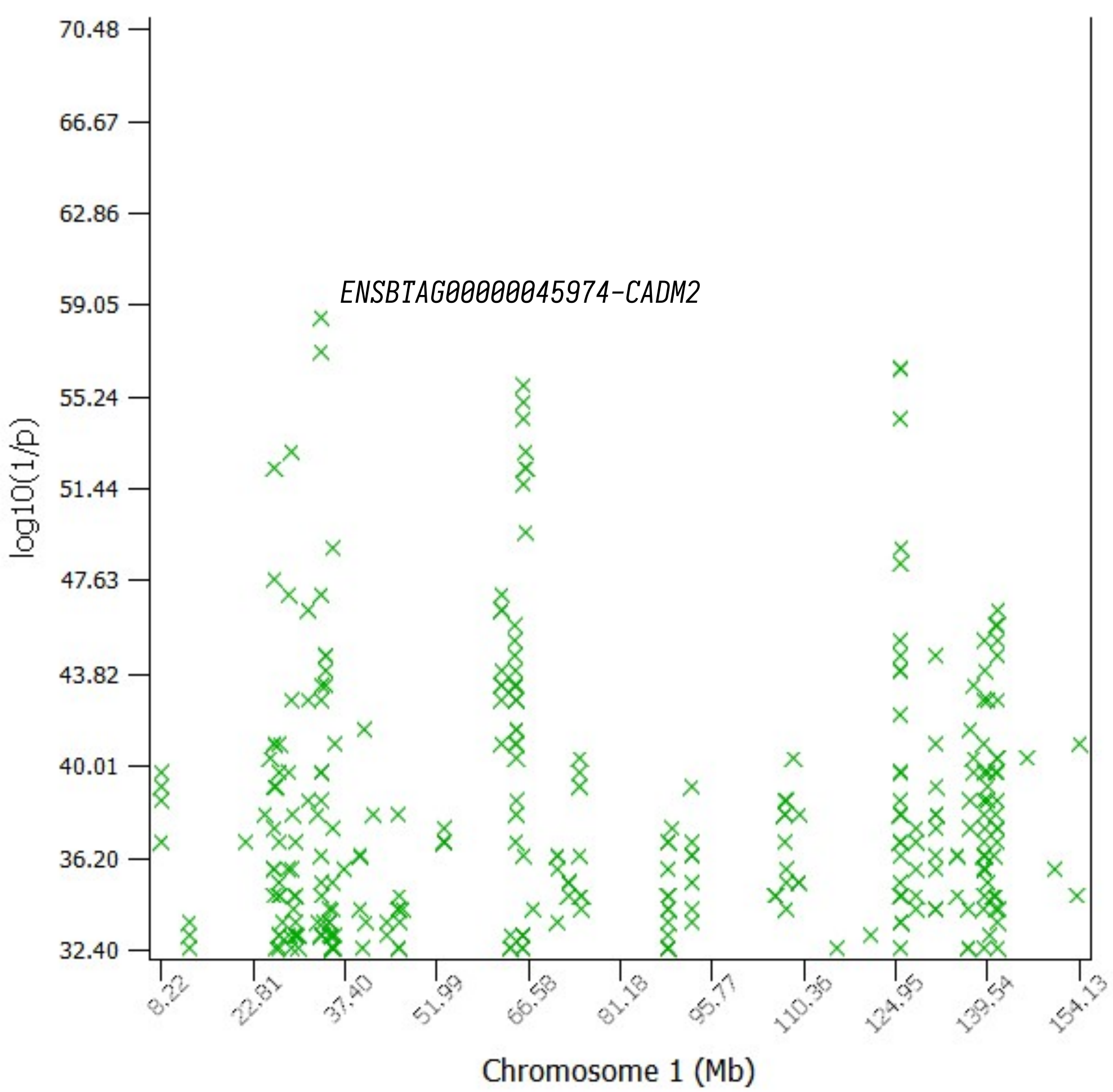
**Figure S1.** Circular plots of A×A effects between Chr14 and other chromosomes, and Manhattan plots of the statistical significance of A×A effects of all non-Chr14 chromosomes.



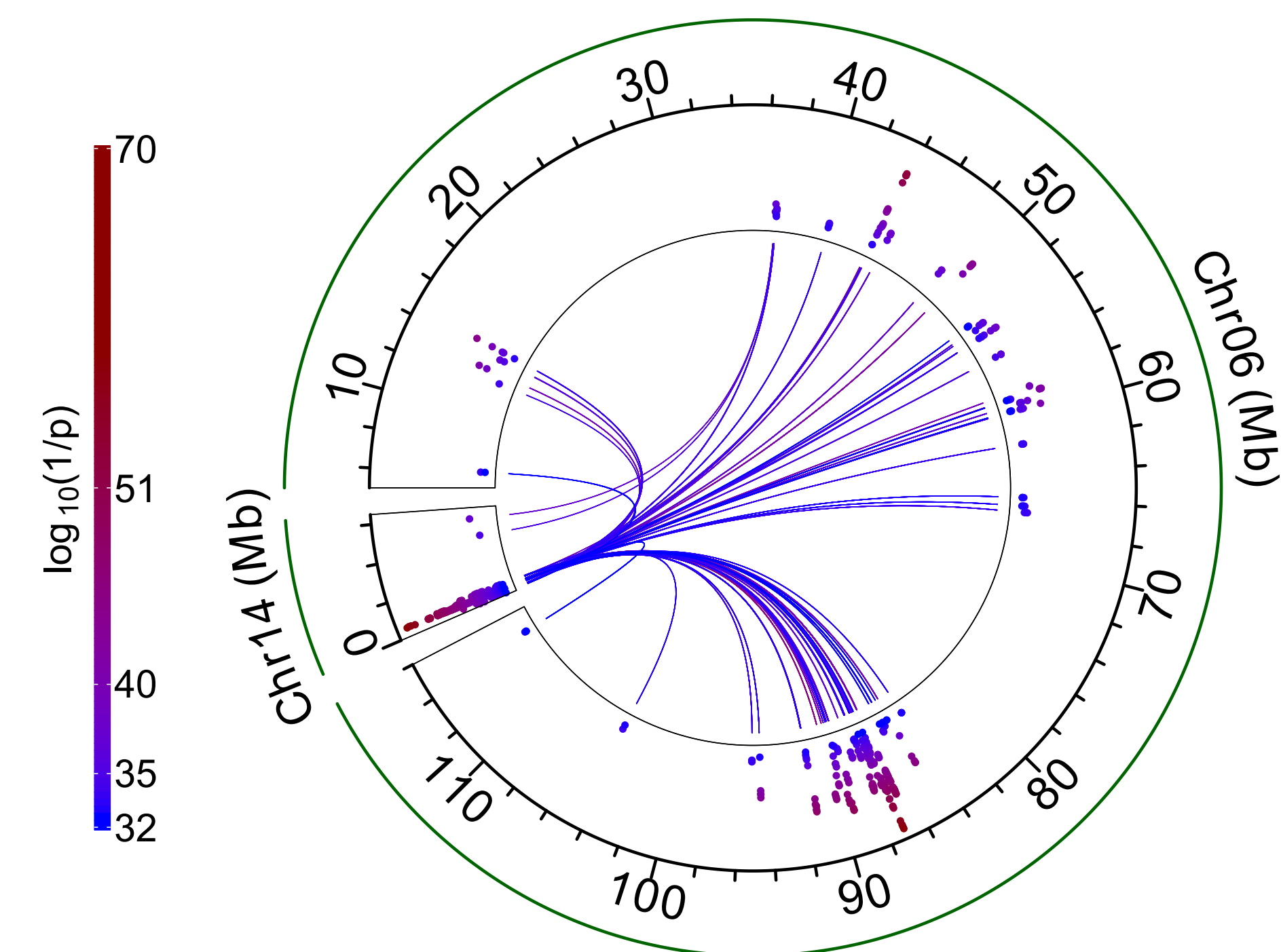
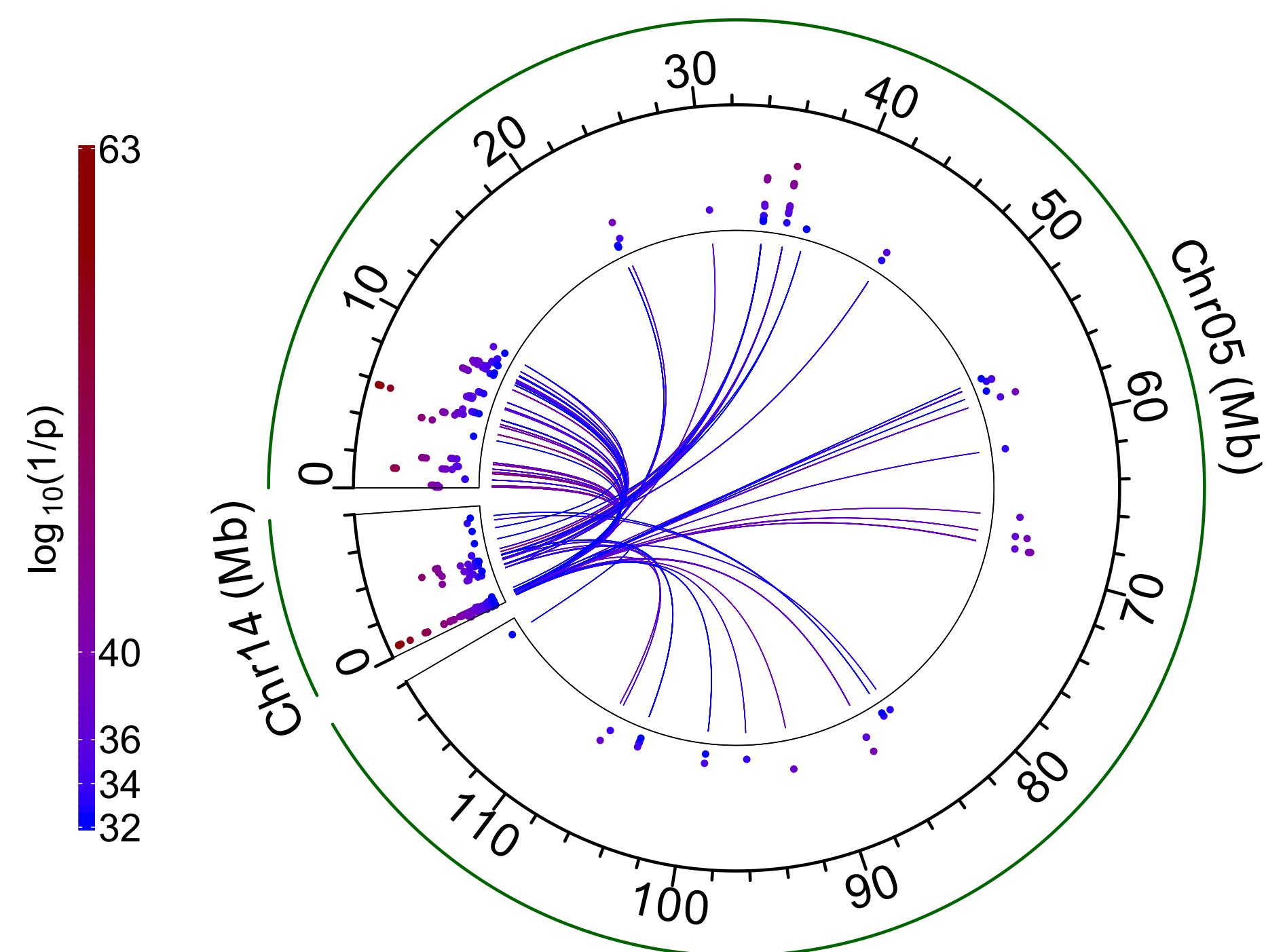
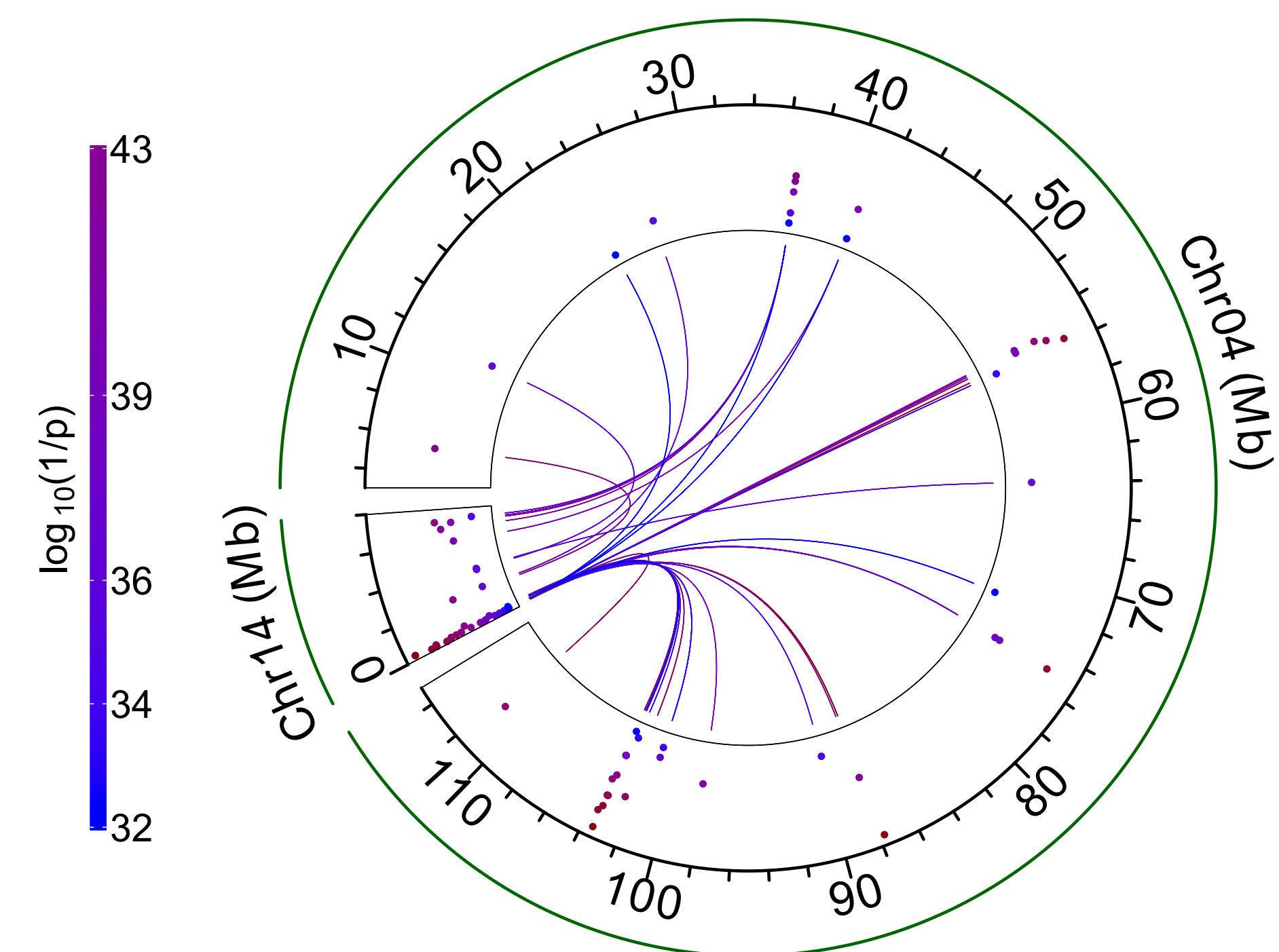
× AxA effect

× AxA effect

× AxA effect



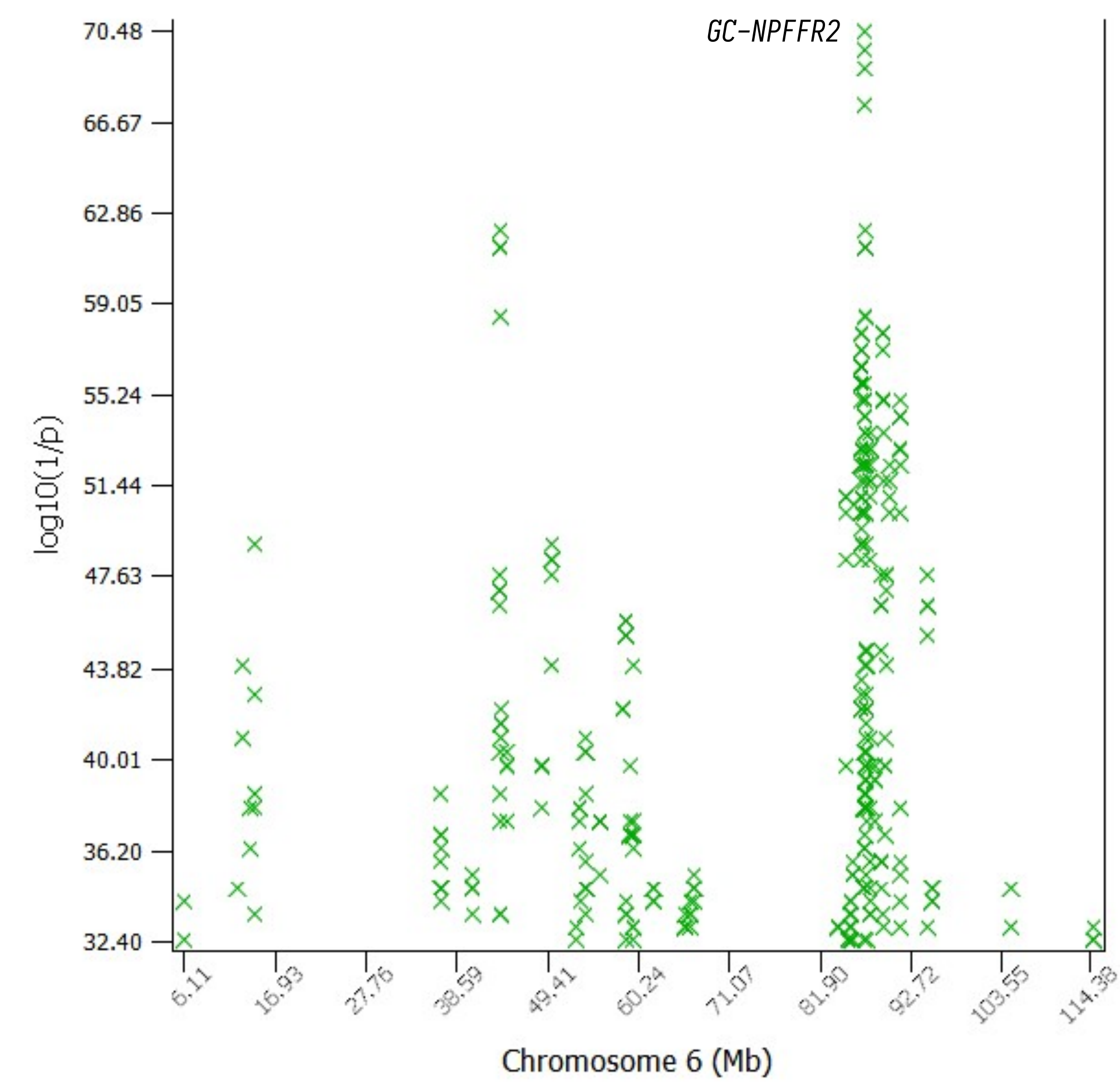
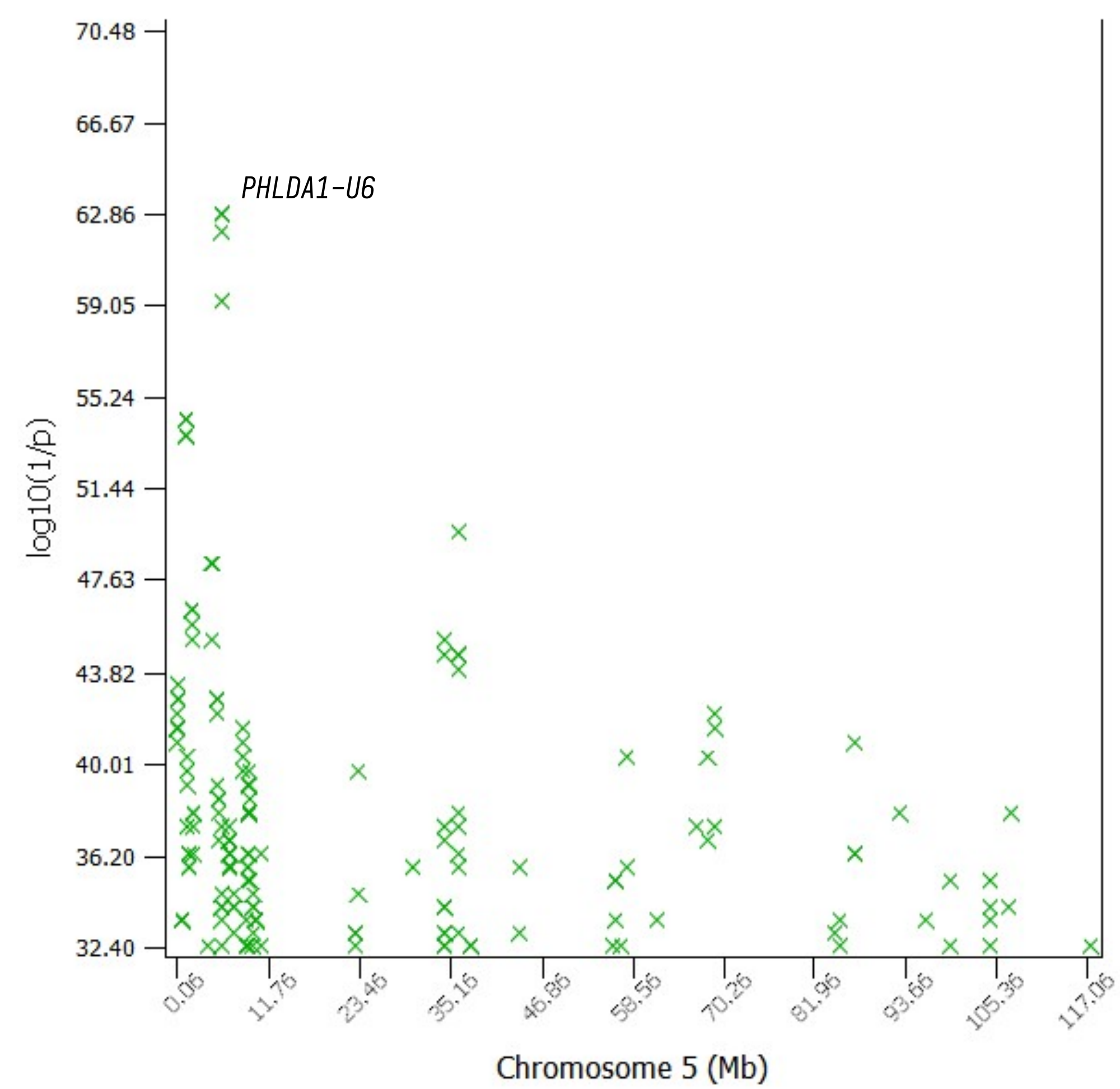
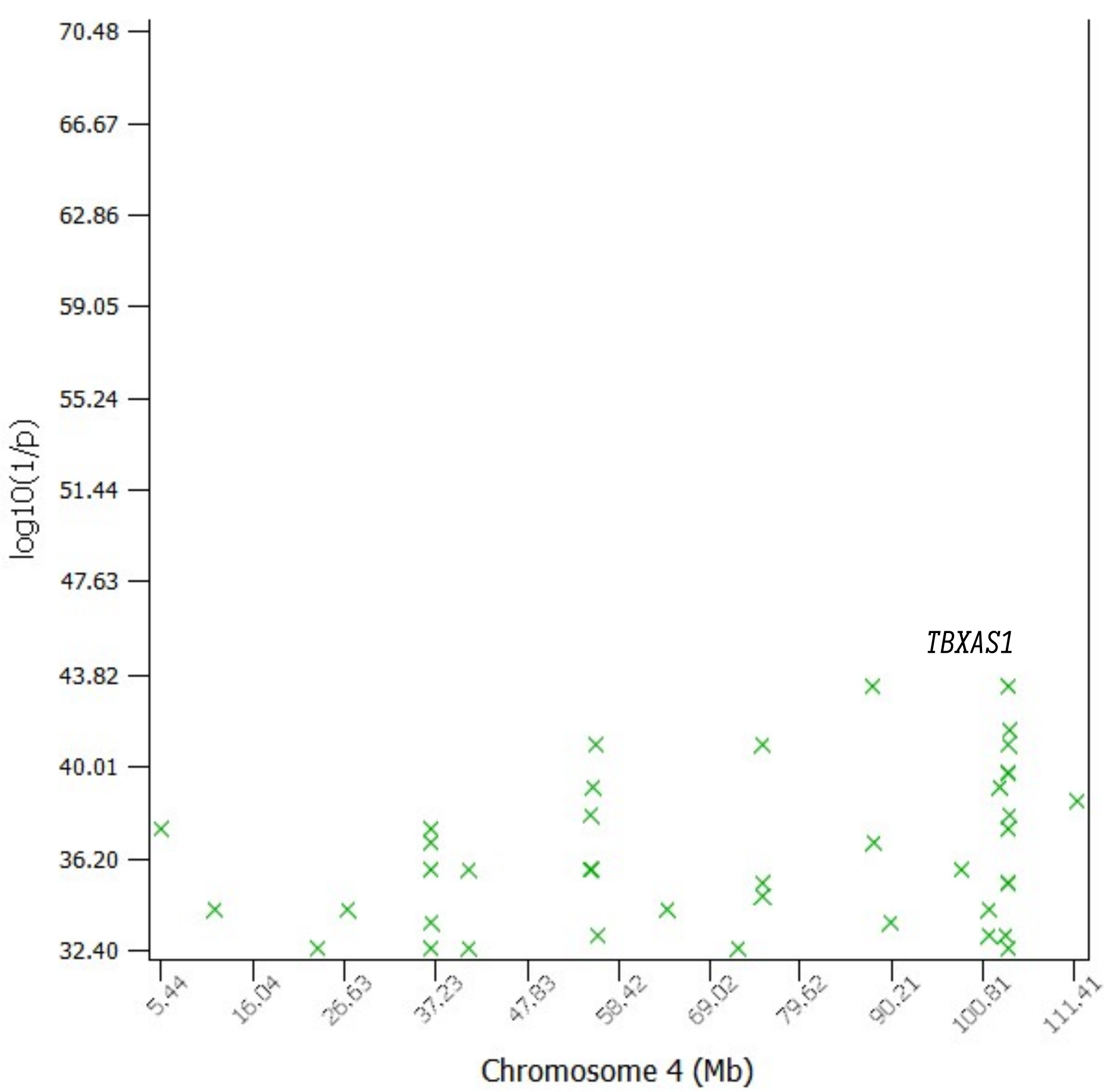




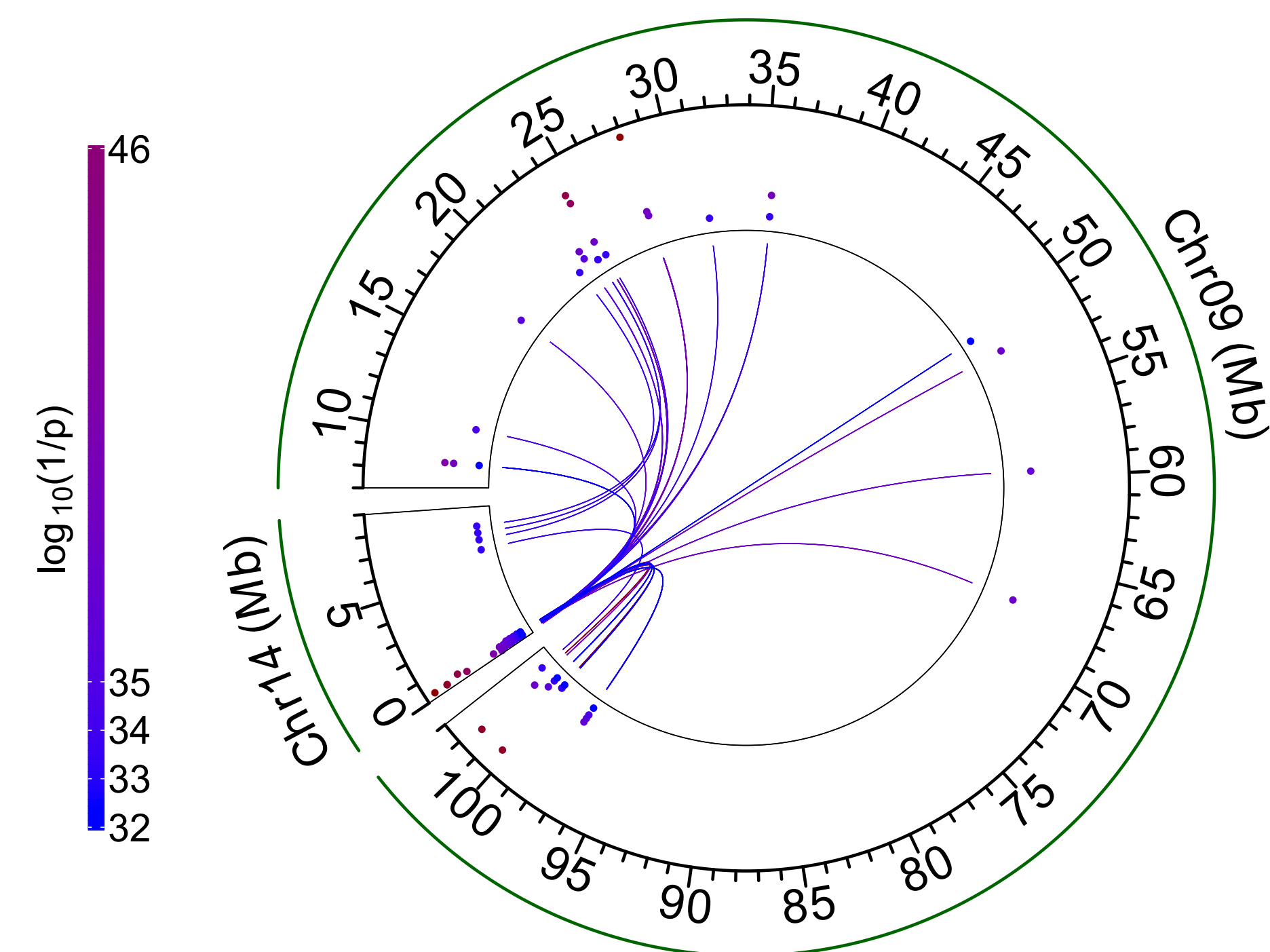
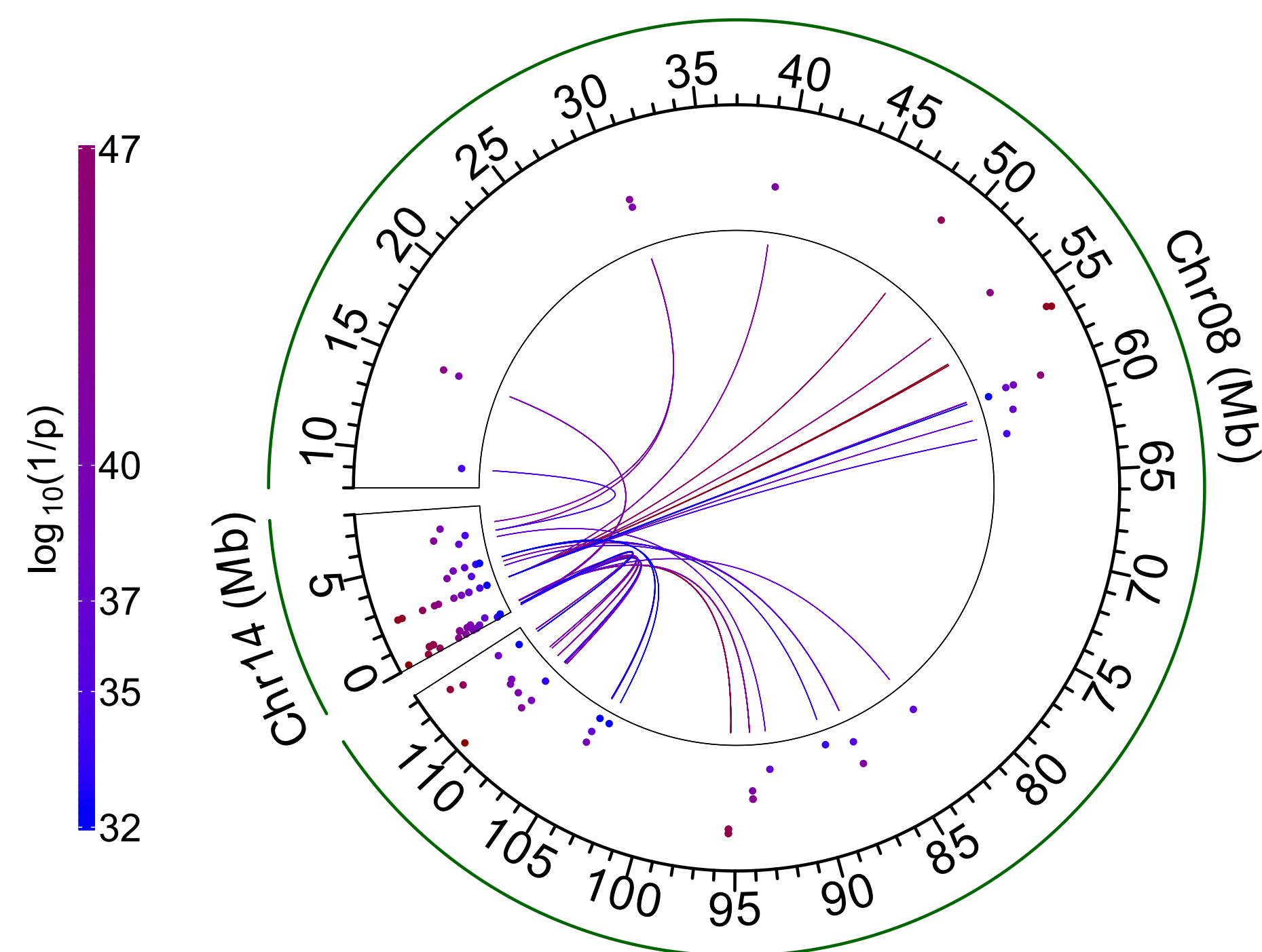
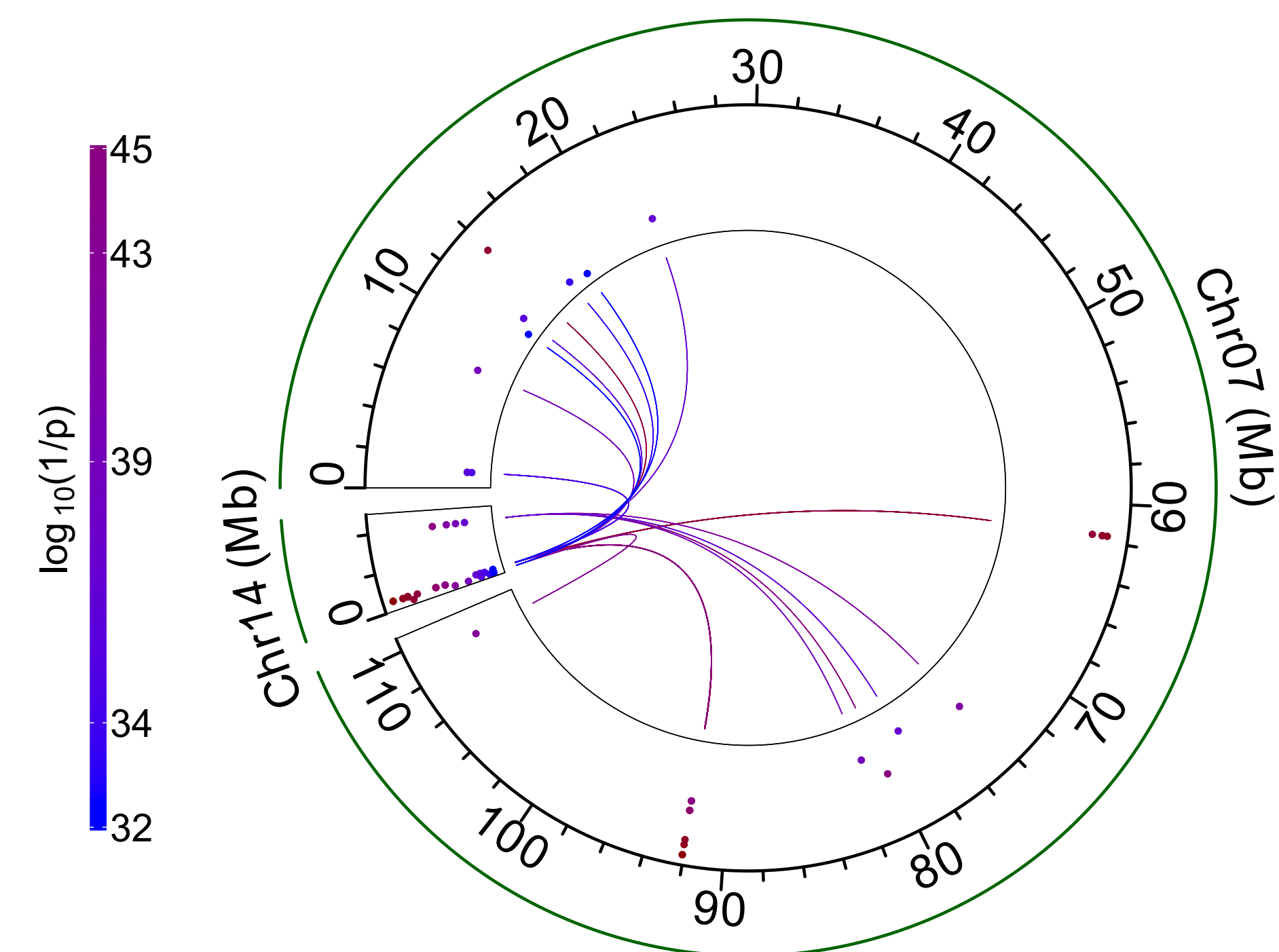
× AxA effect

× AxA effect

× AxA effect



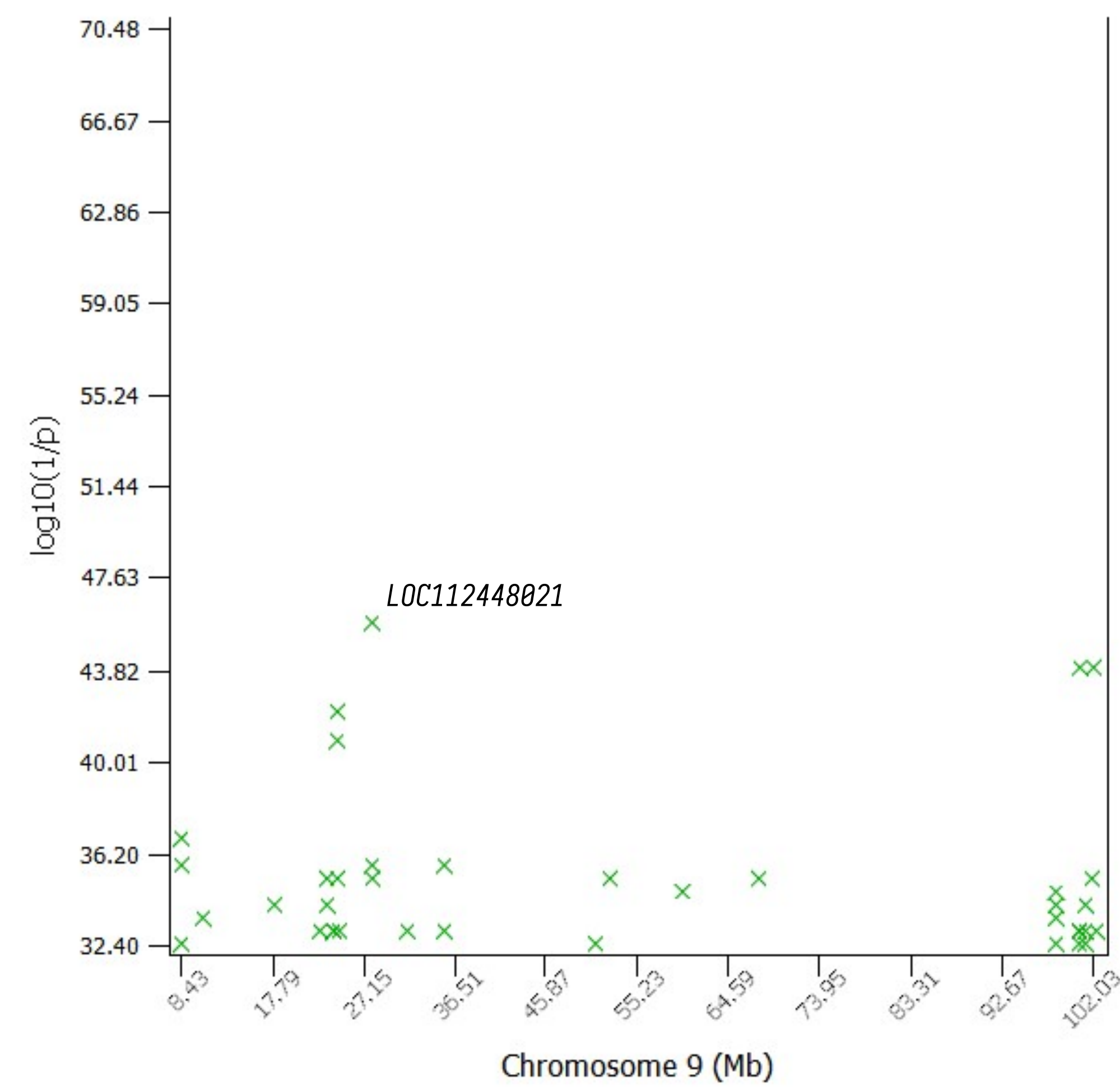
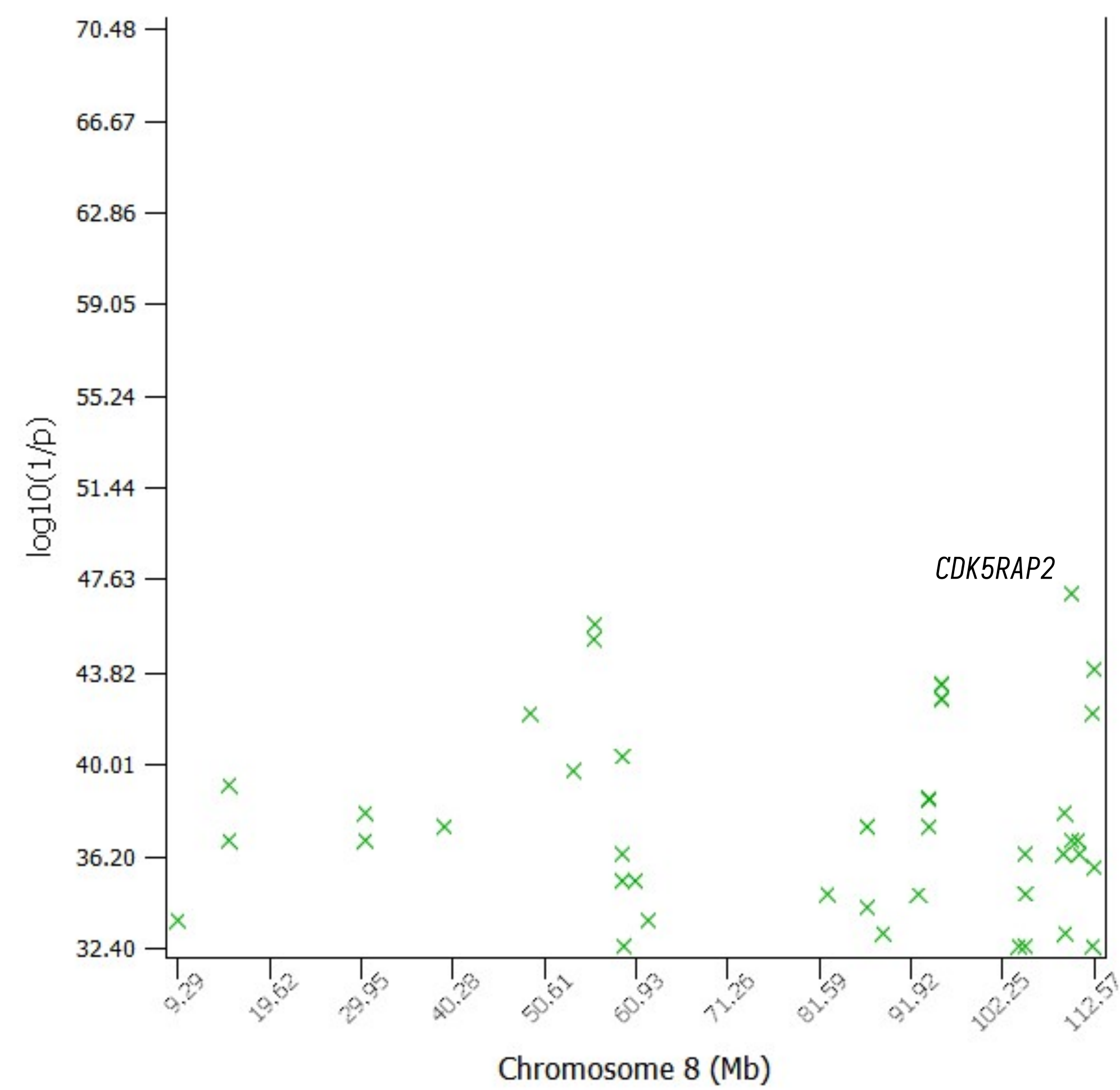
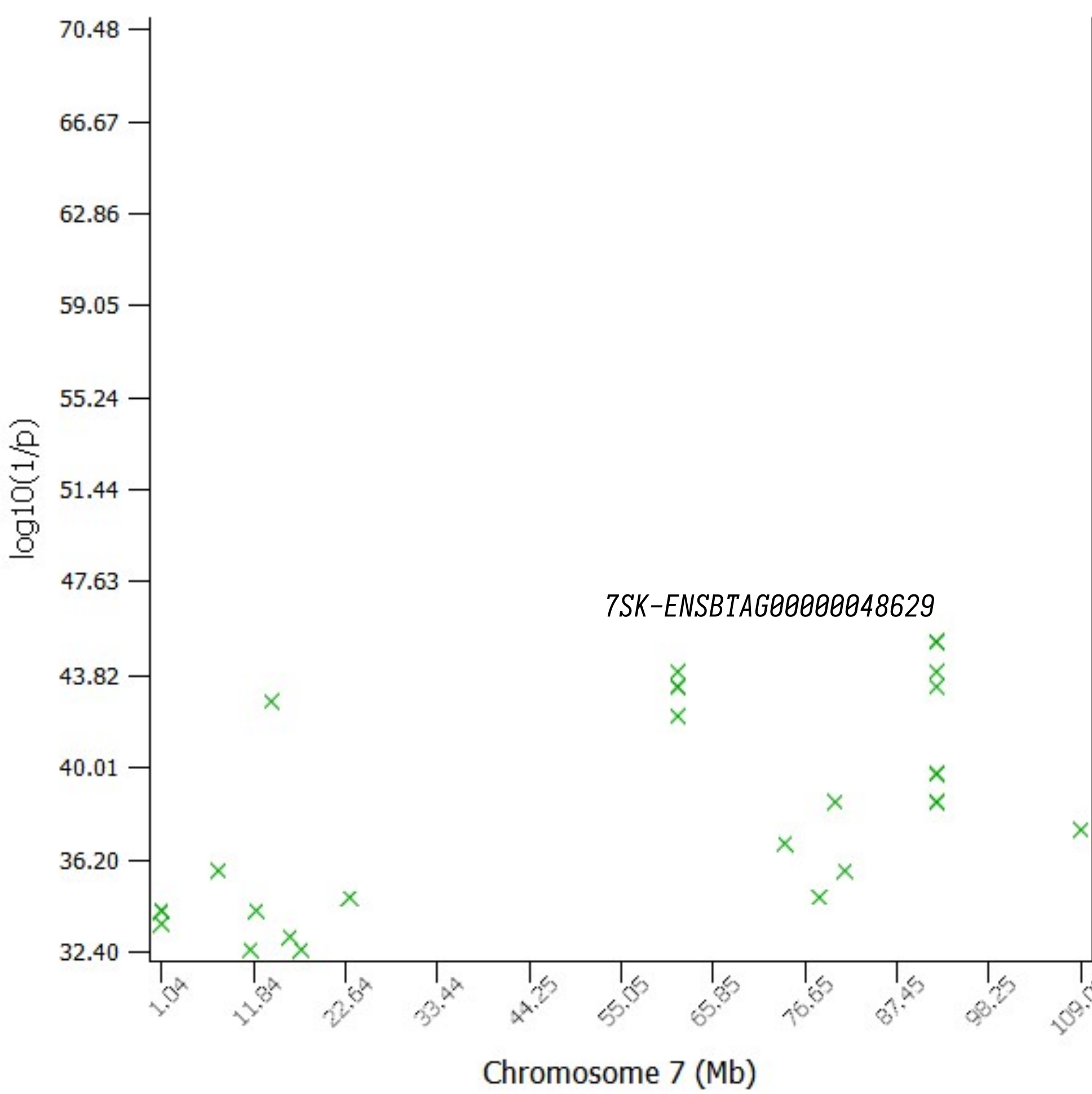




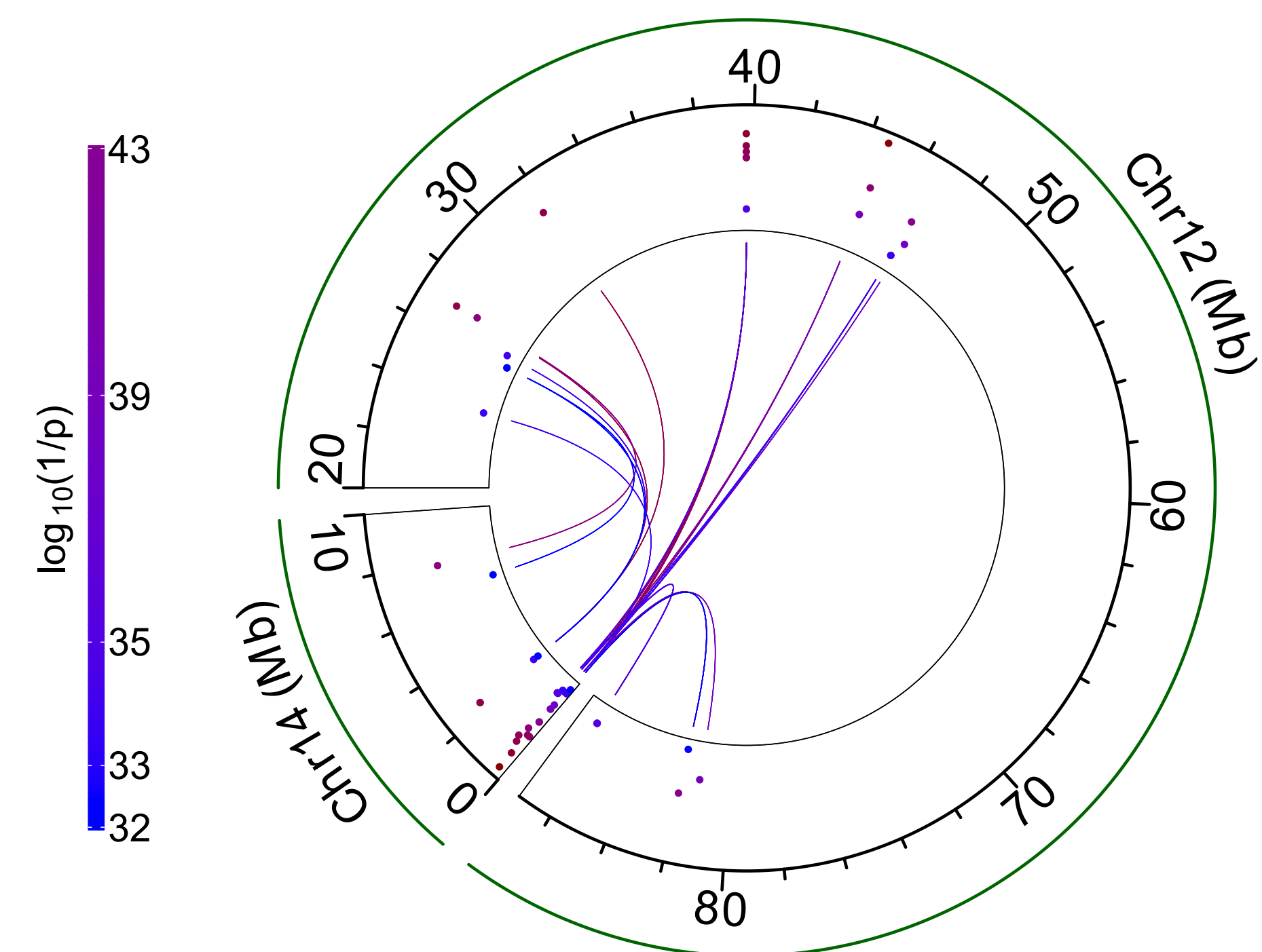
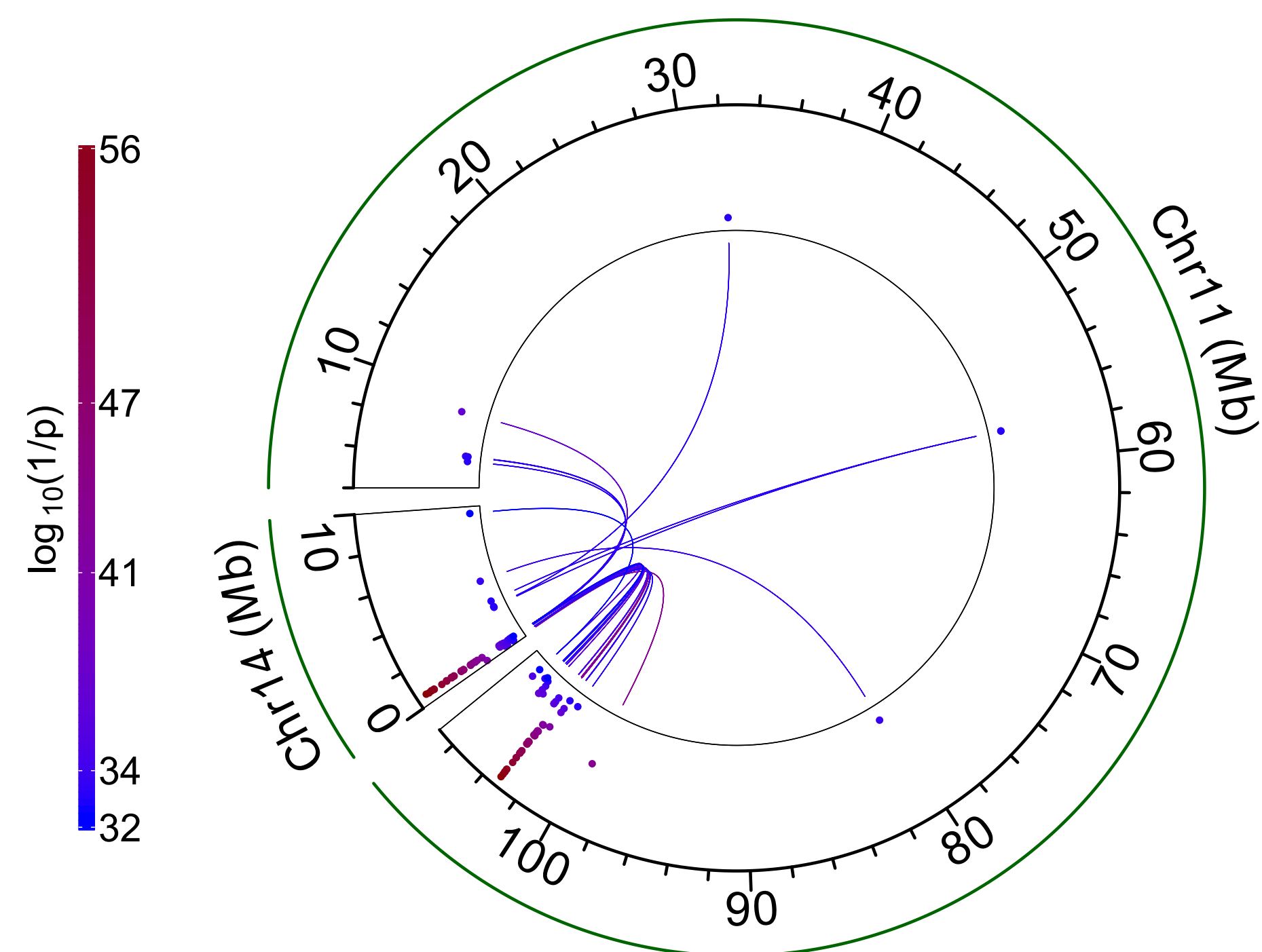
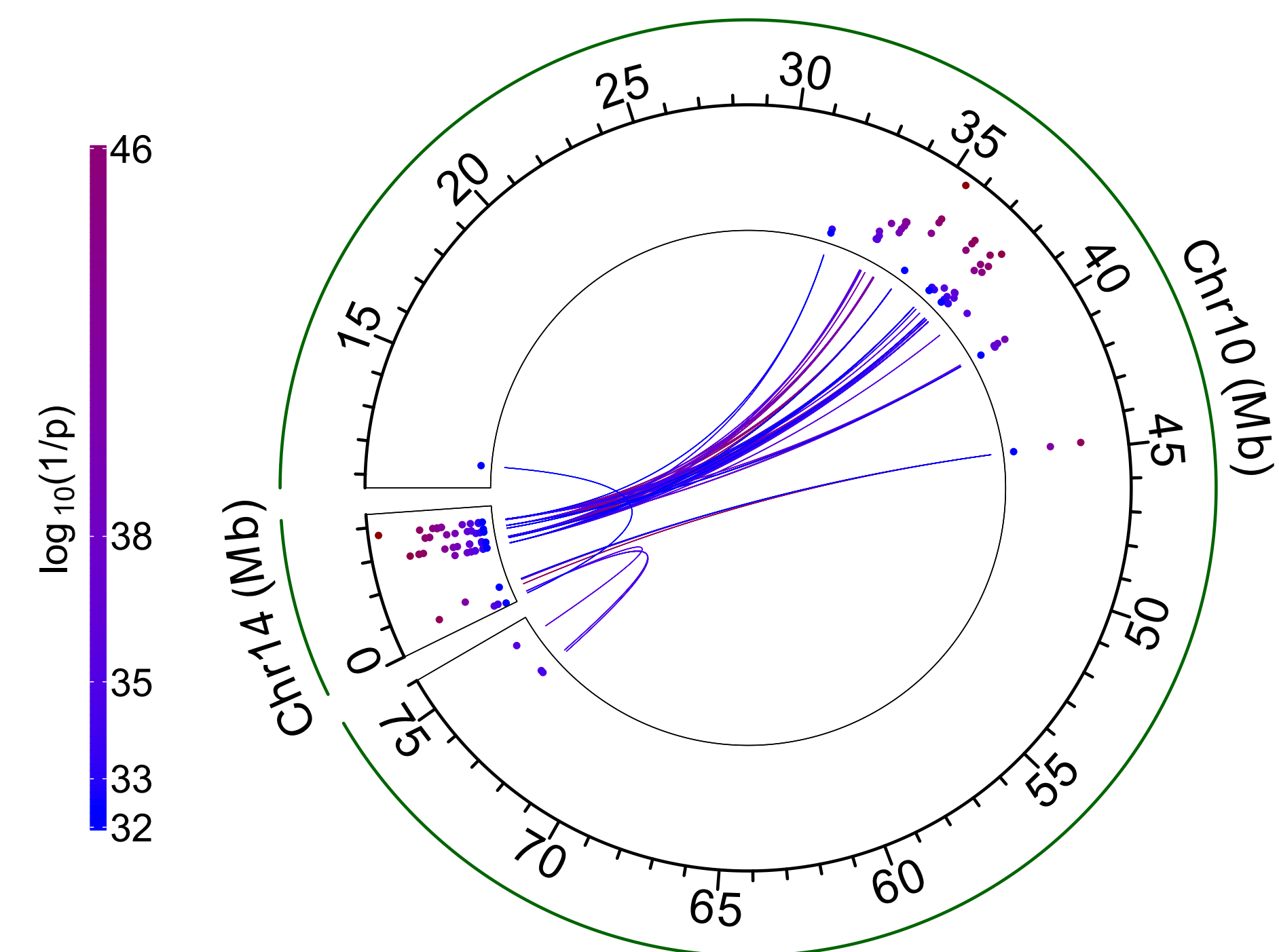
× AxA effect

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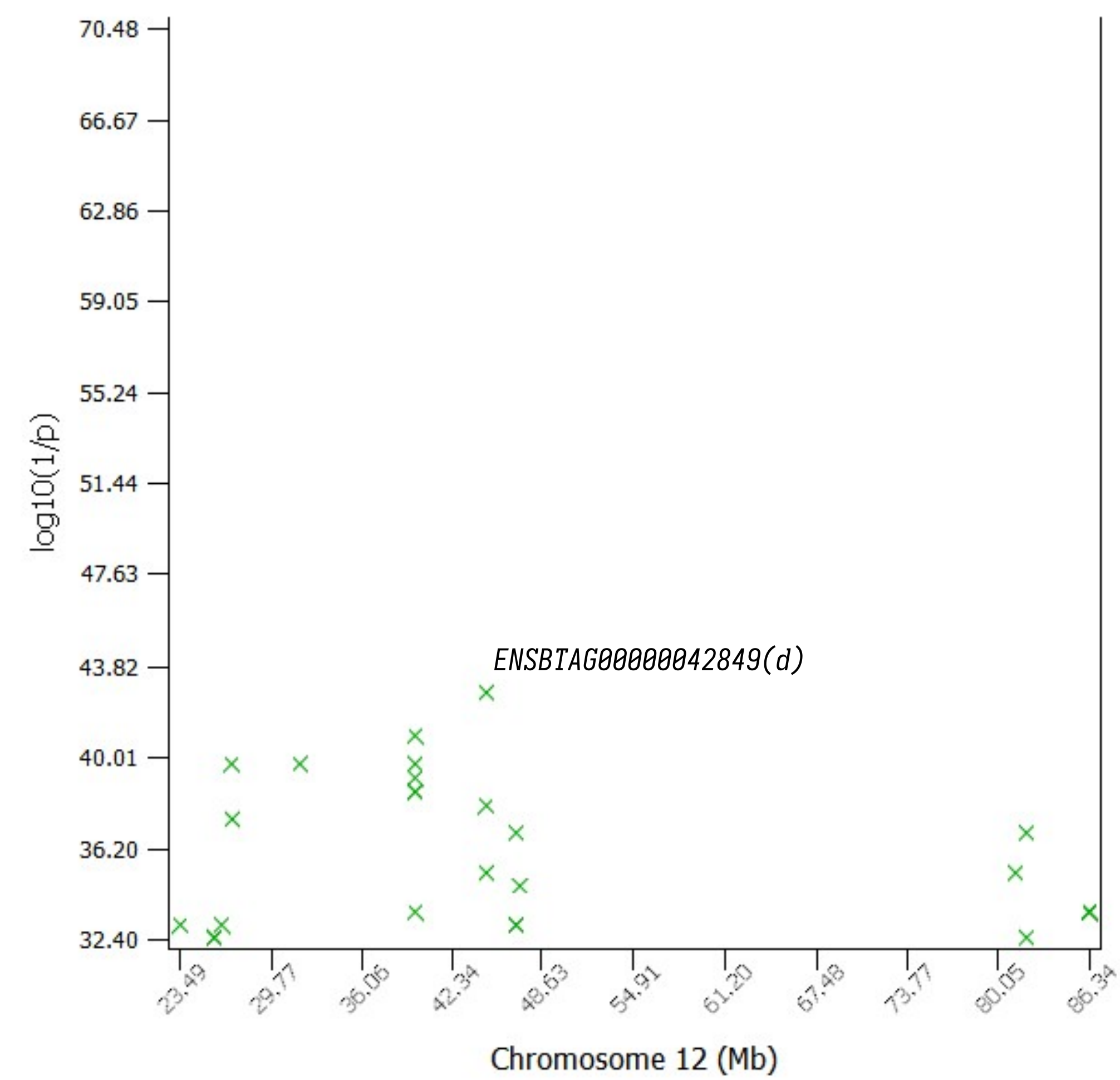
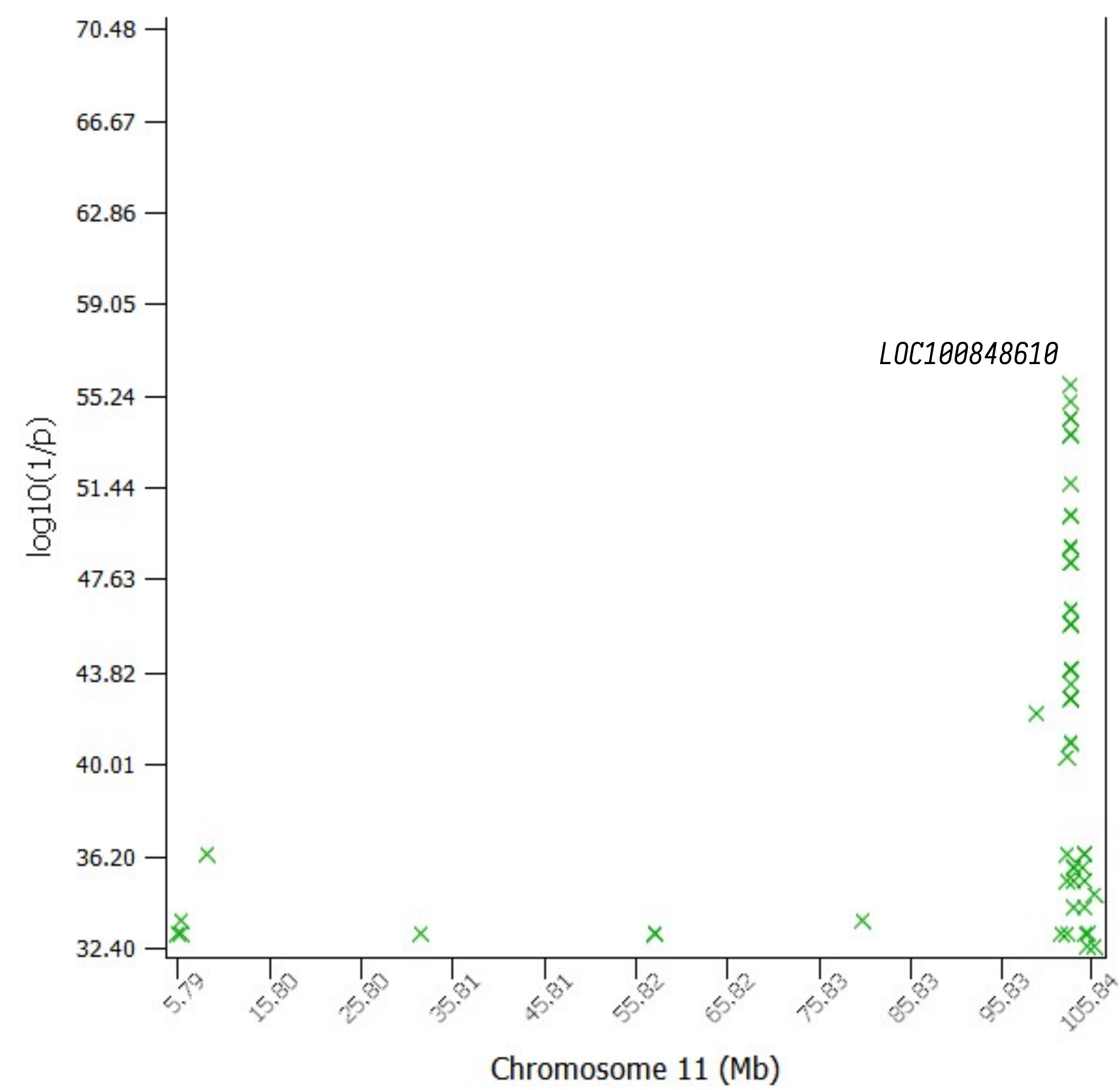
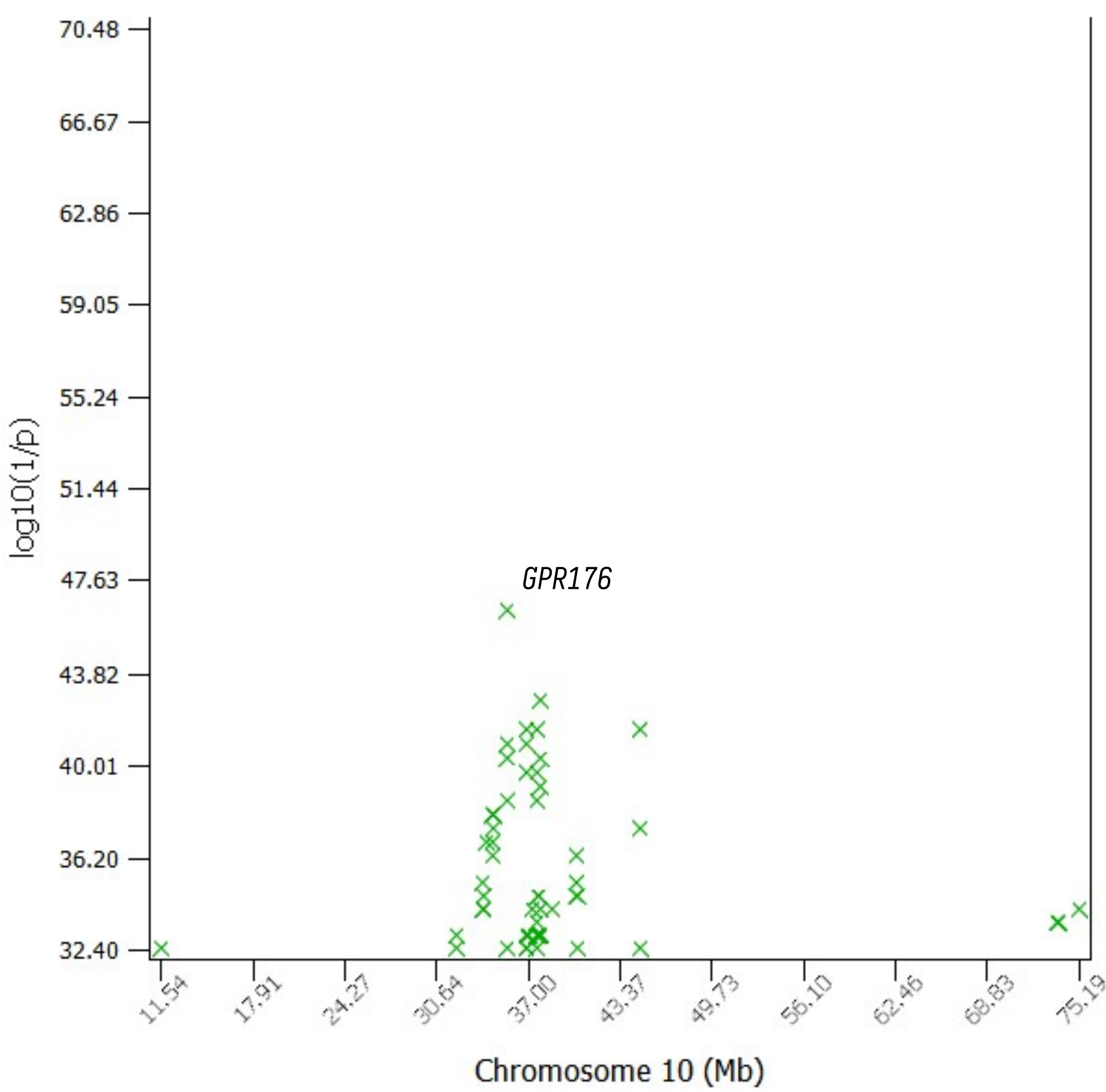




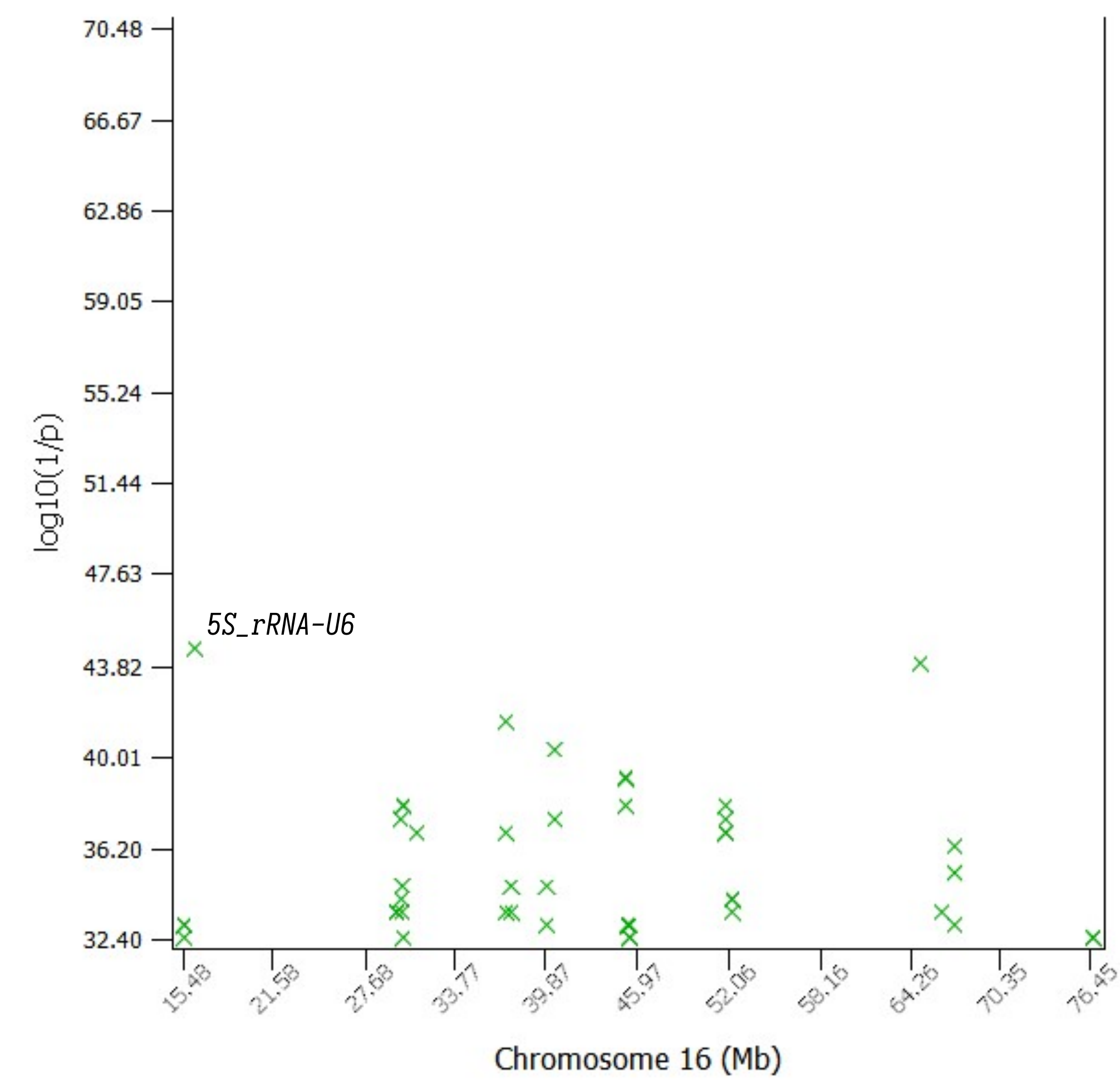
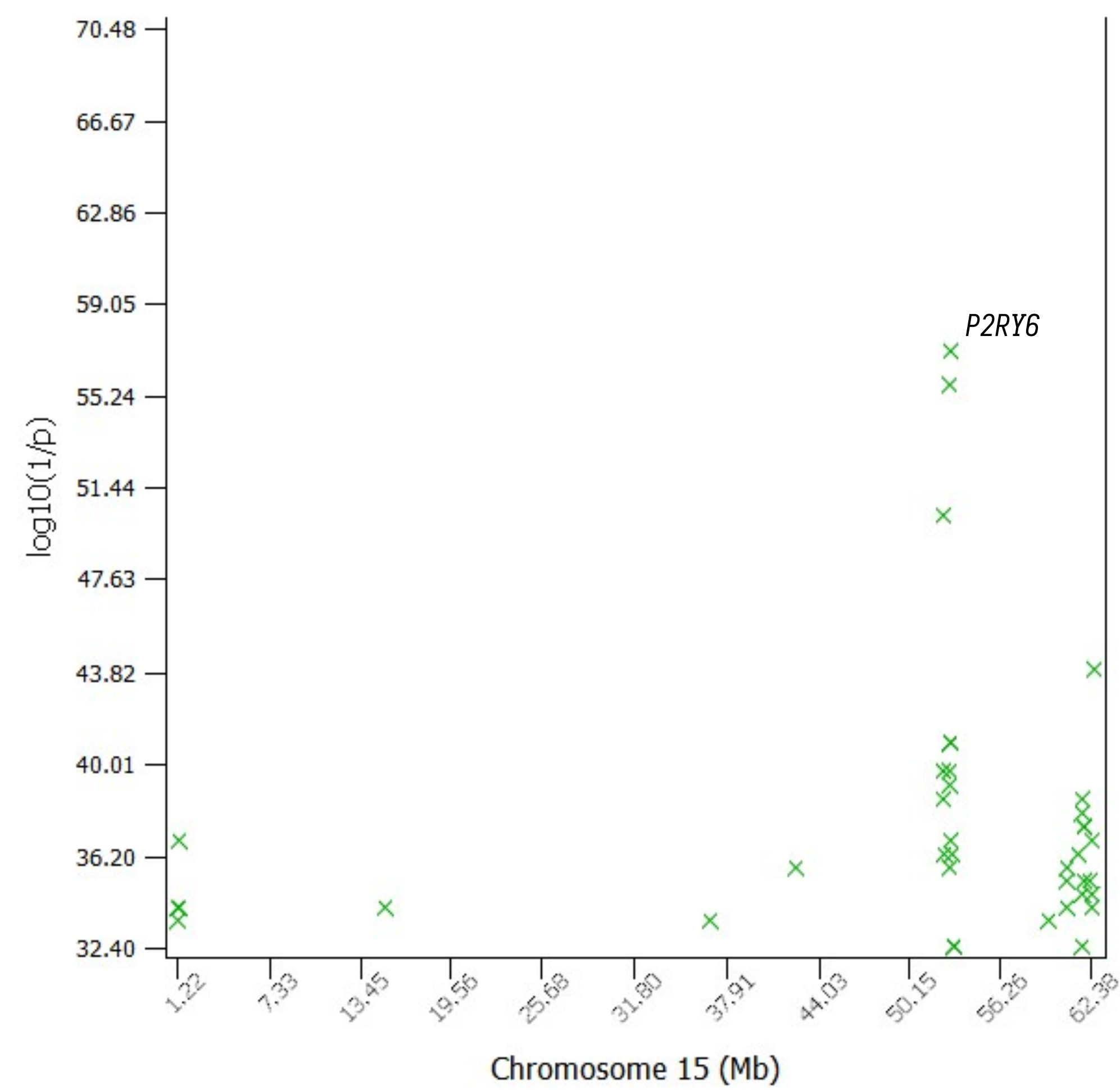
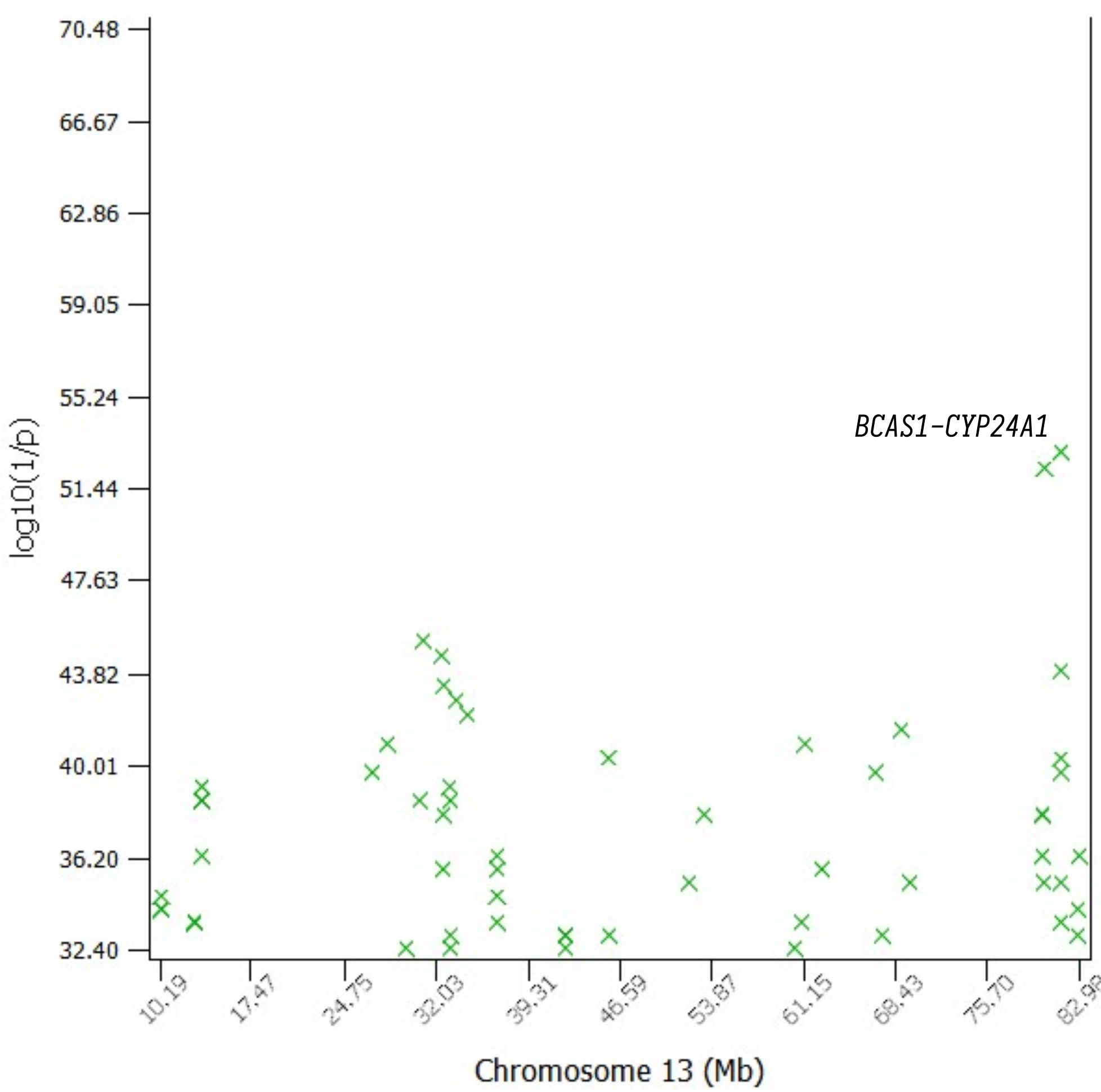
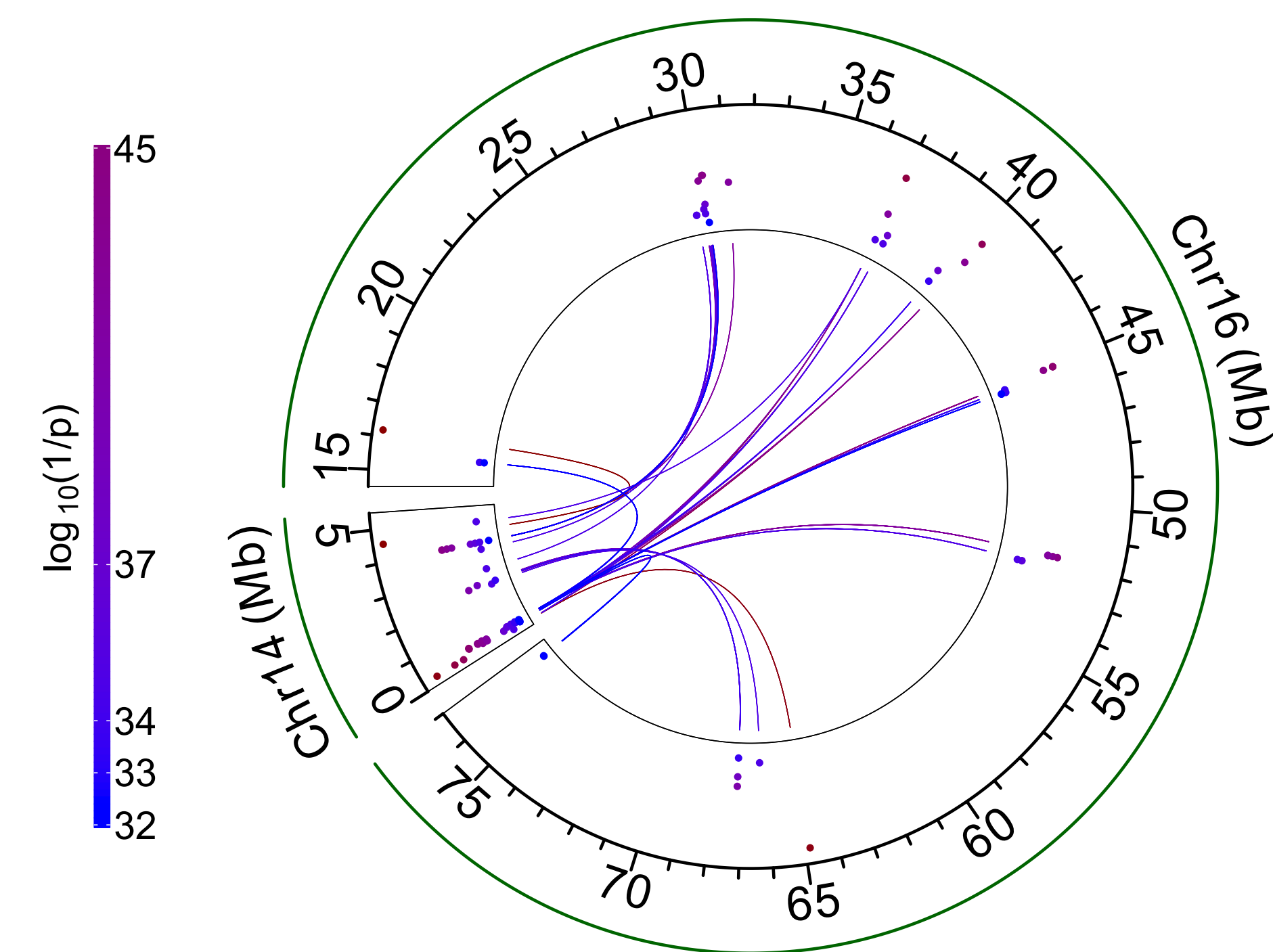
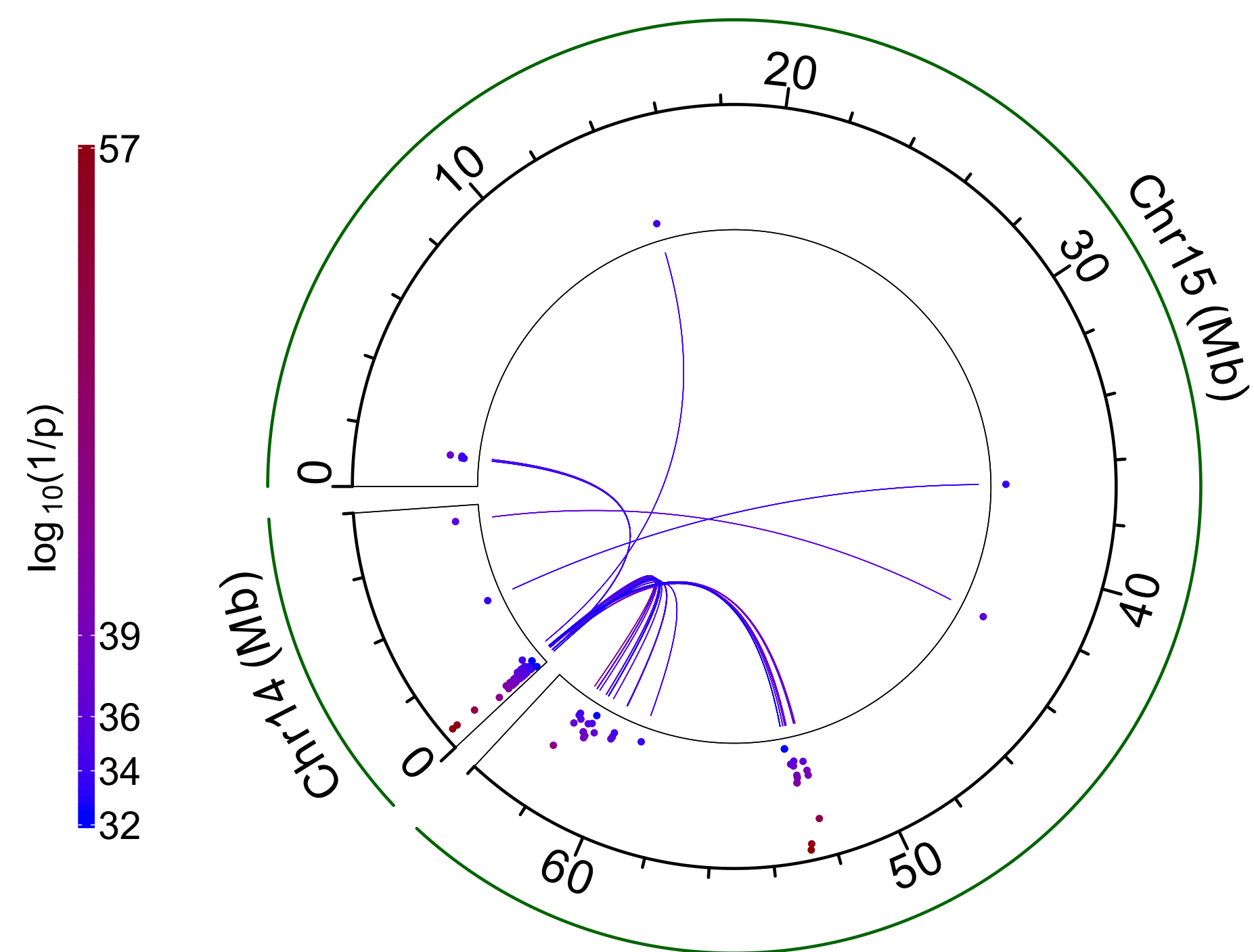
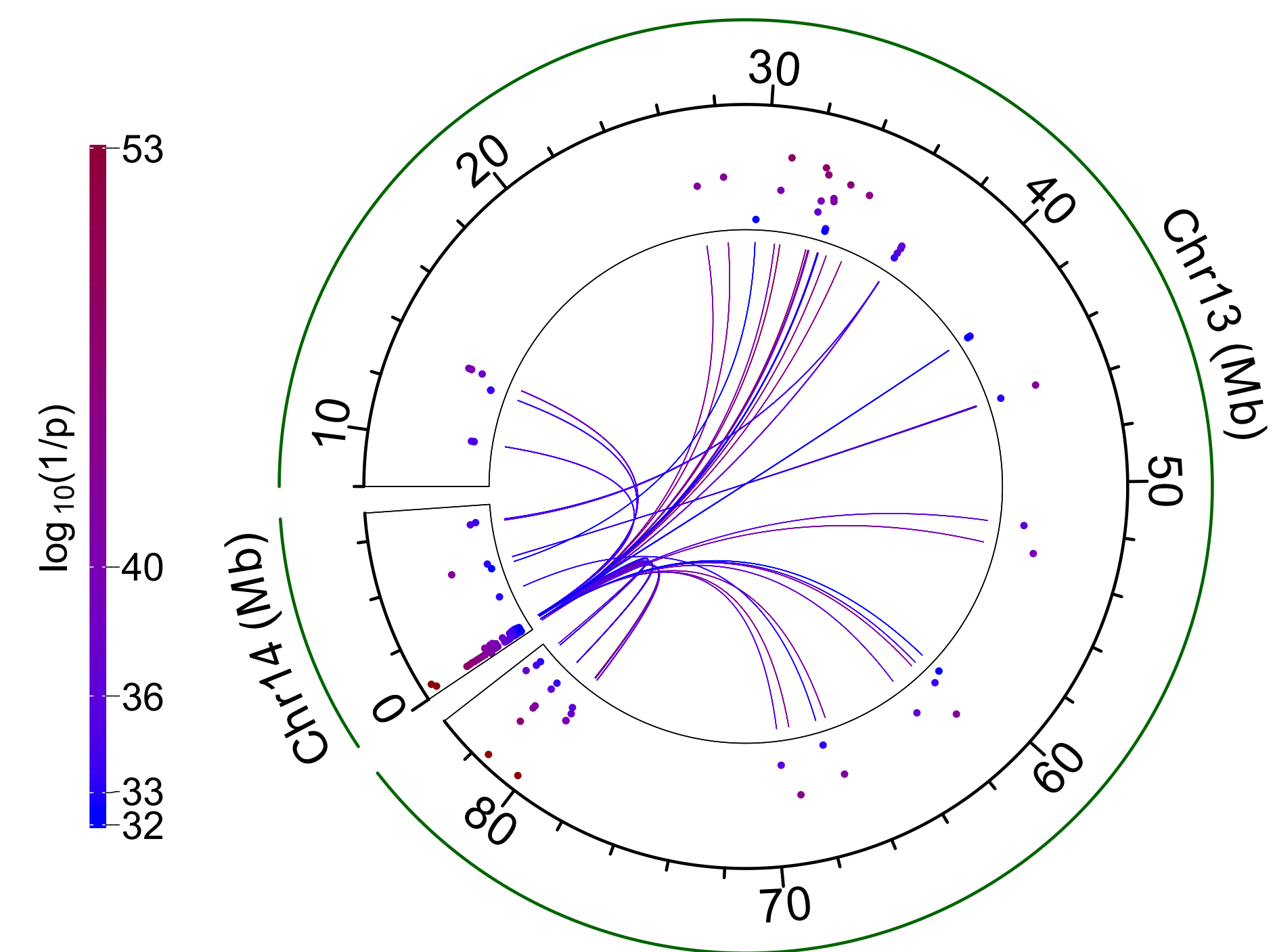
× AxA effect

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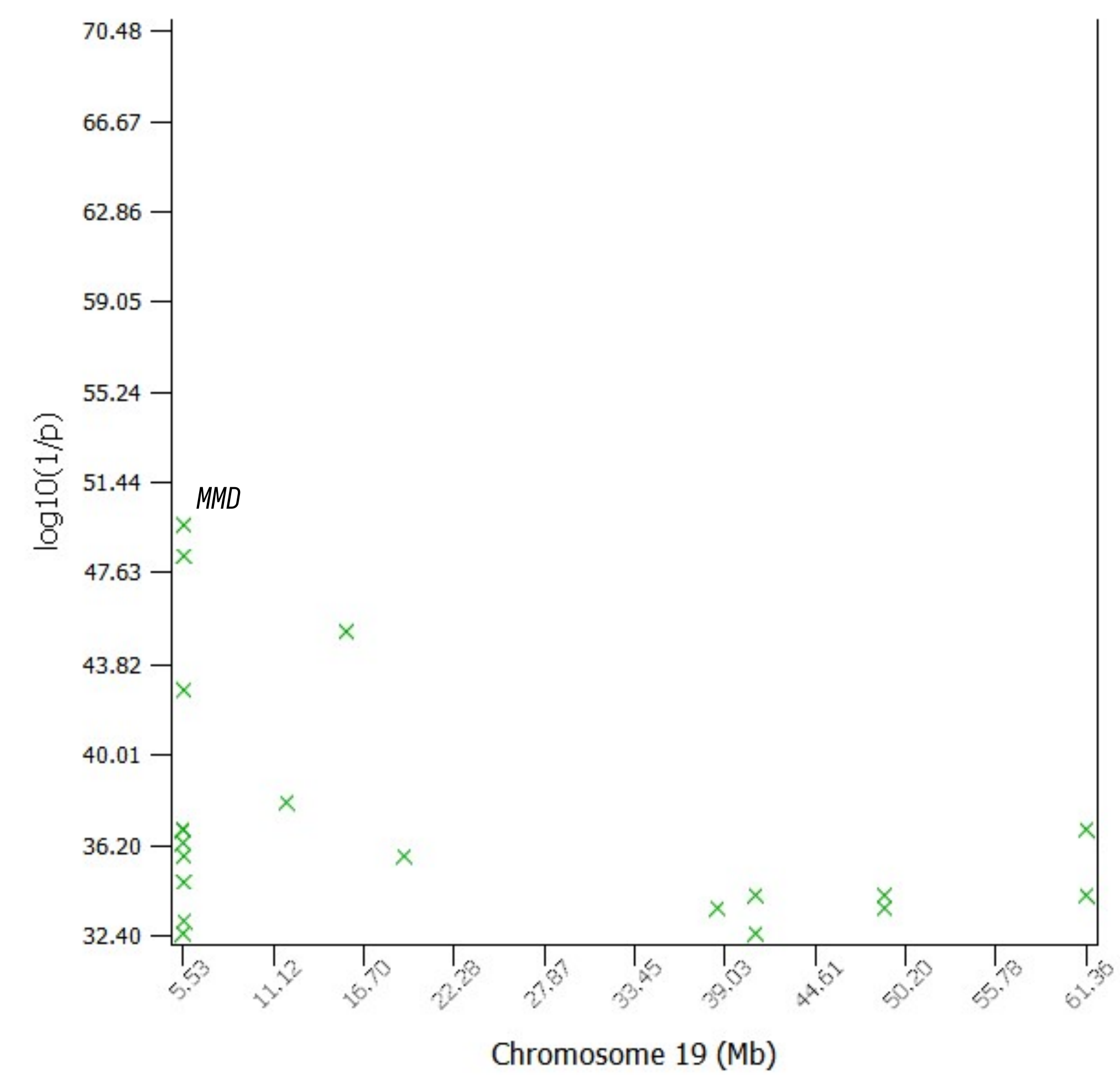
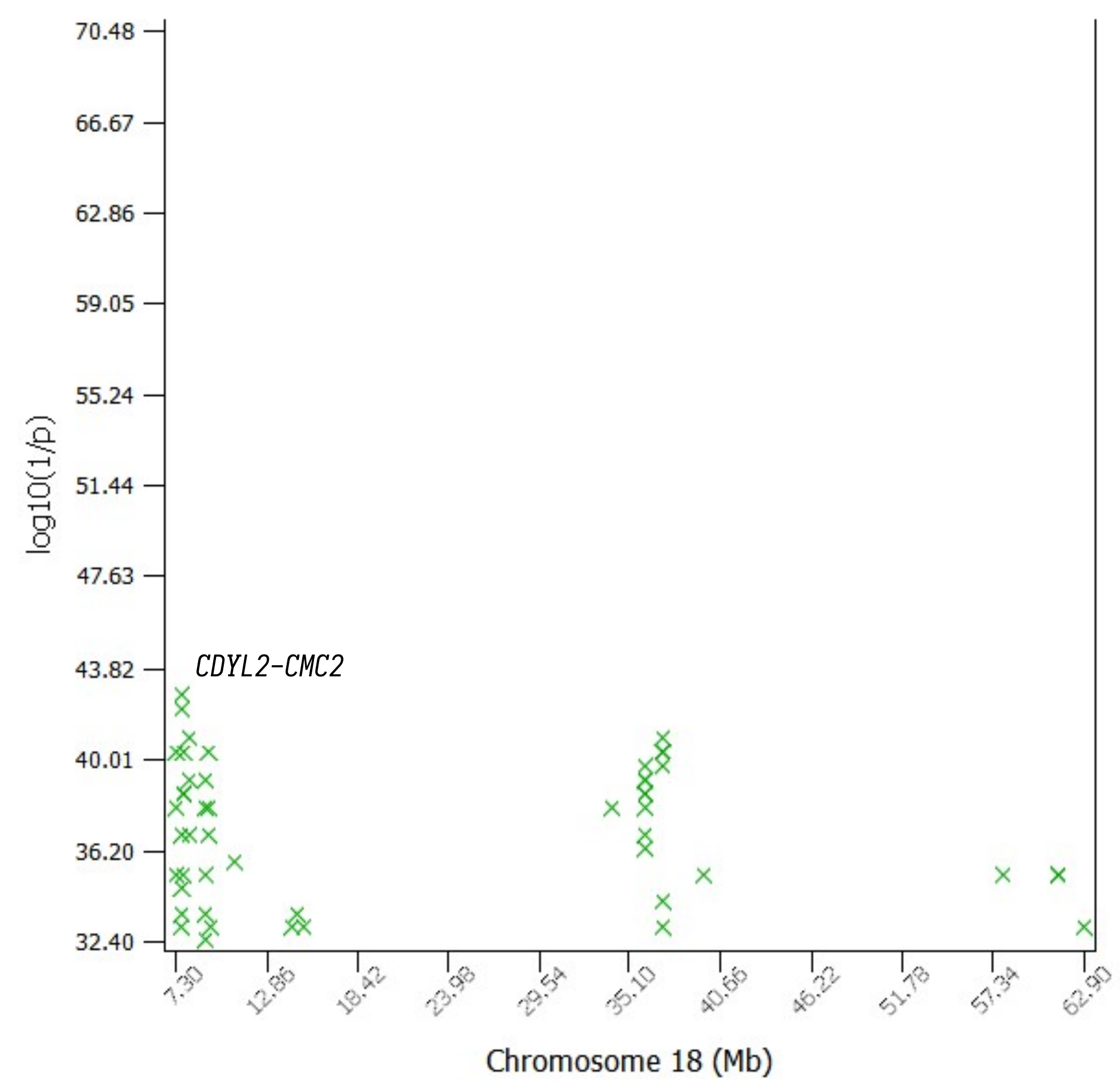
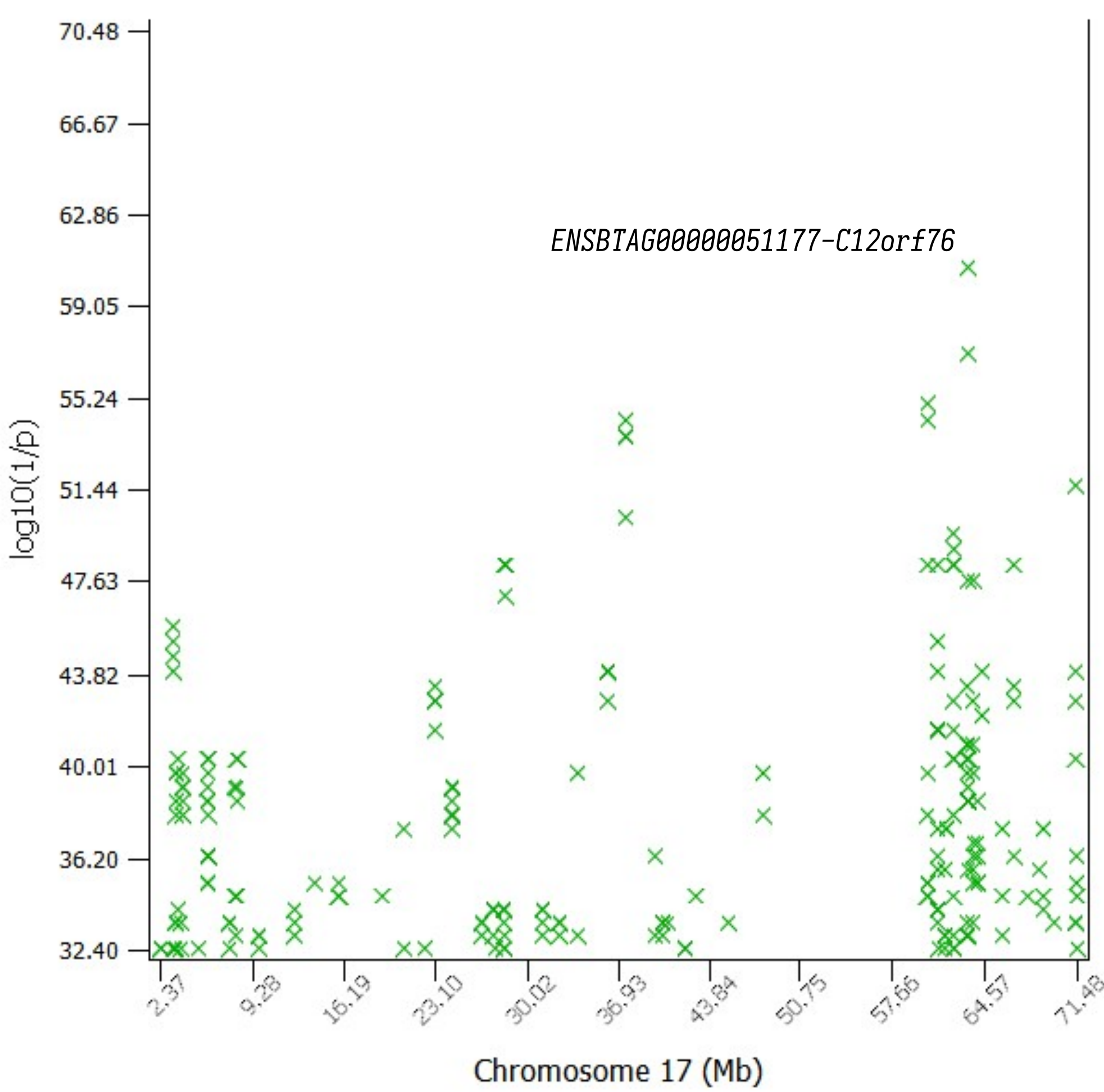
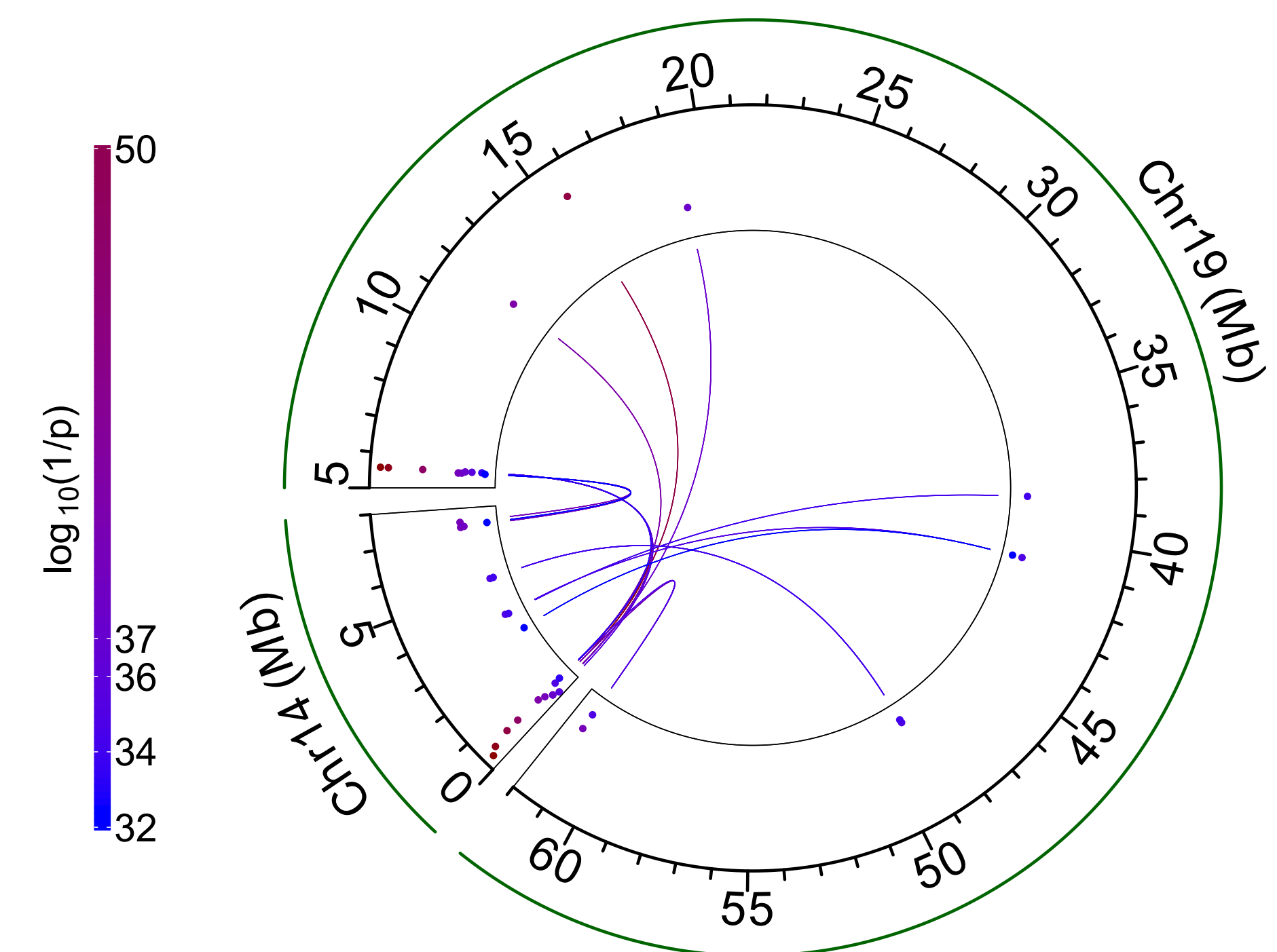
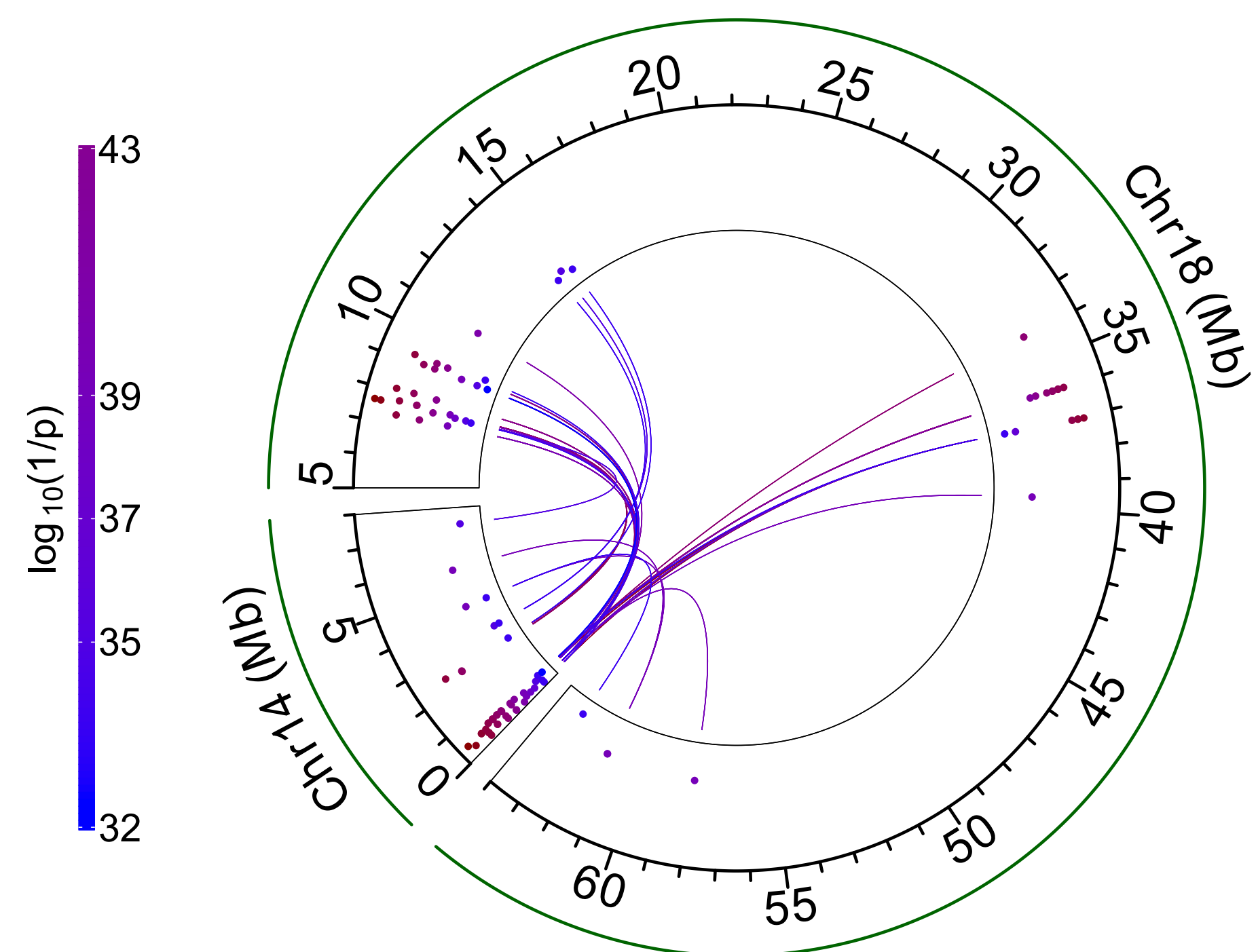
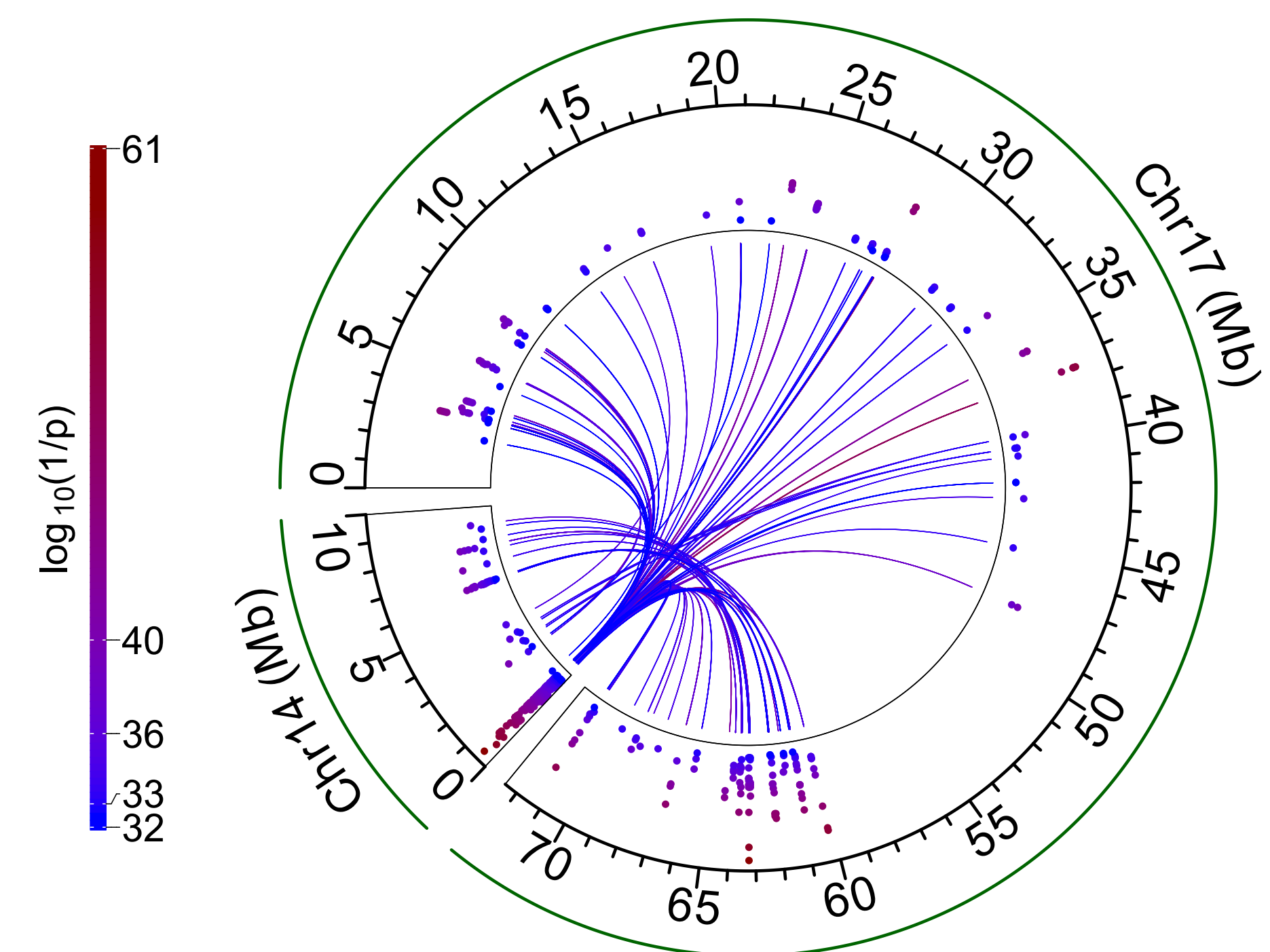
× AxA effect



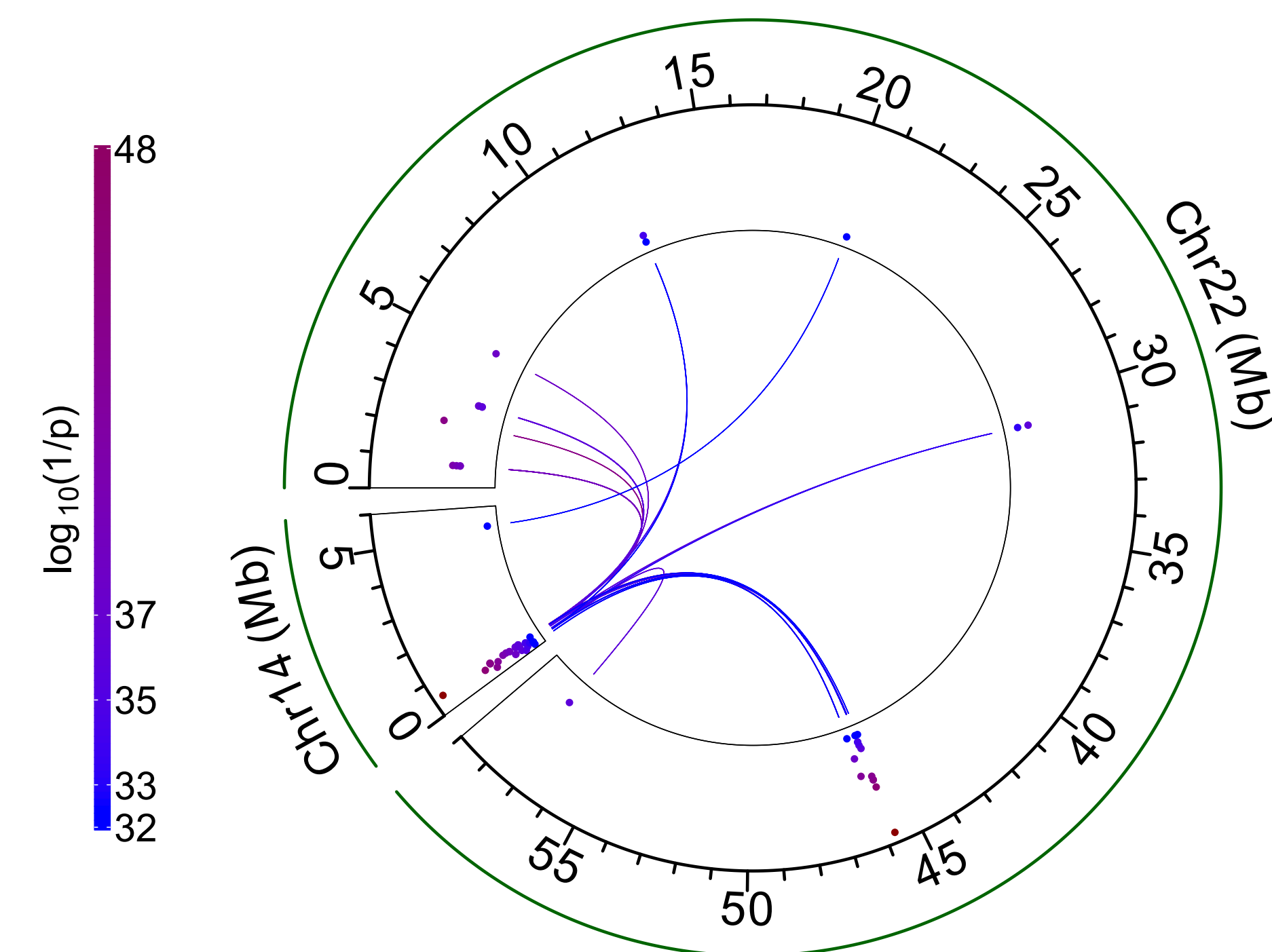
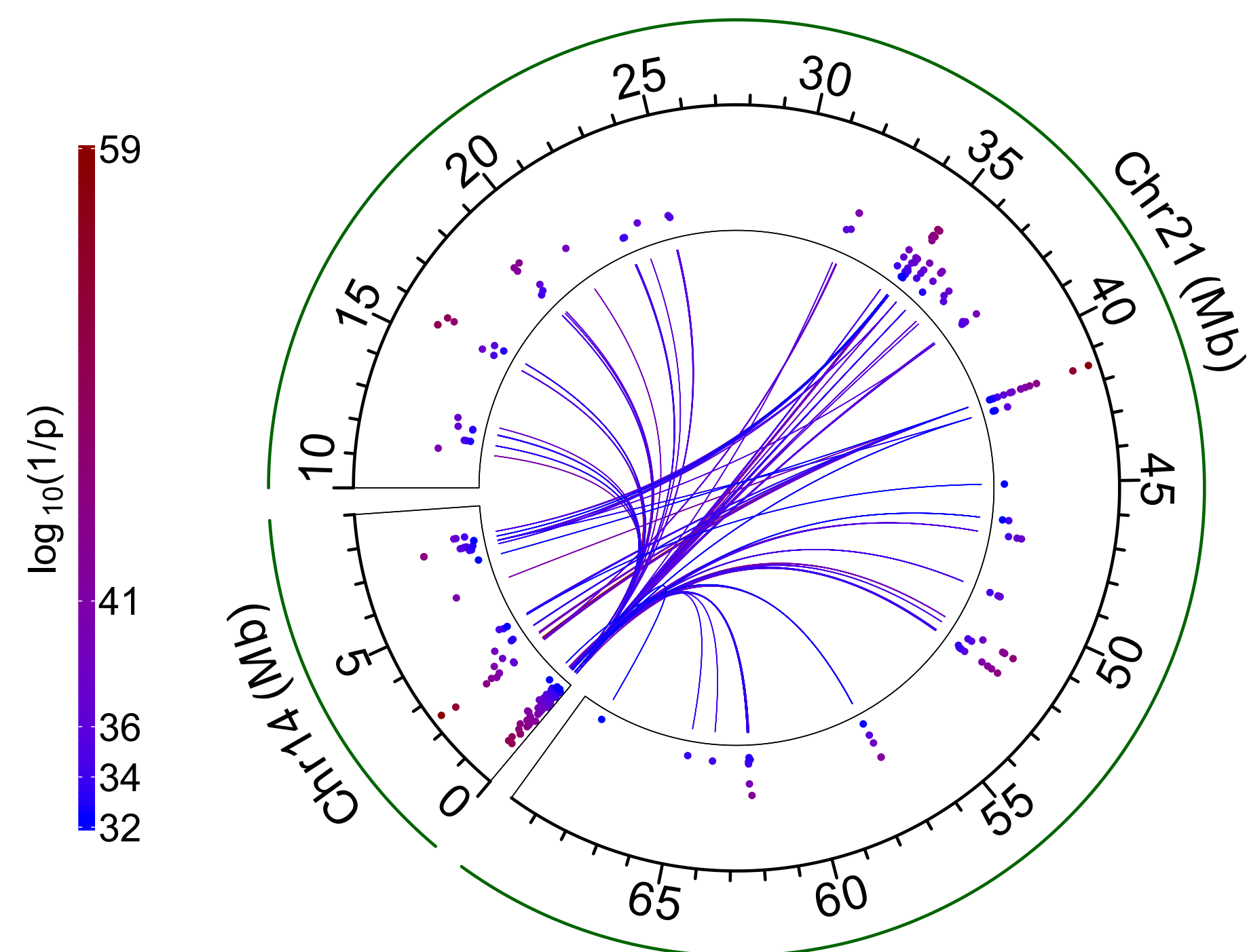
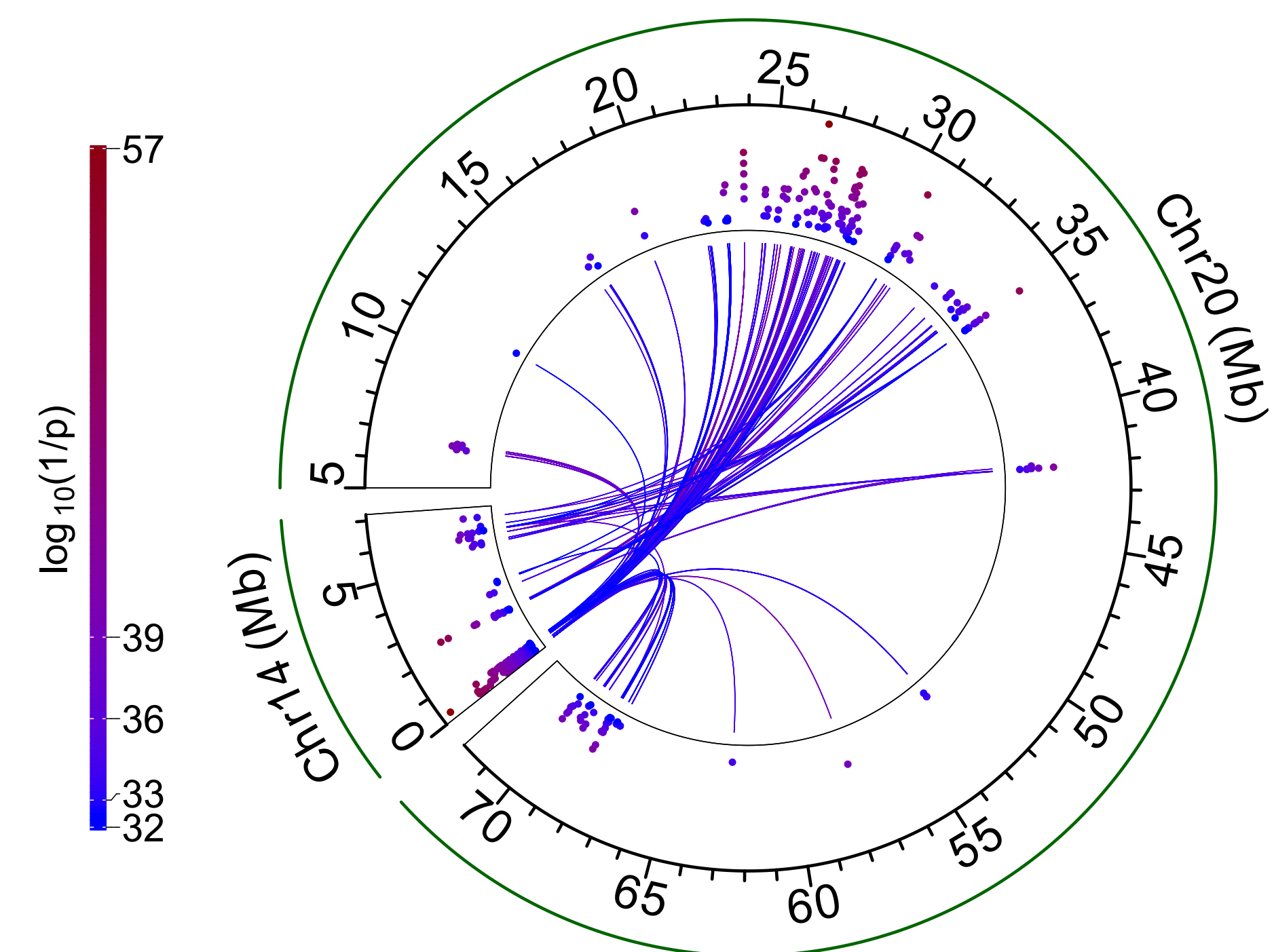








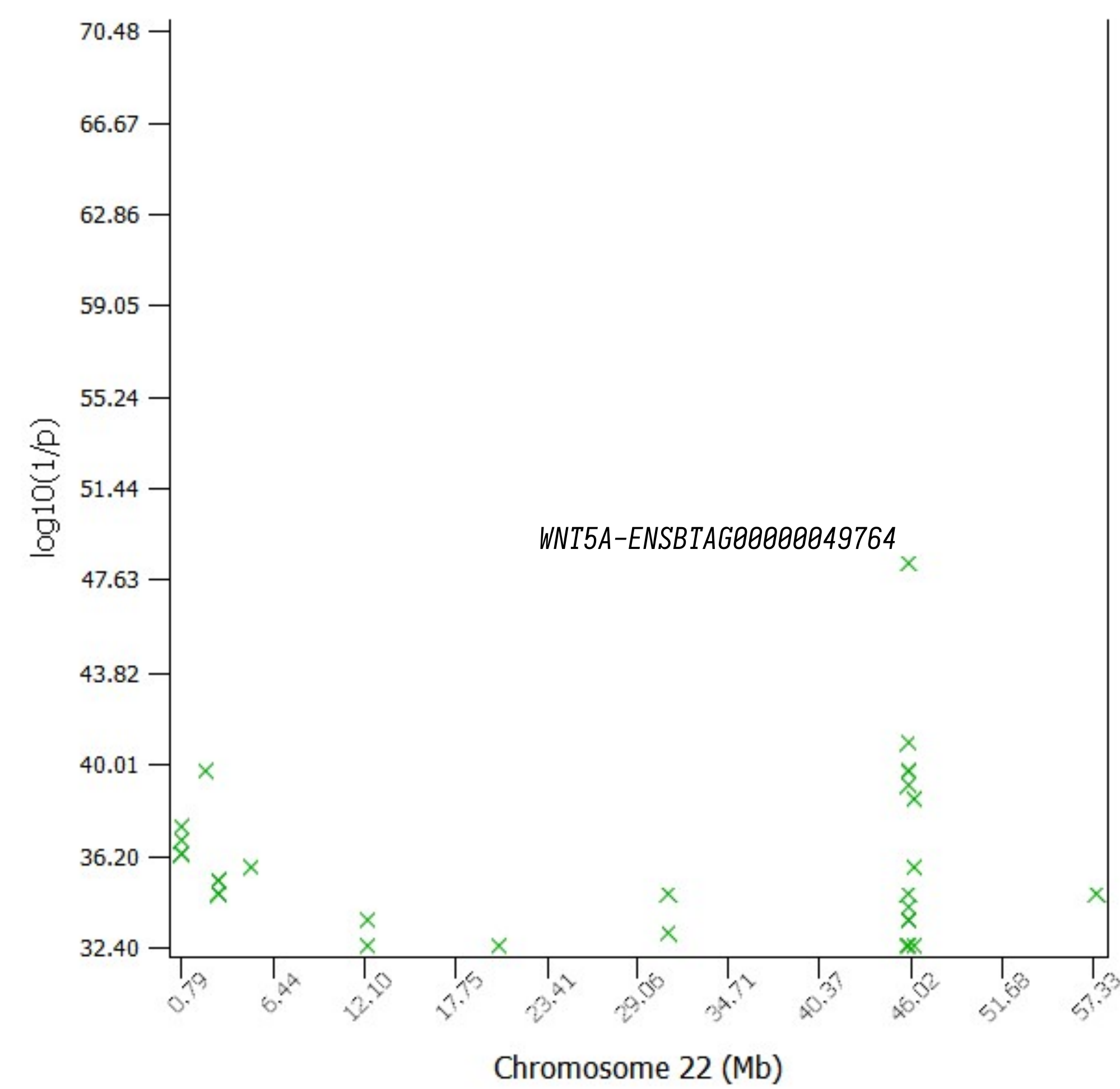
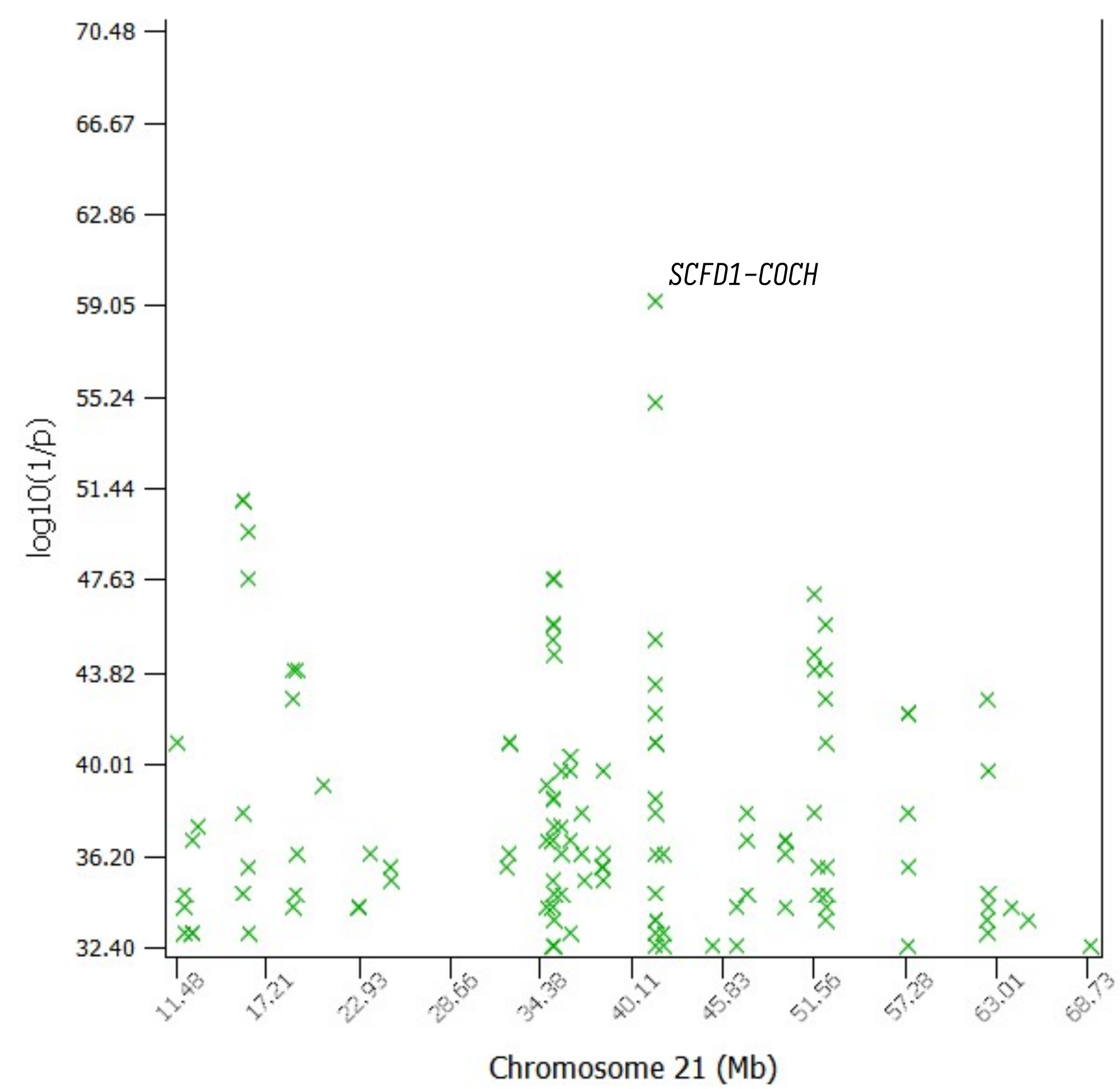
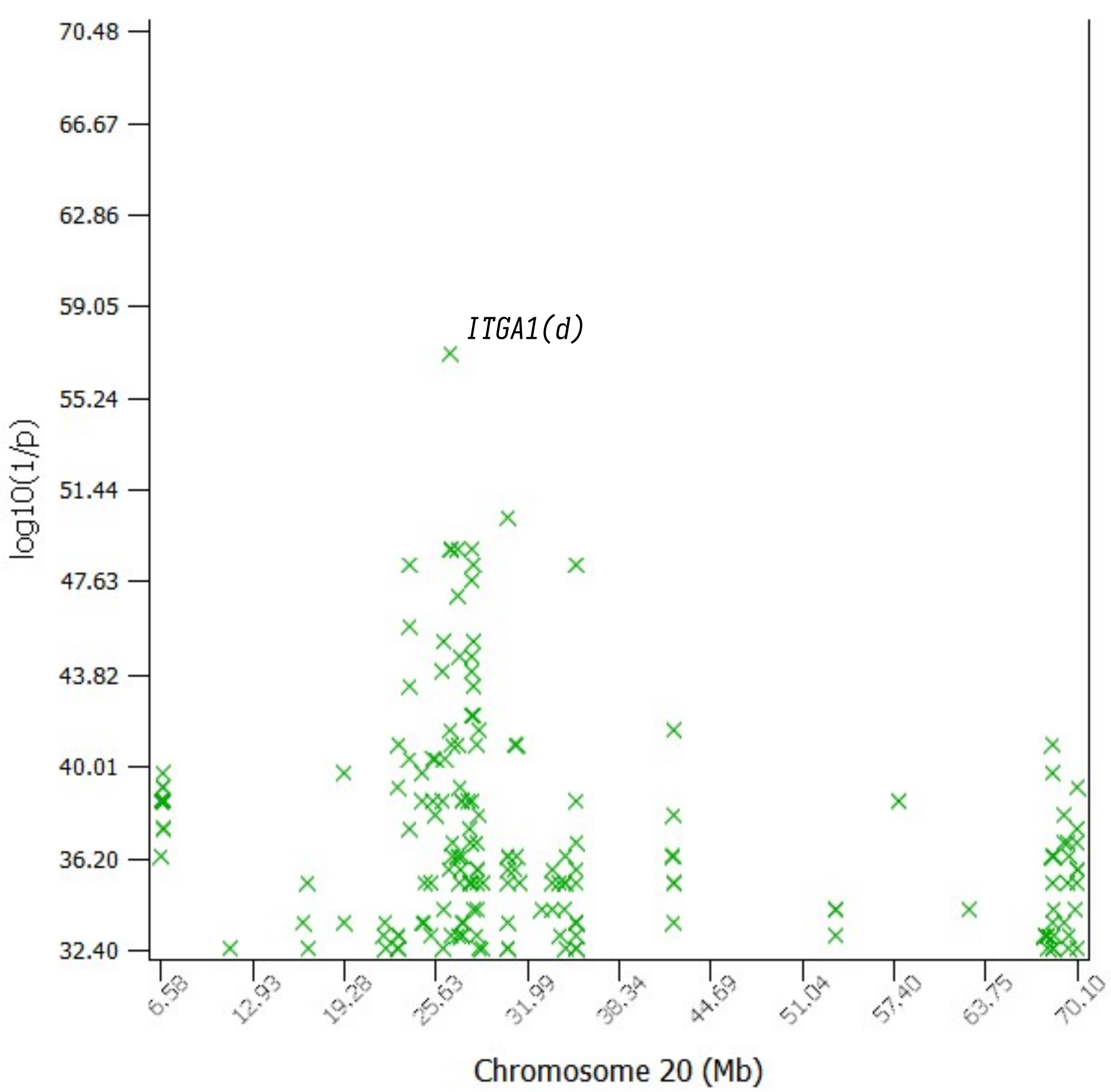




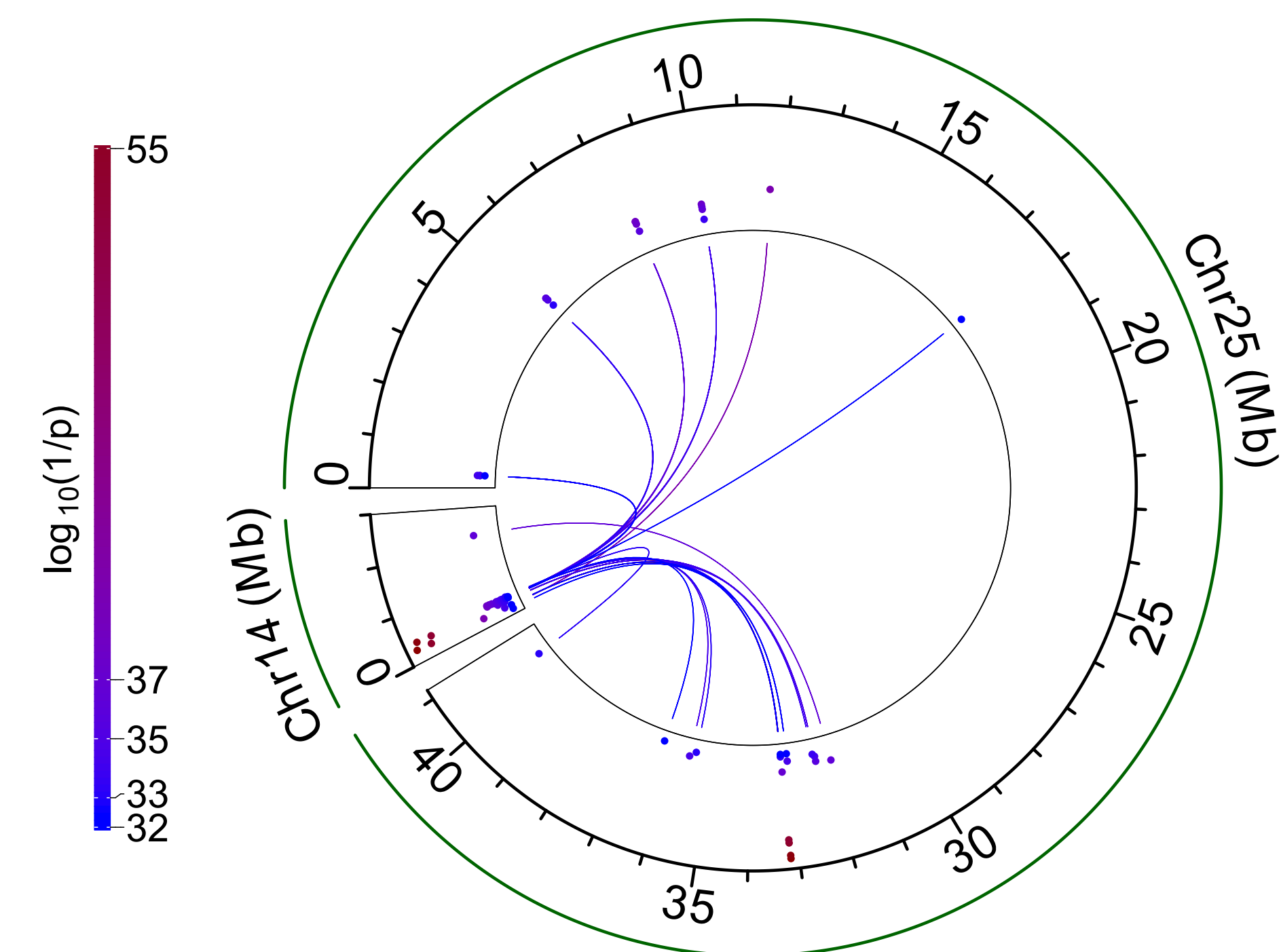
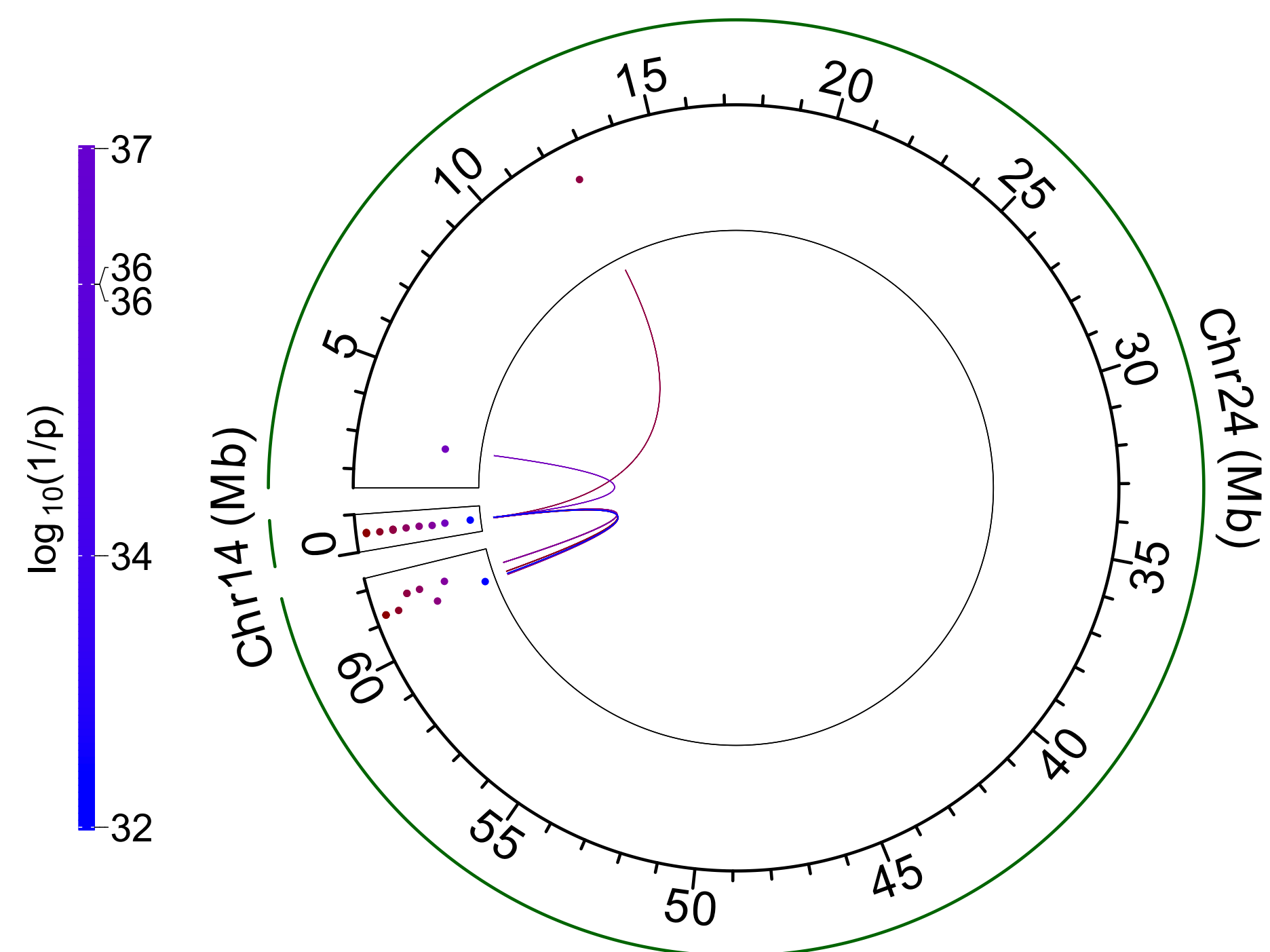
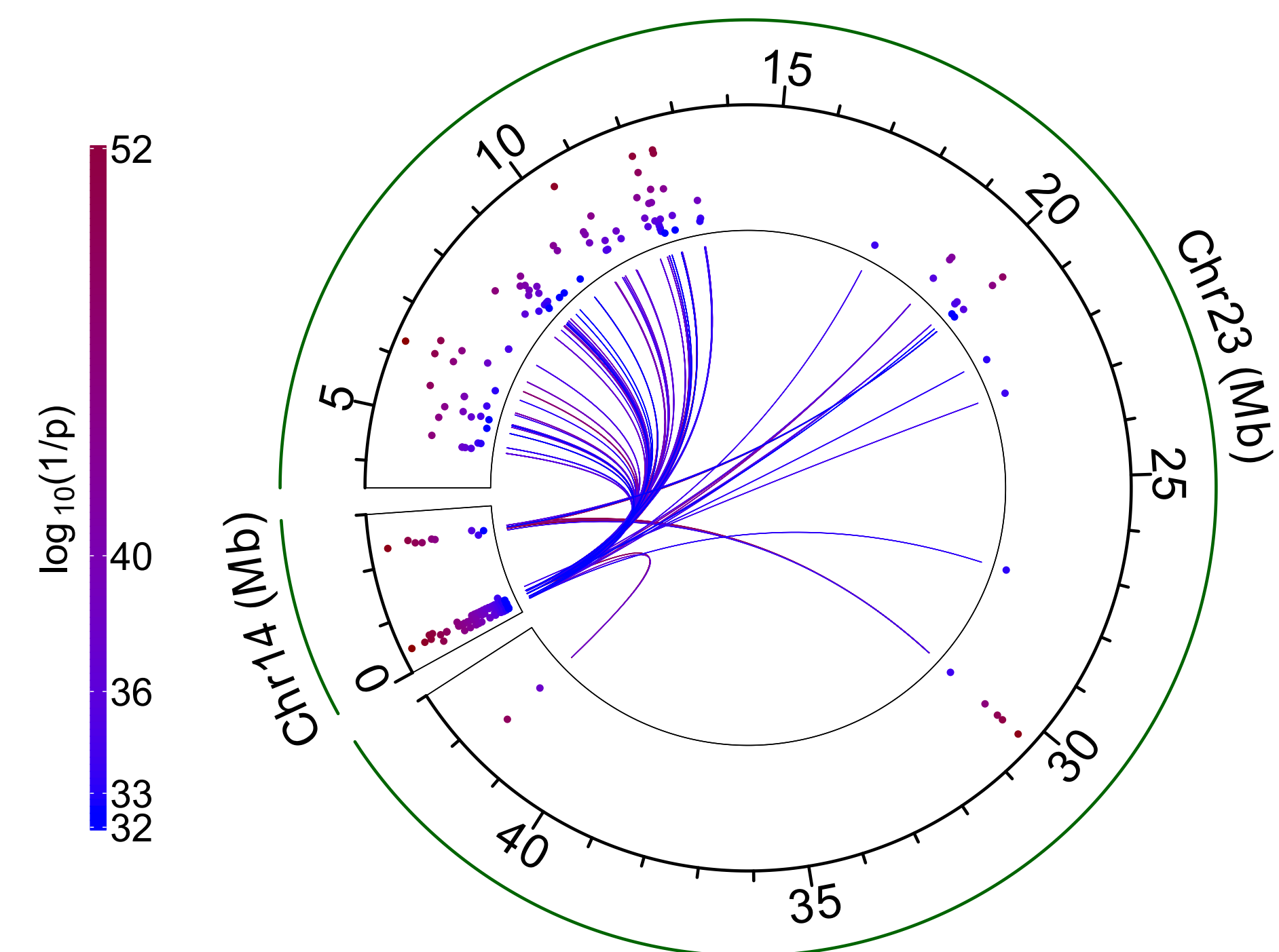
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