Individuals with 18q- have an increased incidence of autistic-like behaviors. The purpose of this study was to determine whether there was a piece of 18q that is linked to autism. We looked specifically at 4 candidate genes. We also looked for other areas of the genome that were changed in our 18q- population. We included 105 people with 18q-, 45 of whom “possibly” or “very likely” had an autism diagnosis. Three of these individuals had additional material from 17p, and two had a duplication of 18p. This suggests that there may be some genetic factors on 17p and 18p that, in combination with an 18q deletion, contribute to autism. We also found that, if a person’s deletion included the TCF4, NETO1, and FBXO15 genes, they were significantly more likely to have autism than if they were only missing one or two of those genes. These findings suggest some new genes and chromosomal regions that may be linked to autistic behaviors.