Usui et al. explore the role of the transcription factor FoxP1 in the developing forebrain with the hope of gaining insight into the pathophysiology of Autism Spectrum Disorders (ASD). Previously, de novo mutations in FoxP1 have been highly associated with diagnoses of ASD, intellectual disability and developmental delay. A murine forebrain-specific conditional Foxp1 knock-out revealed impairments in neonatal vocalizations and altered neocortical brain structure, possibly due to the dysregulation of genes normally expressed during neurogenesis and neuronal migration. The authors propose that they have made key mechanistic insights into the molecular pathways underlying risk for ASD.