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Researchers report gene associated with language, speech and reading disorders

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A new candidate gene for Specific Language Impairment has been identified by a research team directed by Mabel Rice at the University of Kansas, in collaboration with Shelley Smith, University of Nebraska Medical Center, and Javier Gayán of Neocodex, Seville, Spain. The finding, reported in the current issue of the *Journal of Neurodevelopmental Disorders*, was discovered by examining genes previously identified as candidate genes for reading impairments or speech sound disorders. The results point toward the likelihood of multiple genes contributing to language impairment, some of which also contribute to reading or speech impairment.

A gene on Chromosome 6 - KIAA0319 - was associated with variability in language abilities in a study of children with Specific Language Impairment (SLI) and their family members, as well as with variability in speech and reading abilities. Children with SLI who were selected for the study had no hearing loss, general intellectual deficit or autism.

Language ability involves vocabulary and grammar, whereas speech involves the accuracy of sound production. Both language and speech ability contribute to a child's ability to read. The finding that a candidate gene could influence all three abilities suggests a common pathway that could contribute to overlapping strengths or deficiencies across speech, language and reading.

According to Rice, "We don't understand the biological mechanisms yet but it's important that we have identified the first gene that could be

involved across these three different dimensions of development."

Previous research has established that Chromosome 6 is among those that are linked to Speech Sounds Disorder (SSD) and Reading Disability/Dyslexia (RD). Rice said the findings are consistent with numerous reports documenting that language impairments and reading disability often co-exist.

The study involved 322 individuals, including children with SLI, their parents, siblings, and other family members. "We have come to realize that language really sets the platform for reading to emerge and to thrive," Rice added. "Without a solid language system, it's much harder to get reading going."

The study is part of a 20-year research program conducted by Rice, who is the Fred and Virginia Merrill Distinguished Professor of Advanced Studies and director of the Center for Biobehavioral Neurosciences in Communication Disorders at KU's Life Span Institute. Co-investigators on the genetics project were Shelley Smith, professor of pediatrics in the Department of Pediatrics and the Munroe Meyer Institute for Genetics and Rehabilitation at the University of Nebraska Medical Center, and Javier Gayán, Head of the Analysis Group at Neocodex, in Seville, Spain. Neocodex is a research company that specializes in genomics analysis.

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