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Are CAKUT part of the SOX11 syndrome?

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Neirijnck et al[1] report renal and urinary tract malformations in Sox11 null mice, which included duplex kidneys, hydronephrosis and hydroureter. These resemble congenital anomalies of the kidney and urinary tract (CAKUT) observed in humans. They also describe several rare SOX11 gene variants in a series of individuals with CAKUT. We reported that deletion or loss of function SOX11 variants result in a human neurodevelopmental disorder with features of Coffin-Siris syndrome[2]. All of the pathogenic SOX11 variants so far reported in association with neurodevelopmental disorders have either been frameshift or nonsense, or affected the DNA binding domain. To my knowledge no patient with a pathogenic SOX11 variant and CAKUT has been identified, and the CAKUT patients with SOX11 variants did not apparently have a neurodevelopmental disorder. Neither Gtex nor the Human Protein Atlas demonstrate SOX11 protein expression in the kidney in adult humans[3]. But this does not rule out expression and function during renal development in humans. Thus it is possible that the SOX11 variants identified by Neirijnck are coincidental, very rare benign variants. The intriguing alternative is that different SOX11 protein domains play roles in renal and brain development, with non-DNA binding protein domains playing a role in renal development.

References

1. Neirijnck Y, Reginensi A, Renkema KY, et al. Sox11 gene disruption causes congenital anomalies of the kidney and urinary tract (CAKUT). Kidney Int. 2018; **93**: 1142-1153.
2. Hempel A, Pagnamenta AT, Blyth M, et al. Deletions and de novo mutations of SOX11 are associated with a neurodevelopmental disorder with features of Coffin-Siris syndrome. J Med Genet. 2016; **53**: 152-162.
3. https://www.proteinatlas.org/ENSG00000176887-SOX11/tissue