

Which genes make women? - Significant nucleotidic variation in Mayer-Rokitansky-Kuster-Hauser syndrome patients

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In mammals, several transcription factors such as Ad4BP/SF-1, Dax-1, Sox9, Wt-1, Emx-2, and GATA-4 are indispensable for gonad differentiation. We have analyzed several genes whose mutation may impair the development and maintenance of the female genitalia. Fifteen female patients were included in the study. Eight fulfilled the criteria for diagnosis of MRKH anomaly and 6 were vaginal absence cases with and without uterine anomaly and 1 was gonadal dysgenesis case. The Patient's DNA was extracted according to standard procedures from peripheral leucocytes. PCR was carried out. Products were purified and used to analysis for DNA sequences variation. A total of 15 control chromosomes were tested. Direct DNA sequencing was used to screen the WNT4, DAX-1, Sox9 genes for nucleotide variation. No significant variation was observed in the coding region of the genes. Since direct DNA sequencing analysis is regarded as the most efficient strategy for detection of mutations, these genes can be excluded as a genetic cause of MRKH anomaly. Although factors involved in male sexual differentiation including roles of Sry, Sox9, Dax1 or mullerian inhibitory substance (MIS) have been well studied, the pathways that regulate female sexual differentiation remain incompletely defined. We have tried to show some transcriptional genes that suppress MIS, but could not find any single gene mutations that differentiate female gonad. We turn to find some cascades which regulate roles of genes that play in female gonad development.