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*Impact of sex on gene expression across human tissues.*

Olivia M.H. et al.

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The Goal of this Study: To examine the prevalence and genetic mechanisms of sex differences in the human transcriptome by including the analysis of tissues that had not previously been characterized in a sex dependent manner.

What Makes It Unique and Worth the Read: They explain and discuss the various causes of expression of sex differences in a variety of tissues. From genes that escape X-inactivation, to sex-biased gene expression that is controlled by hormonally-driven transcription factors, or sex-specific expression of key epigenetic markers that will inevitably control gene expression. They also note, "Furthermore, their work highlights that rather than being strictly dimorphic, inter-individual variation results in overlapping distributions of gene expression even within tissues and between the sexes." The big picture goal of these large-scale studies is to systematically analyze gene expression in a way that can only enhance the interpretation of GWAS studies with sex in mind.

What's Not Too Novel: Sex effects in gene expression "are ubiquitous (13,294 sex-biased genes across all tissues)," and "these effects are small and largely tissue-specific." This may make it difficult to interpret the biological effect size in any given tissue.

Caveats To Consider: These were postmortem samples, and it wasn't clear how or whether age was controlled for, but likely age plays an important role in sex-specific and tissue-specific gene expression. Moreover there twice as many male samples as female samples.

<https://science.sciencemag.org/content/369/6509/eaba3066>