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What is the normal range for gene expression?

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The mouse is being widely used as a model organism in microarray studies, yet little is known about the range of normal physiological variance in gene expression in complex systems *in vivo*. In the November 6 [Proceedings of the National Academy of Sciences](#), Colin Pritchard and colleagues at the [Fred Hutchinson Cancer Research Centre](#) describe a study of normal variation of gene expression levels in mouse tissues (*Proc Natl Acad Sci USA* 2001, **98**:13266-13271). They analysed the expression of over five thousand clones in the kidney, liver and testis of six normal male mice from the inbred strain C57BL6. They used ANOVA to assess the variance in quadruplicate samples for the six animals, and found evidence for significantly variable expression in the kidney (3.3% of transcripts), the testis (1.9%) and the liver (0.8%). Variably expressed genes include genes involved in the stress and immune responses. Some of these have been identified in screens for differences associated with development or disease states. Defining the normal baseline variance is important for the correct interpretations of microarray studies in complex systems such as the mouse.

References

1. *Proceedings of the National Academy of Sciences*, [<http://www.pnas.org>]
2. Fred Hutchinson Cancer Research Centre, [<http://www.fhcrc.org>]