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Muscling in on chromosomal clusters

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It is becoming increasing apparent that eukaryotic genomes are organized into regions containing clusters of co-regulated genes. In the August 29 Nature, Roy *et al.* describe clusters of muscle-expressing genes in the *Caenorhabditis elegans* genome (*Nature* 2002, **418:**975-979). They developed a method called 'messenger RNA tagging' that uses immunoprecipitation of an epitope-tagged RNA-binding protein to purify mRNA expressed in different tissues; they then used DNA microarrays to analyse the enrichment of co-immunoprecipitated mRNAs. Roy *et al.* found over 1,000 genes that were consistently enriched in six muscle mRNA-tagging experiments. When they mapped the chromosomal locations of these genes, they found that almost a third of them are positioned within 10kb of another muscle-expressed gene. Many of the muscle genes are found in clusters of 2-5 genes, sometimes interrupted by a non-expressed gene. Additional analysis provided evidence for clustering of genes expressed in sperm or oocytes. Roy *et al.* speculate that gene clusters may represent regions of active chromatin.

References

1. Evidence for large domains of similarly expressed genes in the *Drosophila* genome.

2. *Nature*, [http://www.nature.com]

3. The Kim Lab, [http://cmgm.stanford.edu/~kimlab]