

# HIGHLIGHTS

URL  
SC-35  
<http://us.expsy.org/cgi-bin/niceprot.pl?Q01130>

## GENE ORGANIZATION

### A new neighbourhood

Is there a higher level genomic organization of protein-coding genes — do they cluster together at common nuclear structures? This is the question that Jeanne Lawrence and colleagues now address in *The Journal of Cell Biology*.

First, the authors investigated whether there was cell-type-specific clustering of multiple specific genes around common **SC-35** domains — domains that are enriched in mRNA metabolic factors — which is contrary to the idea that metabolic factors simply accumulate on the transcripts of individual highly active genes. Indeed, they found that different genes and transcripts can associate with the same SC-35 domain at the same time, even if they are distant from each other on different arms of the same chromosome.

Lawrence and colleagues also saw that domain co-association was further correlated with even closer chromosomal 'linkage' — gene-rich early-replicating R bands associated with SC-35 domains more frequently than the gene-poor G bands — and that the association between the R bands and the SC-35 domains was more intimate.

Because of the close direct linkage of some genes with SC-35 domains, the authors suggest that the association of a chromosomal neighbourhood with an SC-35 domain could be influenced by the presence of a highly expressed and spliced gene. And they explain that the gene-rich R bands form more contacts with the SC-35

domains because they have more domain-associating sequences. So, this work presents a "fundamental and new concept relating nuclear and chromosomal organization" in which SC-35 domains act "...as functional centers for a multitude of clustered genes, forming local euchromatic 'neighbourhoods'".

Natalie Wilson

#### References and links

**ORIGINAL RESEARCH PAPER** Shopland, L. S. *et al.* Clustering of multiple specific genes and gene-rich R-bands around SC-35 domains: evidence for local euchromatic neighborhoods. *J. Cell Biol.* **162**, 981–990 (2003)

**FURTHER READING** Lercher, M. J. *et al.* A unification of mosaic structures in the human genome. *Hum. Mol. Genet.* **12**, 2411–2415 (2003)

#### WEB SITE

Jeanne B. Lawrence's laboratory:  
<http://www.umassmed.edu/cellbio/faculty/lawrence.cfm>

