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CA-repeat enhancer

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Simple dinucleotide repeats are found all over the human genome, but their functional significance is not understood. In an Advanced Online Publication in *Nature Structural Biology* Hui *et al.* describe an unusual role for a CA repeat in regulating mRNA splicing (*Nature Structural Biology*, 25 November 2002; doi:10.1038/nsb875). The human endothelial nitric oxide synthase (eNOS) gene has in intron 13 a polymorphic CA repeat, (CA)₁₄₋₄₄, that has been linked to risk for coronary artery diseases. The intronic repeat is necessary for *eNOS* gene splicing *in vitro* and *in vivo*, and splicing efficiency was seen to correlate with the number of repeats. Biotinylated CA repeats were used to affinity-purify a repeat-binding protein, identified as hnRNP L (heterogenous nuclear ribonucleoprotein L). The hnRNP L protein specifically activated *eNOS* splicing. These results suggest that CA repeats and hnRNP L may regulate the splicing of other genes containing intronic polymorphic repeats.

References

1. *Nature Structural Biology*, [<http://www.nature.com/naturestructuralbiology>]
2. Regulation of endothelial nitric oxide synthase activity and gene expression.
3. High CA repeat numbers in intron 13 of the endothelial nitric oxide synthase gene and increased risk of coronary artery disease.