

**P044** The significance of concerted evolution across ribosomal DNA loci

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The enigma of concerted evolution, whereby sequence variants become homogenised across arrays has long fascinated biologists. In ribosomal DNA (rDNA) variant sequences, particularly of the intergenic spacer (IGS), can sweep through individual genomes and become rapidly fixed in populations. The mechanism by which homogenisation occurs is ill defined and poorly understood, but the data that do exist point to the activity of the cell's recombination machinery. But the question arises as to what is the selective advantage of homogenisation. To address this question we have modelled the likelihood of fixation of an ability to homogenise by varying the parameters of mutation, meiotic cross-over and homogenisation frequencies. In the vast majority of scenarios the ability to homogenise is a clear "evolutionary winner". We now investigate the influence of rDNA copy number on homogenisation processes.