



BiRC talk– open to all

Speaker: Laurent Duret, Laboratoire Biométrie et Biologie Evolutive, Université Lyon, France
Title: The Dynamics of Recombination Hotspots in the Human Genome:
Insights from Ancient DNA
Time: Thursday 12 December, 2013, 14:15 - 15:00
Venue: Bioinformatics Research Centre, 1110-223, C. F.Møllers Allé 8, 8000 Aarhus C

Abstract:

Recombination events are not uniformly distributed in the human genome, but occur essentially in hotspots. The position of recombination hotspots evolves very rapidly: despite considerable sequence similarity between human and chimpanzee genomes, their hotspots are located at different sites. It is now clear that the PRDM9 protein plays a major role in determining hotspots location in the human genome, by binding a 13-bp consensus motif (HM motif). It has been suggested that the dynamics of recombination hotspot was driven by the rapid evolution of PRDM9 DNA-binding domain, but the reasons for this rapid evolution remain elusive. To investigate this issue, we analyzed the evolution of recombination hotspots in the human lineage, by taking advantage of the fact that hotspot activity leads to their loss by gene conversion. We analyzed mutations affecting HM motifs in the human lineage, and dated them by comparison with the recently published Denisova draft genome. Our results indicate that the HM-motif was already a target of PRDM9 before the sapiens/denisova divergence, 500,000 years ago. We will discuss the current models of the forces driving PRDM9 evolution in the light of our observations.

After the talk there will be beer/soda/coffee and chips in the coffee room on the 4th floor.

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