



生物信息学研究中心

Center of Bioinformatics

学术报告

题目: Evolution and genetic variation of microRNA mediated gene regulation in humans

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时间: 8月13日(星期一) 下午 4:00

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Abstract: MicroRNA (miRNA) mediated gene regulation is of critical functional importance in animals and is often thought to be largely constrained during evolution. Here we show that a number of miRNA binding sites display high level of population differentiation in humans and thus are likely targets of local adaptation. In a subset we demonstrate that allelic differences modulate miRNA regulation in mammalian cells, including an interaction between miR-155 and TYRP1, a melanosomal enzyme associated with human pigmentary differences. We identify alternate alleles of TYRP1 that induce or disrupt miR-155 regulation and demonstrate that these alleles are selected with different modes among human populations, to optimize the protein abundance in response to different level of UV radiation. Our findings illustrate the evolutionary plasticity of the microRNA regulatory network in recent human evolution.