



Московский семинар по биоинформатике

Заседание 327

17 декабря 2018, **понедельник**, 19.00

РАМИЛЬ НУРТДИНОВ

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COMPARATIVE TRANSCRIPTOMICS OF B CELL TRANSDIFFERENTIATION IN HUMAN AND MOUSE

Transcriptome comparisons across species contribute to understanding how genomic divergence through evolution has resulted in phenotypic differences. This understanding, however, is often confounded by the difficulty of identifying orthologous phenotypes. Here we have compared human and mouse transcriptional patterns during induced transdifferentiation of B cells into macrophages, which occurs according to nearly identical molecular mechanisms in the two species, but takes much longer in human than in mouse. We found that the longer transdifferentiation time in human results largely from delayed down-regulation of B cell specific genes. This delay is likely caused by key B cell transcription factors, and overall by the genes with the most divergent expression patterns between the two species, being less responsive to CEBPA regulation in human than in mouse. We traced back the deficient CEBPA response to nucleotide changes that, in human, have disrupted CEBPA binding motifs in the promoter region of these genes. We also found that, in general, the stronger the conservation of gene expression between human and mouse, the stronger the correlation between RNA and protein levels in human, but that this correlation is the strongest for the genes with the most conserved and most divergent patterns of expression: that is, in the genes which are the main responsible for the conserved and divergent features of transdifferentiation between human and mouse. This suggest that the genes that play more important roles in a conserved biological process may be selected through evolution to have more tightly associated RNA and protein levels.

Рабочий язык семинара – русский

Заседание семинара пройдет в ФББ МГУ, Воробьевы Горы 1к73, ауд. 117

Проезд: http://www.rtcб.iitp.ru/msb/map_fbb.htm