

1079-92-162

Igor M Rouzine* (igor.rouzine@gladstone.ucsf.edu), 1850 Owens St, San Francisco, CA 94158. *Traveling wave of asexual evolution: no longer solitary.*

Modern evolution theory is focussed on interference (linkage) of adaptive mutations emerging at different DNA locations. Interference effects emerge even in the absence of biochemical interaction of proteins at different sites (co-selection, epistasis, complex fitness landscape) and are a simple consequence of competition of emerging lineages for space in population. Mathematical description of these effect proved to be rather challenging. The effect of interference is strong in populations where recombination between genomes, e.g., due to sexual reproduction, is rare or absent. The examples include bacteria, viruses, yeast, Y chromosomes, mitochondrial DNA, as well any genomic segments in any organisms where evolving sites are closely located and not split by recombination. I will compare two historical approaches, one considering pairs of mutations with different benefit to organism fitness, and another considering multiple mutations with similar fitness effect but different in numbers among genomes. (Received January 10, 2012)