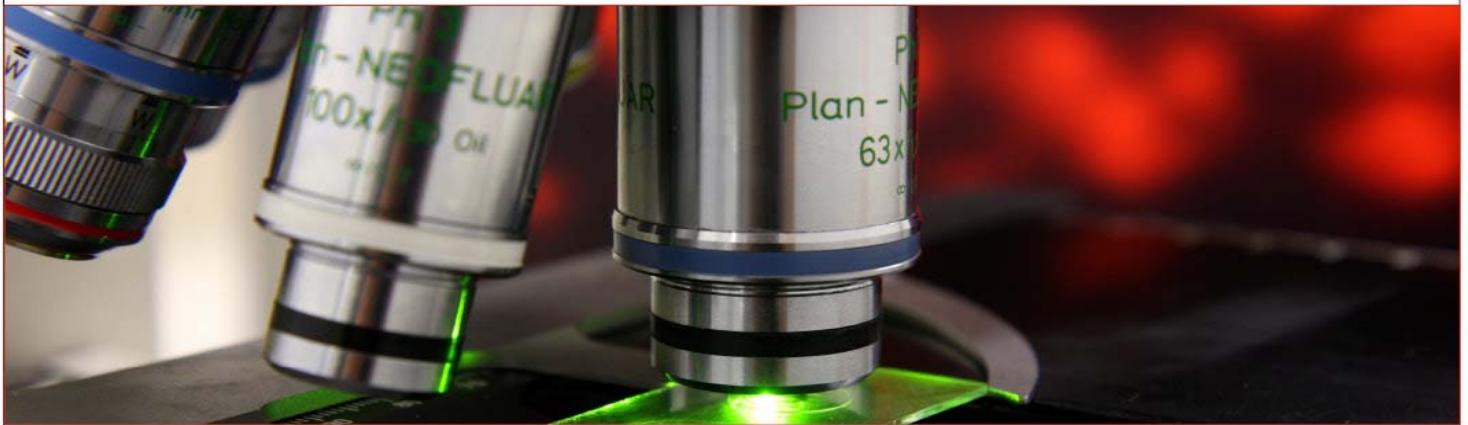


SÉMINAIRES ET CONFÉRENCES



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« How independent are paralogous genes? Insights from protein networks »

How independent are paralogous genes? Insights from protein networks Gene duplication is a major source of molecular innovation and contributes to the complexity of biological systems. The contribution of neutral and selective forces to the maintenance of paralogs has been studied at the theoretical and experimental levels. In most scenarios, paralogs are assumed to be contributing independently to their molecular functions and are thus free to diverge. However, in many instances, paralogs can be linked by a shared function, which means that they may interfere with each other. This is the case for instance for paralogs that encode self-interacting proteins. I will present our work showing that the duplication of these self-interacting proteins leads to pairs of physically interacting paralogs, making their function co-dependent. We show that this co-dependency affects the evolution of paralogous genes, including their retention time. Overall, our results show that a large fraction of duplicated genes does not evolve following standard models and that a combination of systems biology and population genetics is required to fully understand the organization of protein networks.



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