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Bioinformatics summary

The idea of evolutionary tradeoffs is a fascinating one, although I think that more exhaustive tests should be done to better understand it at the molecular level. It makes perfect sense that an organism, if placed in a particular environment for enough generations, would gradually rid of many irrelevant genes. However, that does not make for great insurance for when the environment is suddenly changed, such organisms would have a very slim chance of surviving because the traits that were formerly helpful would become dangerous. It is even more interesting that the mechanism that likely accounts for the tradeoffs is antagonistic pleiotropy, likely because genetic drift seems a more likely option instinctually. The problem is so complex that it becomes possible that parallel selection could be complicating the results of some experiments. However, many relevant experiments have shown that antagonistic pleiotropy is the most likely answer in those cases where specialist strains exist. However, Cooper and Lenski (2000) do mention several assumptions that were made in their experiments, namely that the extent of antagonistic pleiotropy was the same in all strains tested. This would be possible if the mutator strains were evolving faster than the other strains. More experiments and development of theories behind this kind of evolution will hopefully help to iron out some of those complexities.