

Don't be misled by citation figures! (12)

The Times They Are A'Changin'

Grux and Laurent have much in common. Both are professors at the same university, they even belong to the same faculty. Both are interested in proteins and, therefore, to a large extent their work is published in the same journals. Inevitably, last month the day arrived when they were destined to co-author their first paper together.

Of course, there are also differences between Grux and Laurent. Laurent is much older and already well into his sixties. For more than two decades now he has been regarded as an authority on protein biochemistry. To identify, stabilise, purify and analyse proteins – that's where he's really excellent. In particular, his creativity in bringing out the optimum results by elegantly applying and combining experimental methods has remained unmatched for a long time: protein gels, western blots, solubilisation, chromatography, crystallisation – nobody could tell him anything new about it. Recently, he even contemplated trying out the new mass spectroscopy technologies. However, after a while he thought, "I have done so much and achieved such a lot, I really don't feel the need to jump on this bandwagon in my final years."

Grux, on the other hand, has just turned forty and belongs to the fresh breed of bioinformaticians (although he rather prefers the term "computational biologist"). He never

encounters "his" proteins physically but only virtually in the ever-increasing databases containing their amino acid sequences or the nucleic acid sequences of their corresponding genes. However, that's enough information for him to do a lot of things. To compare sequences, for example, to track down multiply employed domains and motifs, to construct protein phylogenetic trees or to categorise them into distinct families – all this in order to finally predict the structures and functions of the given proteins. To accomplish these tasks, Grux's group only needs a couple of fast and powerful computers; other groups provide software and algorithms for free via the Internet. And if no appropriate software exists, Grux and Co. just write it themselves and put it online.



Laurent has to admit that he is rather impressed by this new kind of protein research. After all, Grux's team

and their computers are now able to reveal things with comparable ease, which Laurent had previously, but unsuccessfully, pursued for years. Even things he couldn't ever have imagined tackling with "his" now "dated" methods to hand.

One logical consequence, of course, is that Grux is able to publish material at a much faster rate than Laurent. He produced forty papers last year alone, whereas Laurent is indeed proud if he manages to accomplish five really good papers in a year.

"The times they are a-changin'", those immortal words of that timeless Bob Dylan song ring true for Laurent whenever he reflects on this rapid progress. And with the jaded grin of a wise, old man he pacifies himself with the liberal notion that this is, after all, quite simply for the good of science.

However, this stilted conviction doesn't always work. For example, yesterday, when Grux came bursting into Laurent's office and enthusiastically related that the day before he had completed his fastest paper ever. In the morning, Petit, their colleague from the second floor, had explained a certain protein problem. Grux immediately sat down at his computer and four hours later he had already collected and analysed everything he needed to know. Since it was still early afternoon, Grux continued, he had instantly turned to writing the manuscript. By late evening he was able to put the finished paper in the post box. "A small but effective paper", he closed. "Think *Protein Science* is bound to accept it! Not too bad, is it?"

In this moment, Laurent's apparent sense of composure and wisdom of age went completely out the window. "He probably already has more than twice the amount of papers I do", were his disgruntled thoughts but just as he was contemplating his reaction, Laurent was saved by the welcome sound of his telephone ...

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