

Professor Mike Ashy (the author of “How to Write a Paper”) suggests that ideally an abstract should have four sentences to describe motivation, method, results, and conclusions—one sentence for each of the four. Is it possible? Let us take a look at the following abstract.

Native protein sequences are close to optimal for their structures

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How large is the volume of sequence space that is compatible with a given protein structure? Starting from random sequences, low free energy sequences were generated for 108 protein backbone structures by using a Monte Carlo optimization procedure and a free energy function based primarily on Lennard–Jones packing interactions and the Lazaridis–Karplus implicit solvation model. Remarkably, in the designed sequences 51% of the core residues and 27% of all residues were identical to the amino acids in the corresponding positions in the native sequences. The lowest free energy sequences obtained for ensembles of native-like backbone structures were also similar to the native sequence. Furthermore, both the individual residue frequencies and the covariances between pairs of positions observed in the very large SH3 domain family were recapitulated in core sequences designed for SH3 domain structures. Taken together, these results suggest that the volume of sequence space optimal for a protein structure is surprisingly restricted to a region around the native sequence.

Comments:

- The first sentence mentions the motivation by posing it as a question to the readers. It is an interesting and direct approach to say exactly what the motivation of the paper is.
- The second sentence succinctly describes the method in a single sentence.
- The third, fourth, and fifth sentences present the results.
- The sixth sentence notes the conclusion. As you can see, this sentence answers the question posed in the first sentence (i.e., the motivation).

This well-written abstract of 164 words shows that one sentence is enough for describing the motivation, method, and the conclusion. It is a good paper that contains several results. Hence, they needed three sentences to describe their results.

Thus, this abstract confirms that it is indeed possible to write an abstract in four to six sentences. In order to do this, the authors should be really clear about what they want to convey. So, the first prerequisite for writing a good paper is knowing what you want the reader to know.