Genomics, Evolution and Evolution of Genomics

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Efficient analysis and interpretation of isolate microbial genomes is a growing area that is expected to lead to advances in healthcare, environmental cleanup, agriculture, industrial processes, and alternative energy. At the same time, the recent advancements in genome technology are mediating a transition from organismal to community genomics (metagenomics) revealing a new universe of microbial communities, involving previously uncultured organisms.

This revolution is expected to lead to further advances in understanding the structure and function of entire microbial communities and ultimately describe the physical and biological context in which microorganisms coordinately operate in Nature. In parallel, it already provide a window in the rapidly approaching future challenges of storing, processing, integrating, presenting and analyzing thousands of isolate genomes. I will discuss the current challenges in the field and present a vision of its future.