

New suggested modality in natural drug discovery

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New drugs are required by medicine as many of current structures have insufficient function or toxic effect. Additionally, the emergence of new or chronic disease or resistance development to the current drugs emphasizes this need.

However, the field of natural product discovery has undergone a tremendous recession by the rediscovery of known compounds and replacing the bacterial source by combinatorial synthesis was not successful as it was assumed before.

The large portion of known substances in the dereplication process, actually root in the fact that we have been mining a limited group of bacteria for years.

The main solution is proposed to be the expanding the bacterial source by developing new innovative culturing methods. So far in 2019, 34 phyla are cultivated in the domain Bacteria while the proved number of phyla is predicted to be 1.3×10^3 . Especially, new members of uncultivated phyla like Rokubacteria with large genome which was first cultivated in 2017 and has global distribution in diverse terrestrial ecosystems.

Therefore, we believe that the total genomic heterogeneity is the main promising parameter for discovery of new compounds which is higher in taxonomically distant species.