Biological insight, high-throughput datasets and the nature of neuro-degenerative disorders

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Abstract

Life sciences are experiencing a historical shift towards a quantitative, data-rich regime. This transition has been associated with the advent of bio-informatics: mathematicians, physicists, computer scientists and statisticians are now commonplace in the field, working on the analysis of ever larger data-sets. An open question regarding what should drive scientific progress in this new era remains: will biological insight become increasingly irrelevant in a world of hypothesis-free, unbiased data analysis? This piece offers a different perspective, pin-pointing that biological thought is more-than-ever relevant in a data-rich setting. Some of the novel highthroughput information being acquired in the field of neuro-degenerative disorders is highlighted here. As but one example of how theory and experiment can interact in this new reality, our efforts in developing an idiopathic neuro-degenerative disease hematopoietic stemcell ageing theory are described. © 2013 Bentham Science Publishers.

Keywords

Bio-informatics, Biological insight, Data analysis, High-throughput data, Neuro-degenerative disease