

Exploratory Experiments

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Abstract

Experiments do not merely allow scientists to test pre-existing hypotheses. While hypothesis-testing motivates much scientific activity, exploratory experimentation can be profitable given that the right scientific instruments are available. In this paper I discuss the consequences of high-throughput techniques on experimentation strategies in the biological sciences. Because high-throughput methods like DNA microarrays and proteomics allow scientists to monitor tens of thousands of features rapidly and in parallel, it has become feasible to “go fishing” in the laboratory, conducting experiments about which no predictions can be made because no hypotheses have been constructed. DNA microarray experiments are discussed, and experimental questions commonly posed with high-throughput technologies are contrasted to those investigated with more traditional techniques like the Southern blot.

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