

LIMITS OF ADAPTATIONISM

Summary

Adaptationism is a program within evolutionary sciences that seeks to identify traits arising through natural selection. It is often criticized for assuming that natural selection is an overwhelmingly powerful force of evolution. Opponents traditionally refer to adaptationist studies in ecology, ethology and evolutionary psychology. More recent examples of excessively adaptationist claims come from studies in biochemistry, developmental and computational biology. They are often based on assumption that evolution is limited by inadequate amounts of heritable

variation. It is therefore postulated that clades had to evolve an ability to evolve at a rate high enough to persist over long periods. Although the debate on adaptationism is likely to continue, data emerging from molecular studies provide evidence that natural selection is strongly limited. Not only its power is abrogated but also its history is driven by the chemical nature of spontaneous mutagenesis, structural and functional constraints within cellular subsystems, and continuous operation of genetic drift.