



*New Theory*

## **A genomic parasite in the evolution of metazoan development**

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**ABSTRACT.** It is a challenge to understand how development emerged as a mechanism to dismantle and dismiss the intromission of foreign parasites in order to consolidate a higher-level multicellular unit of selection where more heritable variations in fitness, required for complex organization, can be procured. Levels in biological hierarchy genes, networks of genes, chromosomes, cells, organisms, etc., possess heritable variations in fitness to varying degrees, and as such, they function as units of selection in the evolutionary process [Lewontin, (1970). The units of selection. *Annu. Rev. Ecol. Syst.* 1: 1-18]. To proceed from each of these levels to the next constitutes a major transition in evolutionary history. When analyzing the splendid road epitomized by these transitions in units of selection, it is possible to conceive three processes: firstly, the molecular “recognition” of the “convenience” of exchanging the higher energy cost of cooperating cells with more fitness than single-cell selection (after that first recognition the emergence of

cooperation among cells is possible); secondly, the establishment of the mechanisms to regulate conflict, and finally, the regulation of cell differentiation and compartmentalization.

**Key words:** Molecular biology; Population genetics; Evolutionary mechanism; Metazoan development