Selfish Dna Encyclopedia Article

Selfish Dna

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Selfish Dna

Also known as junk **deoxyribonucleic acid** (junk **DNA**), selfish DNA are areas of DNA that have no apparent function, but are passed on from generation to generation. In some cases, the sequences of selfish DNA are repeated (repetitive DNA) and use the "host" organism as a means for survival (survival machine). This phenomena is documented in the Selfish DNA theory, which states that the eukaryotic organisms carrying the replicating DNA are nothing more than survival machines that allow the DNA to survive and reproduce. This type of DNA is generally repetitive in its composition and it is typical of such regions as spacer DNA and satellite DNA.

Recently, the possibility that selfish DNA includes functional genes that are coded with viable characteristics has been suggested, and the selfish DNA theory has been expanded to the selfish DNA **gene** theory. The expanded theory proposes that the "host" organism is not merely a survival machine, but an organism that is affected by the selfish DNA/genes. The selfish DNA is functional, and therefore it can influence its own and its host's survival.

Selfish DNA is one example of a class of highly repetitive DNAs with unknown functions. The ability of the host to regulate selfish DNA appears to be limited. There is a high correlation between the amount of selfish DNA and the underlying cellular complexity of the host. Higher animal cells generally contain greater amounts of selfish DNA. There is also a strong correlation between the amount of cellular **differentiation** (e.g., of the type observed in higher plant and animal **species**) and the amount of selfish DNA carried by those species.

Selfish genes are transmitted at a higher rate than other genes. They can often be distributed in abnormal patterns during **meiosis** by a process termed meiotic drive. In such cases the selfish DNA may begin to work to the detriment of the host species, becoming such a large percentage of the **genome** that it may be possible that the species faces a substantial risk of extinction.