

Genetic mutations by process of pollution stimulus

Business



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Mutations are also the raw material of genetic variation, which natural selection requires to operate, as it is the changes in the DNA. Meaning, no organisms would have ever evolved or adapted to Earth's constant changes without mutations. Without mutations, there would be no evolution.

Without evolution, the organisms would die. Genetic mutations are caused by environmental stress, now commonly provided by Mankind with the help of pollution and radiation. The downside is that the process takes place through many generations before finalization of the final product (evolution), and the genetic variation is now tainted. Being either beneficial or harmful in the long run, mutations remind us how complex the structure of DNA truly is. DNA (deoxyribonucleic acid) is life's building blocks that are hereditary, and most organism's molecular basis. DNA contains a long sequence of smaller units attached together in a form equivalent to computer codes to make instructions for the genetic building of an organism.

The four basic types are: A-Adenine, T-Thymine, G-Guanine, and C-Cytosine. The sequence of bases that encode instructions called codons, are a set of three previous mentioned bases that specify one of the 20 amino acids or signal the end of the protein. Examples include turning genes (unit of heredity) on and off or acting as control centers. Some parts have no functions, and others may have functions we don't understand; carry instructions to make proteins (long chains of amino acids which help build organisms). There are several types of mutations: Substitution, Insertion, Deletion, and Shifting which is caused by the failure of DNA copying over, or by external influences. All manners of mutations, however, are common in

how the greatest effect is during an organism's embryonic development (Equivalent of a human fetus).

Take note that by the time a short book has been read, quite a few cells would have undergone a mutation. This is because the DNA is constantly changing parts of its codon for our growth, an example being puberty where mutation accelerates body growth into that of a young adult from a teenager. Another example would be that our parents pass an average of 60 mutations within their genes to their children. These mistakes passed onto each new generation are the driving force of human evolution. The mutations seen today by most people differ greatly from what is described as it is influenced by the spread of external stimuli, such as pollution. To the common mass, mutations have been labeled as horrible and they are justified.

The common person can only see how difficult the lives of the unfortunate ones are, and how some, if not most will die at a young age. The problem lies in how the mutations they see, have been influenced by pollution which was spawned from our carelessness. The pollutants twist and negatively enhance the mutations causing the creatures to become abominations or freaks of nature. Experiments were lead by various universities and labs to prove how mutations are linked to pollution. Physical examples include an experiment that took place near the integrated steel production mills at the Great Lakes, the controlled experiment had lab mice separated into two groups; the mice raised and reproduced in the proximity of the steel mills, and the other group 30 km away in a clearing. The test had the integrated steel production mills

working to duplicate the amount of air and waste pollution it normally gives off.

The National Academy of Sciences and the McMaster University had acquired results that showed the steel mice parents had only 17/20 pairs instead of the normal 19/20 pairs, about 1.7 fewer pups, and a 1.6x increase paternal mutations passed onto their offspring. Another case had toxic chemicals from a plant that caused radiation mutations to the town's residents; there were hundreds of recorded cases with children contracting typhoid cancer, and rodents were seen with spleens 6x its normal size, sometimes spilling out of their sides. Harbor porpoises are contaminated with PFOs and PFCA's that causes degradation in the Baltic and North Seas, as well as Danish, Icelandic, and Norwegian coastal waters.

Within the last 50 years, there was a 26x increase of pesticides being sprayed over food crops-This caused mutations and fertility problems already affecting the reproductive systems of fish, alligators, and polar bears. By consuming these consumables, it had been diagnosed that the human breast milk transfers more dioxin to their babies than what is legally approved for cow's milk. Other mutations include Henry, the only recorded octopus with only 6 tentacles. Octogoat had 8 legs, both female and male organs, and believed to have absorbed his underdeveloped twin sister. Faith the dog had a brain defect which leads to the eventual amputation of her front legs.

'We' was a two-headed Albino Rat Snake that also had both female and male organs, that tried to eat each other. Kenny the white tiger had the

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same problems similar to every other white tiger but had succumbed to cancer. White tigers are produced by incest (Closely breeding related tigers through generations), causing crossed eyes, cleft palates, clubbed feet, immune deficiency, along with deformities in the spines and organs. Frank and Louie had one head, two faces, and three eyes caused by a mutation called the craniofacial duplication. Froggy the three-headed frog, has six legs, six eyes, and six legs. This aquatic creature was most likely a product of an aftereffect by the now decommissioned Hinkley nuclear power plant.

Just as there are physical effects, behavioral effects also appear; for instance, a study involving a coal-fired power plant in southwestern Tongliang, China. The University of Columbia and the Chongqing Medical University discovered that babies birthed before 2004 had their learning skills sapped, poorer learning and memory skills. In one instance, Yang Chintian's now 18-year-old son, had often received headaches that left him dull and unresponsive. The babies born after 2005 were healthy ever since the coal plant was closed and removed. A World Health Organization agency ranked it as a carcinogen (able to cause cancer in living tissues) for the first time, as it raised the percentage of lung cancer in some and increased the chances of bladder cancer in others.

Mutations are common, constantly acting upon the body structure and cells. Being influenced by pollution had led to the distortion, causing potentially devastating effects throughout the organism's possibly short lifetime. The few lucky organisms obtain minor benefits that will advance its species within future generations. This shows how mutations are whimsical and complex when interacting with DNA.

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