Hochschule Karlsruhe für Technik und Wirtschaft

Ethikbumms

Mit bisschen Datenschutz bumms

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2.1 Disovery of Genes

While initial speculation about genetics dates back to Hippocrates and Aristotle, who developed theories to explain inheritance[1], it was not until 1856 when Gregor Mendel experimented with cross breeding numerous pea plants to discover patterns in attribute inheritance[2], not knowing his actions would plant a seed within biology that would soon bloom to disrupt areas of daily life far beyond the bounds of science. The groundbreaking discovery he made was that the phenotype of a given plant is not a mere blend of the visible attributes its parents held, but rather a seemingly random combination of the genetic lineage, meaning even attributes last observed several generations ago could be present[2]. Mendels work lead to a deeper understanding of the underlying genotype, dominant and recessive genes and was fundamental to the development of the techniques discussed in this paper.

2.2 Genetic Engineering

Human interference in evolution to bend nature to our will goes back at least to 2000 B.C. with strong evidence that the Assyrians artifically pollinated date trees[1, p.633]. Since then several methods with the shared goal of reinforcing desirable characteristics and eradicating undesirables ones developed, most dominantly selective breeding, with the recent modification called mutation breeding. Mutation breeding is the practice of directly exposing organisms, usually seeds, to mutagenic matieral to positively augment the mutation rate and such the chance of new positive traits being present[3]

3 Conclusion

References

[1] Ernst, Mayr **The Growth of Biological Thought** (Belknap Press, 1985)

[2] Gregor Mendel, **Versuche über Pflanzenhybriden** (Read at the meetings of February 8th, and March 8th, 1865)

[3] Joanna Jankowicz-Cieslak, Thomas H. Tai, Jochen Kumlehn, Bradley J. Till **Biotechnologies for Plant Mutation Breeding** (Springer Cham, 2017)

[4] Hans-Peter Schreiber, **Gentechnik, Genomanalyse und Ethik** (*Ethik Med* ***10*** 1998)

[5] Leena Rawal, & Sher Ali, **Genome Analysis and Human Health** (Springer Singapore 2017)

[6] Sachil Kumar, **Forensic DNA Typing: Principles, Applications and Advancements** (Springer Singapore 2020)