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Epigenetics Research: Open Access

Short Communication

Epigenetics: Emerging Field in Psychology

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DESCRIPTION

The field of psychology has long been a question and the extent to which our behavior, personality, and mental health are determined by genetics or by environmental factors. In recent years, a new field has emerged that seeks to bridge this: Epigenetics, the study of how environmental factors can modify the expression of our genes. Epigenetics has the potential to revolutionize our understanding of how genetics and environment interact to shape our psychology.

Epigenetics is the study of heritable changes in gene expression that do not involve changes to the underlying DNA sequence. Instead, epigenetic modifications occur on top of the DNA sequence and can influence which genes are turned on or off. One of the most well-known epigenetic modifications is DNA methylation, in which a methyl group is added to a cytosine base in DNA, often leading to decreased gene expression [1,2]. Other epigenetic modifications include histone modifications and non-coding RNA molecules. Epigenetic modifications can be influenced by a variety of environmental factors, including diet, stress, toxins, and social experiences. For example, studies have shown that prenatal exposure to stress or toxins can lead to epigenetic modifications that increase the risk of mental health problems later in life. Similarly, experiences of childhood trauma have been associated with epigenetic changes that are linked to depression and anxiety.

One of the most exciting aspects of epigenetics is its potential to explain how genetic and environmental factors interact to shape our psychology [3-5]. For example, twin studies have shown that genetics play a significant role in the development of many psychological traits, such as personality and intelligence. However, these studies also show that environmental factors play a crucial role in determining the expression of these traits. Epigenetics may help to explain how environmental factors can modify the expression of genes that are associated with these traits.

Epigenetics may also help to explain why some individuals are more vulnerable to environmental risk factors than others. For example, studies have shown that genetic variations in the serotonin transporter gene can increase the risk of depression in response to stress [6-9]. However, these genetic variations only increase the risk of depression in individuals who have experienced stressful life events. Epigenetic modifications may help to explain why some individuals are more susceptible to the effects of stress than others. Epigenetics also has the potential to transform our understanding of mental health disorders [10]. For example, recent studies have shown that epigenetic modifications are associated with many mental health disorders, including depression, anxiety, and schizophrenia. By understanding the epigenetic modifications that are associated with these disorders, we may be able to develop new treatments that target these modifications directly [11-13].

CONCLUSION

The emerging field of epigenetics has the potential to revolutionize our understanding of how environmental factors can modify the expression of our genes; epigenetics may help to bridge the gap between nature and nurture. Epigenetics may also help to explain why some individuals are more susceptible to environmental risk factors than others, and why some individuals are more vulnerable to mental health disorders than others. Ultimately, the study of epigenetics has the potential to lead to new treatments and interventions that can improve the mental health and well-being of individuals around the world.

REFERENCES

1. Sharma G, Sultana A, Abdullah KM, Pothuraju R, Nasser MW, Batra SK, et al. Epigenetic regulation of bone remodeling and bone metastasis. Semin Cell Dev Biol. 2022;S1084-9521(22): 00294-00304.
2. Babar Q, Saeed A, Tabish TA, Pricl S, Townley H, Thorat N. Novel epigenetic therapeutic strategies and targets in cancer. Biochim Biophys Acta Mol Basis Dis. 2022;1868(12):166552.
3. Felsenfeld G. A brief history of epigenetics. Cold Spring Harb Perspect Biol. 2014;6(1):a018200.
4. Jintaridth P, Vieira A. Epigenetic regulation in energy metabolism: Effects of physiological and dietary factors. Obesity Med. 2022;34:100440.

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5. Rath S, Hawsawi YM, Alzahrani F, Khan MI. Epigenetic regulation of inflammation: The metabolomics connection. Semin Cell Dev Biol. 2022;S1084-9521(22):00270-00271.
6. Li X, Wang M, Liu S, Chen X, Qiao Y, Yang X, et al. Paternal transgenerational nutritional epigenetic effect: A new insight into nutritional manipulation to reduce the use of antibiotics in animal feeding. Anim Nutr. 2022;11:142-151.
7. Jeremian R, Malinowski A, Chaudhary Z, Srivastava A, Qian J, Zai C, et al. Epigenetic age dysregulation in individuals with bipolar disorder and schizophrenia. Psychiatry Res. 2022;315:114689.
8. Yousefi B, Kokhaei P, Mehranfar F, Bahar A, Abdolshahi A, Emadi A, et al. The role of the host microbiome in autism and neurodegenerative disorders and effect of epigenetic procedures in the brain functions. Neurosci Biobehav Rev. 2022;132:998-1009.
9. Rodriguez AC, Polcari JJ, Nephew BC, Harris R, Zhang C, Murgatroyd C, et al. Acculturative stress, telomere length, and postpartum depression in Latinx mothers. J Psychiatr Res. 2022;147:301-306.
10. Xu Z, Gao C, Tan T, Jiang W, Wang T, Chen Z, et al. Combined HTR1A/1B methylation and human functional connectome to recognize patients with MDD. Psychiatry Res. 2022;317:114842.
11. Walker E. The permeable boundary between biological and psychological processes in the origins of psychosis. Psychiatry Res. 2022;317:114853.
12. Sharma S, Yang IV, Schwartz DA. Epigenetic regulation of immune function in asthma. J Allergy Clin Immunol. 2022;150(2):259-265.
13. Yang JH, Hayano M, Griffin PT, Amorim JA, Bonkowski MS, Apostolides JK, et al. Loss of epigenetic information as a cause of mammalian aging. Cell. 2023;186(2):305-326.