



Neuro-Genetic Processes during Sleep and Wake in Human

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Abstract

On the basis of a new genetic theory developed in 2018, neurogenetic processes during sleep and wakefulness in humans are discussed. A new definition of the most important physiological processes of the human body, such as dreams, thinking and hallucinations, is presented. A new and fundamentally different understanding of the neurogenetic processes during human sleep and wakefulness is not only of paramount importance for the development of basic science, but can also become the basis for the development of a modern and more efficient education and health care system.

Keywords: Neuro genetics; Nano-model genetic theory; Sleep; Dream; Thinking; Hallucination

Introduction

With the development of science and thanks to the latest achievements in the field of neurogenetics and neurophysiology, it becomes possible to revise many of the most important biological and medical concepts. In this paper, we present a new understanding of the neurogenetic processes during sleep and wakefulness in humans. A new and fundamentally different understanding of the neurogenetic processes during human sleep and wakefulness is not only of paramount importance for the development of basic science, but can also become the basis for the development of a modern and more efficient education and health system. During sleep, we discuss the neurogenetic aspects of dreams and during wakefulness-thinking and hallucinations.

On the basis of the new genome classification (basic and acquired), as well as the nano-model theory of genome functioning, a fundamentally new and effective definition of such important biological processes of the human body as dreams, thinking and hallucinations can be given for the development of science. However, to begin with, we present the classical definitions and the presentation of these scientific terms.

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Dream

A dream is a subjective perception of images (visual, auditory, tactile, taste, and olfactory) arising in the mind of a sleeping person (presumably some other mammals) [1]. Dreams are considered to be related to the phase of rapid eye movement. This stage occurs approximately every 1.5 h to 2 h of sleep, and its duration is gradually lengthened. It is characterized by rapid eye movement, stimulation of the Pons Bridge, rapid breathing and pulse, and temporary relaxation of the skeletal muscles of the body. Recent studies prove that dreams also occur during slow sleep. But these dreams are shorter and not so emotional. A special kind of dreams is lucid dreams, in which a person realizes that he is sleeping and sometimes tries to control the dream.

Thinking

Thinking is the cognitive activity of man. It is an indirect and generalized way of reflecting reality [2]. The result of thinking is thought (concept, meaning, and idea). Thinking is contrasted with the "lower" ways of mastering the world in the form of sensation or perception, which are also characteristic of animals. Many philosophers called thinking the essential property of man. The peculiarity of thinking is the property of receiving knowledge about such objects, properties and relations of the surrounding world, which cannot be directly perceived. This property of thinking is carried out through such conclusions as analogy and deduction.

Thinking is associated with the functioning of the brain, but the very ability of the brain to operate on abstractions occurs during the assimilation of practical life forms, norms of language, logic and culture. This indicates the crucial role of the acquired genome in the process of the formation of higher human nervous activity [3-5]. Thinking is carried out in diverse forms of spiritual and practical activities, which summarize and preserve the cognitive experience of people.

Thinking is carried out in the form of iconic form. This once again confirms our nano-model theory of the functioning of the genome. This theory in the near future will be the most basic theory of genetics (including neurogenetics) and will take its rightful place among other biological theories. Thinking is also carried out in its own adequate form of theoretical knowledge, which, based on previous forms, acquires unlimited possibilities for speculative and model vision of the world.

Hallucinations

Hallucination (Hallucination- meaningless chatter, nonsense, impossible dreams) is an image that arises in the mind without external stimulus. Hallucinations occur with severe fatigue, use of alcohol, certain psychotropic substances, and with some mental and neurological diseases. Frequent or prolonged (over the years) hallucinations are characteristic of schizophrenia, and the presence of such hallucinations is associated with a negative prognosis of treatment and causes difficulties in finding employment. Therefore, a proper understanding of the biological mechanisms of hallucinations is so important for the development of the public health system and the social field. This increases the applied value of this scientific work. According to our research and some advances in the field of neuroscience, it has become possible to provide qualitatively new definitions of the terms dream, thinking, and hallucinations. They are not only descriptive.

A dream is an interaction of biological nano-models during sleep. Thinking is the interaction of biological nano-models during wakefulness. Hallucinations are uncontrollable interactions of biological nano-models during wakefulness. Now we will briefly present our nano-model theory of genome functioning [5] and new viral theories [5-7]. It is very necessary for a correct understanding of the above qualitatively new definitions of the terms dream, thinking and hallucinations. Readers of this scientific article should know what a biological nano-models is and what is the true place and role of viruses in nature.

Genetic and Viral Theories

As a result of scientific meta-analysis (in 2018 to 2019) new biological theories presented in Table 1 were created.

If you understand the true place and functions of viruses in nature, then by their example it will be possible to study the fundamental foundations of life and its manifestations. According to our research, viruses-migrating organelles of eukaryotic cells. They are in fact a part of us-cellular life forms and perform numerous functions. Viruses are not independent forms of life and this is evidenced by cellular theory. According to our viral theories, cell theory is scientifically completely consistent. Next, we give our viral theories, which will confirm this conclusion.

In 1898, while reproducing D. Ivanovsky's experiments, the Dutch botanist M. Beyerink actually coined the term "virus", as he called such microorganisms "filtering viruses". Today, after about 120 years, relying on the foregoing, we suggest replacing the term "virus" with the term biocommunicator, which certainly corresponds more to the functions they perform. Each theory corresponds to a specific function of viruses (biocommunicators) in nature. Of course, every year the number of functions will grow. In this scientific article we will dwell in detail on only a few of our viral theories and the nano-model theory of the functioning of the genome. Viral Theory of Perception

of information. Viruses of humans, animals and other organisms play a leading role in the process of perception of information. The information we receive from the senses (receptors) is transmitted to the central nervous system, where it is presented in the form of electrical impulses. And the process of electrical activity in the central nervous system leads to the formation of a specific DNA/RNA-containing nucleotide sequence of viruses (biocommunicators), and also changes their configuration (3D) and motor activity (4D obtained). An important role in this process is played by microtubules of cells, which also form an antenna on the cell surface. Microtubules are the transport infrastructure for DNA and RNA-containing biocommunicators (viruses). Thus, in the neurons and, therefore, biological nano-models of various objects "noticed" by the receptors of the body are created in the brain. A person also has an opportunity for imaginative thinking. Each thought can correspond to one specific "virus", and emotion is already a whole group of "viruses". Often, the "ready virus" or their group from outside (the thought or emotion of another organism) can penetrate into the brain and thus perform biocommunication. This can confirm the fact known to science that viruses are able to control the consciousness of various species of animals and humans. This in turn creates the prerequisites for the formation of long-term memory. Since the process of perception usually begins with the receptor, it is important to note that the functional activity of a single receptor also depends on the activity of biocommunicators.

Viral Theory of Memory Formation

The process of constant electrical activity in the central nervous system during reverberation leads to the formation of structural changes in DNA/RNA-containing viruses (biocommunicators) of humans and animals. All these changes occurring in neural reactions are called consolidation, and viruses (biocommunicators) are the material carriers of information entering the long-term memory. In fact, the formation and further storage of biological nano-layouts takes place. Further, the expression of these genes leads to the extraction of information from long-term memory. In humans, the function of the carrier of information in short-term and long-term memory is performed by herpes viruses. Herpes viruses (*lat. Herpesviridae*) is a large family of DNA-containing viruses that infect the majority of the population of our planet [8,9].

As of May 2016, 86 species have been registered with the International Committee on Virus Taxonomy (ICTV) [Virus Taxonomy (English) on the website of the International Committee on Virus Taxonomy (ICTV)]. A distinctive feature of viruses of this family is the latent presence of the virus in cells, persisting for an infinitely long time, without clinical manifestations. Consequently, according to our theories, at this time they perform the most important functions of the higher nervous activity of a person described by us.

In fact, memory is not localized in certain parts of the brain, but distributed throughout the body. The key role and place of storage of memory of course plays the brain of the body. Brain structures are responsible for memory formation in DNA/RNA of biocommunicators, as well as responsible for the implementation of information contained in these molecular storage media.

The Viral Theory of the Functioning of the Somatic Nervous System

Viruses of the human body and animals play a leading role in the process of transforming the will and intentions of the organism

Table 1: Viral and genetic theories.

1	The Viral Theory of The Electromagnetic Reception
2	The Viral Theory of Biocommunication
3	The Viral Theory of Signal Transduction
4	The Viral Theory of Functioning of The Energy System of Cell
5	The Viral Theory of The Functioning of The Immune System
6	The Viral Theory of Perception of Information
7	The Viral Theory of Memory Formation
8	The Viral Theory of The Functioning of The Somatic Nervous System
9	The Viral Theory of The Functioning of The Autonomic Nervous System
10	The Viral Theory of The Functioning of The Endocrine System
11	The Viral Theory of The Functioning of The Cardiovascular System
12	The Viral Theory of The Functioning of The Reproductive System
13	The Viral Theory of Evolution of The Organic World and Homo Sapiens
14	The Nano-Model Theory of Genome Functioning

into movements. All acquired skills of an organism during life are deposited as changes in the structural and spatial organization of the genetic material of biocommunicators in the long-term memory of a person or animal, and later, if necessary, expression of these genes occurs. It is thanks to the above-described molecular mechanisms that the organism has the opportunity to exercise motor and speech activity and, in fact, to subordinate its will to the functioning of the somatic nervous system. In fact, this can explain the formation of linguistic abilities in humans. And, therefore, the genes responsible for speech must be sought in the acquired genome (genes of biocommunicators). For details, see our nano-model theory of genome functioning, presented below.

The Viral Theory of the Functioning of the Autonomic Nervous System

Viruses of the human body and animals also play a leading role in the functioning of the autonomic (vegetative) nervous system. Many innate and acquired skills of an organism throughout life are represented as changes in the structural and spatial organization of the genetic material of biocommunicators in the genetic/long-term memory of the organism, and then, if necessary, the expression of these genes occurs. In this way, the autonomic (vegetative) functions of the human and animal nervous systems vital for the body are provided. It is thanks to the above-described molecular mechanisms that the body has the opportunity to better adapt to changing environmental conditions. However, it is necessary to take into account that the genes of the main genome also bear a significant burden in ensuring the functioning of the autonomic nervous system.

Modern Genome Classification and New Genetic Theory

The main genome is a collection of all genes received by the body from the egg and sperm as a result of fertilization (nuclear, mitochondrial, plastid). This is a vertical gene transfer [4]. Acquired genome is a combination of all genes obtained by the body during the embryonic and postembryonic periods from migrating organelles of cells (biocommunicators) in the form of DNA and RNA molecules. It is important to note that the acquired genome can also be formed on the basis of existing genes (biocommunicators) under the influence of, for example, electrical processes occurring in the nervous system of the body (see virus theories of information perception, memory

formation and functioning of the nervous system) [6]. Which take place as a result of the activity of the sensory systems of the body. The formation of the acquired genome has an important effect and electromagnetic radiation (for example, the ultraviolet spectrum of radiation) of natural and artificial origin. In fact, it turns out that all changes occurring in the external and internal environment of the organism are fixed (cause changes) in the acquired genome. Those that are important are stored in reserves of the body's long-term memory. This is a horizontal gene transfer [7]. The acquired genome is individual for each somatic cell. If the process takes place in gametes, then genes of endoviruses can be formed, which, as we know, is inherited from generation to generation?

The Nano-Model Theory of Genome Functioning

According to our nano-model theory of the functioning of the genome, the DNA molecule stores biological information not only in the form of a genetic code consisting of a sequence of nucleotides, but also in the form of a spatial-structural organization. This means that the information component lies not only in the primary structure of the organization of DNA molecules, but also in structures II and III. These are actually peculiar biological nano-models [4]. RNA molecules can carry out a similar function in nature, as well as, to some extent, protein molecules. DNA contains information about the structure of various types of RNA and proteins [10]. But this does not mean that the DNA molecule does not have the ability to independently carry out numerous biological functions that ensure the vital functions of living systems.

Almost all genes function on the principle of nano-layouts. However, based on the fact that many genes of the main genome are localized in the cell nucleus, but must function in the cytoplasm or outside the cell, therefore nature has created the processes of transcription and translation known to modern biology. Protein has a three-dimensional structure (definite form) due to its II, III, sometimes also IV structure. It is known, for example, that a protein-enzyme has an active center that functions according to the principle of a key to a lock. Depending on its form, it will have a certain functional activity. A DNA molecule (its specific region is a gene) also has a II and III structure, that is, it is not just a linear molecule consisting of nucleotides [10,11].

The whole point of the transcription and translation processes is to create a copy of the nano-model (DNA gene) in the form of ribosomal RNA (r-RNA), transport RNA (t-RNA) or messenger RNA (m-RNA). In the case of m-RNA, the process of biosynthesis of the polypeptide chain (the primary structure of the protein) follows-translation on polyribosomes in the cytoplasm of the cell. In fact, ready-made copies of DNA nano-models capable of functioning outside the cell nucleus of the eukaryotic cell are provided.

Conclusion

Thus, based on the above and on the results of our research conducted in 2018 to 2019, you can give a fundamentally new and qualitative definition of such terms as dream, thinking and hallucinations. A dream is an interaction of biological nano-models during sleep. Thinking is the interaction of biological nano-models during wakefulness. Hallucinations are uncontrollable interactions of biological nano-models during wakefulness. A new and fundamentally different understanding of the neurogenetic processes during human sleep and wakefulness is important for the

development of basic science, and will also undoubtedly become the basis for the development of a modern and more efficient education and health care system.

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