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An Overview on DNA Biomarkers

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DESCRIPTION

DNA and RNA molecules form the basis of every cell, organ, and thus every organism. Isolating these particles and decoding their processes enables the identification of biochemical markers (or biological markers) affiliated with pathologies or the responses to environmental agents including such drugs, pollution, and so on. DNA and RNA (deoxyribonucleic acid and ribonucleic acid, respectively) are molecules with distinct structural and functional properties inside the cell. DNA serves as the matrix for almost all of an organism's cells and includes the encryption of genes. These proteins are transcribed as RNA: RNA coding for a protein (2% of the genetic code) and non-coding RNA (20% of the human genome). These genetic traits allow for the synthesizing of the basic building blocks of life, the promotion of specific enzyme reactions, and the extremely complex regulation of all these elements. Unlike DNA, which would be formed at birth and changes little throughout life, RNA is constantly evolving, mirroring the overall health of a cell, organ, as well as organism with which it belongs. Constitutional genetic changes inherited from a parent, also known as germline mutations since they are found in the parent's egg or sperm cells, that are also known as germ cells. If this DNA contains a mutated gene, the child born from of the fertilized egg will have the mutation in every cell with his or her body. These changes could be part of a species' "positive" evolution over time. Somatic (or acquired) genetic alterations that occur at a certain point in life and are present only in certain cells, rather than in every cell in the body. These adjustments can be affected by external factors including such radiation from the sun, or they can happen as a consequence of an error in DNA replication all through cellular division, Pathology can result in the development of acquired mutants (genetic diseases, cancers, etc.). DNA was thought to be a tractable class of illness mutations. Such modifications have received a lot of attention, especially since the advent of DNA sequencing. The most studied mutants are single-nucleotide polymorphisms (SNPs) and insertion/deletion (InDels) sequences, which reflect distinctive genetic changes or sequences which can be modified, implanted, or removed randomly or aimed into the genetic code of an individual or a group of individuals with common features (healthy or sick, drug treated or placebo, same ethnicity, etc.). These processes also depict processes that can result in the incidence of a biological condition or disease, including such opposition to certain infections. DNA can also undertake "chemical" changes, such as deoxyribonucleic acid methylation (or demethylation). These genetic alterations, which are a naturally occurring phenomenon, are generally controlled by the cell and can be influenced by an external entity (pollution, for example), and result in a change in the genetic expression and thus the caused proteins, The genes stored in Dna are copied and translated into RNA molecules during the gene expression (transcription) process. The RNA family is enormous and can be split into 2 groups. RNAs that code for proteins (mRNA or coding RNA). The messenger RNA (mRNA) is the most studied and accounts for less than 3-5 percent of the RNA cellular components. They are engaged in the making of enzymes, hormones, enzymes, and so on, as well as non-coding RNAs, which are RNAs that lack the ability to code for proteins. Non-coding RNAs then are divided into classes based on their ability to physically interfere with another RNA, DNA, or protein in order to alter their activities. Long non - coding RNA, such as ribosomal or transfer RNA (which accounts for further than 90% of overall RNA molecules in a cell), for example, is involved in transcription procedures, small nuclear RNA in RNA modification, and small interfering RNA, microRNA, and piwi-interacting RNA in RNA silencing.

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CONFLICT OF INTEREST

We have no conflict of interests to disclose and the manuscript has been read and approved by all named authors.

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