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DISMISSAL OF THE FAKE TERM CALLED LIVING-THING BY GENOMIC-THING AND UNIVERSAL REACTIONS OF MATTER

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ABSTRACT: *The fact that the sciences treated with terms **Biology**, **Living-things**, and **Nonliving-things** had been proved to be absurdly fake and were replaced by true sciences of **Genomology**. The key objectives of this paper are to verify the dismissal of the fake term called **Living-thing**, replacing by the correct one known as **Genomic-thing** based on evidences and to forward three different **universal reactions of matter**. Each of the evidences or each of universal reactions of matter is a type of methodology in its targetful approach and each of them is accompanied by a verifying finding. The term **Living-thing** had been irreversibly dismissed by spectacular & concrete scientific evidences about its fakeness and **Genomic-thing** was found to be a rewardingly the best (perfect) term to replace it in the sciences of Genomology.The three universal reactions of matter are **genomic reaction** (in genomic-things only), **chemical reaction** (in nongenomic-things only involving rearrangement of electrons outside the nuclei of atoms), and **nuclear reaction** (inside the nuclei of atoms). The only reason for why biologists had admitted that they could not define what a living-thing was and stayed with fake sciences of Biology until now, was because they didn't realize that **genome** was: ►**unique** to genomic-things, and ►the **automatic synthesizer** of each individual in each species of all genomic-things from genomic viruses up to humans. Now, **Genomologists**, **Chemists**, and **Physicists** are at the very good stage of development to understand one another with the same language of **Universal Reactions of Matter** and they will have to work together more concerned than ever before.*

KEYWORDS: genome, nonliving-things, genomic reaction, genomic-things, nuclear reaction, half-life, radioactive decay, sense, ncRNA, Antisense, Atomic number, mRNA

INTRODUCTION

As it has been clearly stated in the article entitled "Genomology" [1], the term nonliving-thing is absolutely wrong. The term Biology (Greek. *bio-* = life, or living-things + *-logy* = study) literally means the study of living-things. Based on its origin of derivation, Biology is defined as the study of living-things. If groups of matter are called **living-things**, it is inevitably the must to call the remaining groups of matter as **nonliving-things.** In fact, the matter (universe of things) has been categorized into living-things & nonliving-things for centuaries having absurdity of contradicting with the **Law of Conservation of Matter** thereby confusing genomologists and misleading student children of all human races of the world engaged in learning genomological sciences.

The key objectives of this paper are to verify the dismissal of the fake term called **Living-thing**, replacing by the correct one known as **Genomic-thing** based on evidences and to forward three different universal reactions of matter.

METHODOLOGY & RESULTS

Each of the evidences or each of the universal reactions of matter herebelow is a type of Methodology in its targetful approach and each of them is accompanied by a verifying finding. This is the reason for why it is entitled **"Methodology & Results"** hereabove.

Concrete Evidences about the fact that the terms Biology, Living-things, and Nonliving-things are absurdly false:

1st. The term nonliving-thing is wrong because matter (anything of the universe of things) cannot be created or destroyed as everything we know in the universe is existing, i.e., everything is a living-thing except changing its form (Law of Conservation of Matter).

2nd. Based on its origin of derivation, Biology is defined as the study of living-things.

According to the "Law of Conservation of Matter," the categorizing meaning into living-things & nonliving-things and definition of Biology are absolutely wrong bcause what are categorized as nonliving-things are living-things**!!!!**.

3rd. In the life cycle of *Homo sapiens*, the automatic synthesizer genome functions in each individual being synthesized as follows. 2-5% of human genome codes for protein synthesis whereas 95-98% of it being noncoding for protein synthesis (ncRNAs) does perform crucially indispensable regulatory functions in transcription, translation, splicing, modification of other RNAs, making inactive one of the X DNA molecules in females, signaling, and other diverse functions beginning from gametes to single-celled zygote and up to a mature adult individual person [2]. It is in this way that the genome synthesizes each individual's body of us with tissues, organs, and systems what the zygote of each of us did have!!!!

4rd. The automatic synthesizer molecule of every genomic-thing is termed **genome**. This automatic synthesizer molecule is unique to genomic-things and the name **genomic-thing** is derived from the name of this unique synthesizer molecule. Because of this scientific truth at hand the term **genomic-thing** is the best (perfect) scientific name to replace the fake term called **Living-thing [3]**.

5th. Biology categorizes universal things of matter as **living-things** unconsciously without any scientific ground and paralizes itself by naming the other category as **nonliving-things**. The correct term for what Biology states as **living-things** is **genomic-things** and the correct term for what Biology fakely classifies as **nonliving-things** is **nongenomic-things**. Therefore, the terms Biology, Living-things, and Nonliving-things are totally discarded from the fields of science.

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With these truths in mind, the fake term known as **Living-thing** is dismissed by the correct term referred to as **Genomic-thing [4-8]**.

Reactions of Universe

There are three universal reactions of matter, namely:

1, Genomic Reactions (in genomic-things),

2. Chemical Reactions (in nongenomic-things outside the nuclei of atoms), and

3. Nuclear Reactions (inside the nuclei of atoms).

1. Genomic Reactions

We find genomic reactions happening everywhere the genomic-things are found. The most common example of genomic reaction is the process of photosynthesis in plants. Human beings also experience genomic reactions happening inside their bodies all the time. Genomic reactions ocurr in all and every species of genomic-things starting from genomic viruses up to human beings, i.e., including plants, animals, microorganisms (fungi, algae, bacteria, genomic viruses, etc.). The reactants of a typical genomic reaction are:

►**genome** (an automatic self-reproducing or self-synthesizing molecule specifically & uniquely found in each species of genomic-things), and

►**nutritive substances**.

These two reactants react with each other where the genome is the synthesizer of genomic-things whereas the nutritive substances serve as raw materials or building blocks. This is why a genomic-thing is defined as follows. A genomic-thing is the product of reaction of:

►its **genome**, and

►its **nutritive substances**, in its **compatible environment**.

Each species of genomic-things in order to exist and not to become extinct, needs to have or maintain the following three things:

►its **genome**,

►its **nutritive sustances**, and

►its **compatible environment** to react in. Otherwise; the genomic-thing in question, will be vulnerable to extinction. This is the reason for why the science of **Environmental Protection** is of crucial or critical importance. We have to have a rich environment with food chains & food webs where eating and being eaten can take place wisely and safely, managing it sustainable.

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Genomic reaction is also known as **metabolism** that is subdivided into **catabolism** (breaking down) and **anabolism** (building up). The energy required for metabolism is derived (harvested) from the nutritive substances (food) eaten and made available in the form of ATP for anabolism of the genomic-thing & physical work of daily activity. For example, from the aerobic catabolism of 1 mole of glucose about 38 ATP can be obtained by way of Glycolysis, Transition Reaction, Kreb's Cycle, and Oxidative Phosphorylation. With the exception in genomic viruses & prokaryotes, about 90% of ATP formation takes place in the organelle called mitochondrion and due to this functional role the mitochondrion is nicknamed as the **power house** of cell.

The genomic reaction which is capable of utilizing sunlight energy in the presence of chlorophyll to synthesize glucose from the reactants CO_2 & H_2O is photosynthesis in plants. In other words, the only type of genomic reaction which converts sunlight energy into chemical energy is photosynthesis in plants.

In the reaction of genome & its nutritive substances, genome synthesizes the genomic-thing using:

►**functional proteins** such as enzymes translated from its transcripts, and

►its **transcripts** of noncoding RNAs (ncRNAs), transfer RNAs (tRNAs), etc [Figure 13, videos 7 & 8].

Example 1, genomic reaction: $6CO_2 + 6H_2O \xrightarrow[\text{chlorophyll}]{\text{Sunlight Energy}} C_6H_{12}O_6 + 6O_2$ (**Photosynthesis**).

For the photosynthetic genomic-thing & its genome, the **nutritive substances** in this genomic reaction are carbondioxide, water, and sunlight energy (note that **energy** is equivalent to **mass of matter** or to mass of nutritive substance in this case; sun light is converted into **chemical energy** and stored in the bonds of glucose synthesized). For nonphotosynthetic genomic-things the chemical energy is found in food (nutrient) they eat.

Example 2, genomic reaction:

$C_6H_{12}O_6$ (glucose) + $6O_2 \longrightarrow 6CO_2 + 6H_2O$ + Energy released as ATP (**Cellular Respiration**).

Number of ATP produced per mole of glucose in aerobic Cellular Respiration:

In **Glycolysis**

2 net ATP from substrate-level phosphorylation
2 NADH yields 6 ATP (assuming 3 ATP per NADH) by oxidative phosphorylation

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In **Transition Reaction** (formation of acetyl coenzyme A [acetyl-CoA] also called pyruvate oxidation)

2 NADH yields 6 ATP (assuming 3 ATP per NADH) by oxidative phosphorylation

In **Citric Acid Cycle**

2 ATP from substrate-level phosphorylation
6 NADH yields 18 ATP (assuming 3 ATP per NADH) by oxidative phosphorylation
2 $FADH_2$ yields 4 ATP (assuming 2 ATP per $FADH_2$) by **oxidative phosphorylation**

Total Theoretical Maximum Number of ATP Generated per Glucose in Prokaryotes is

38 ATP: **4** from substrate-level phosphorylation; **34** from oxidative phosphorylation.

In eukaryotic cells, the theoretical maximum yield of ATP generated per glucose is **36** to **38**, depending on how the 2 NADH generated in the cytoplasm during glycolysis enter the mitochondria and whether the resulting yield is 2 or 3 ATP per NADH [10].

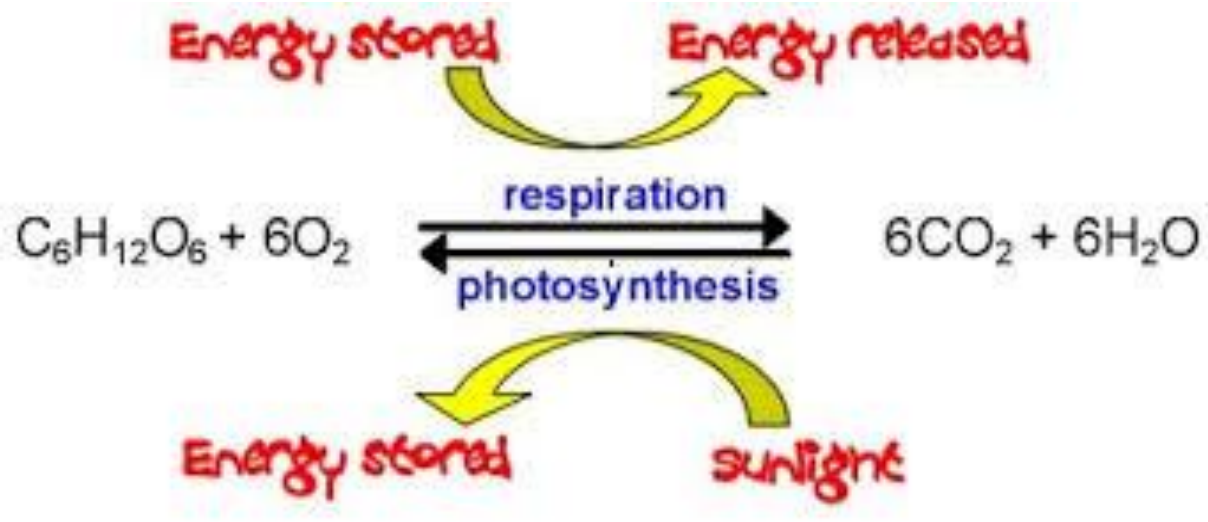

Figure 1: Summary of photosynthesis in plants & cellular aerobic respiration of the genomic reaction.

Example 3, genomic reaction**:**

1 genome of a virus + internal contents of its host cell ⟶ millions of genomic viruses!!!!

Example 4, genomic reaction:

1 microscopic Zygote cell of cattle ⟶ is observed to grow & be fat up to 500 Kg!!!!

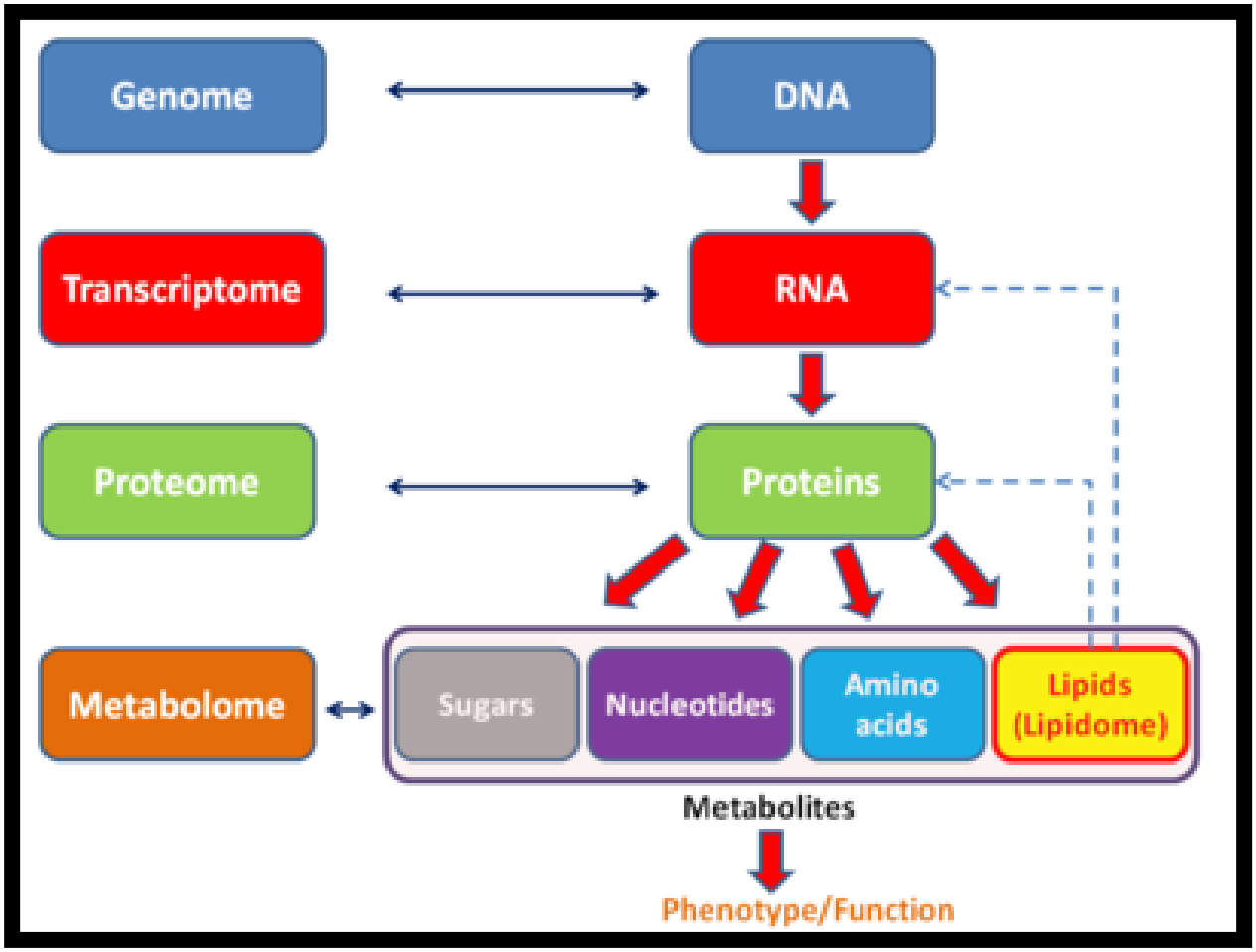

Figure 2: General schema showing the relationships of the **genome,** transcriptome, **proteome**, and **metabolome** (**lipidome**), involved in **Genomic Reactions**.

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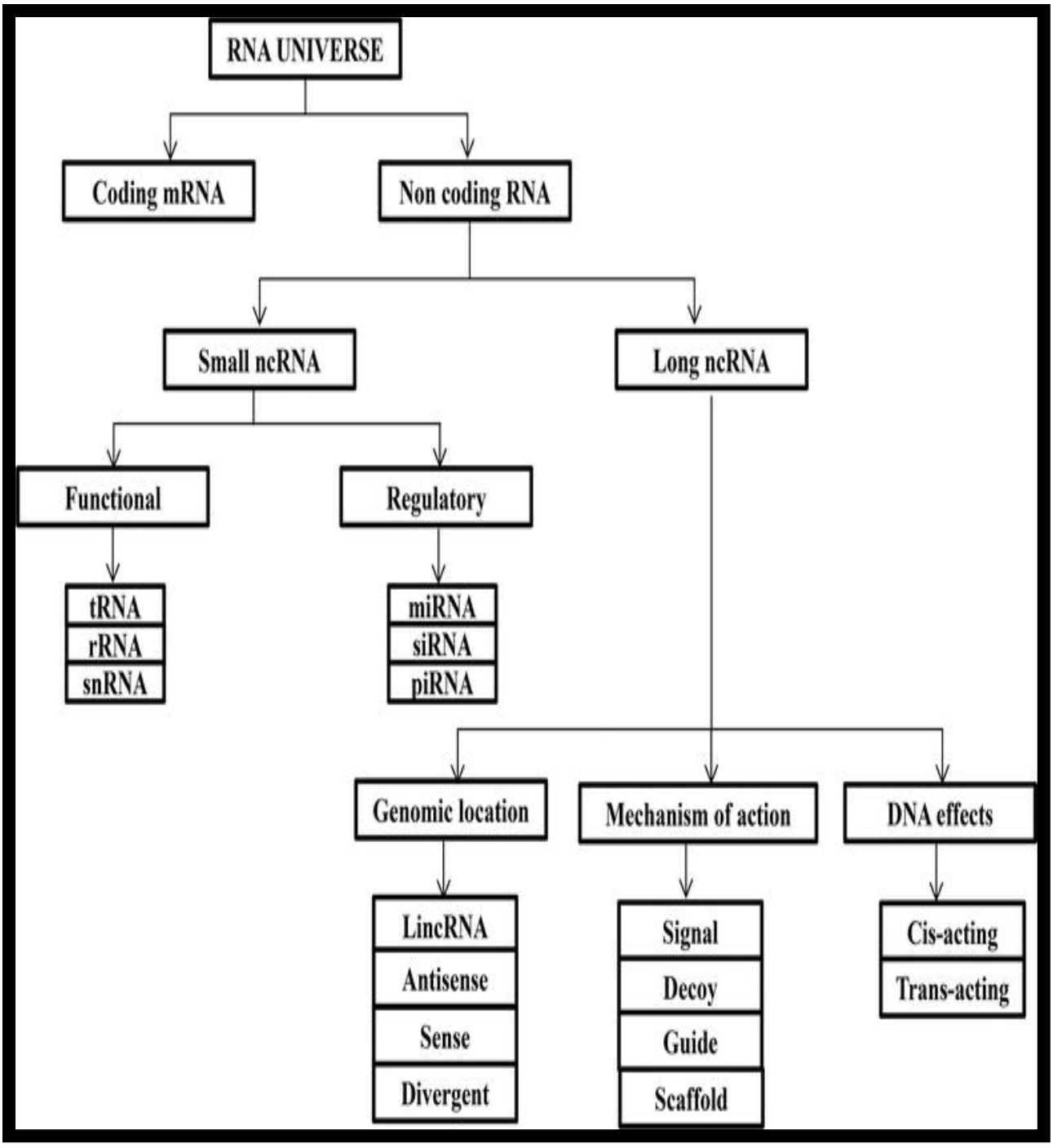
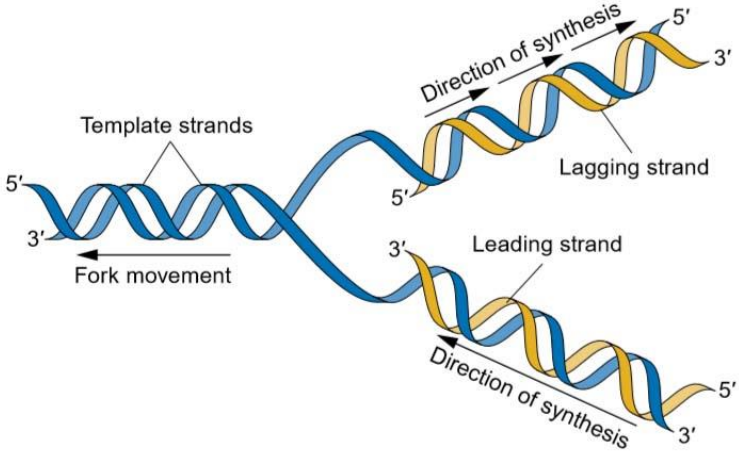
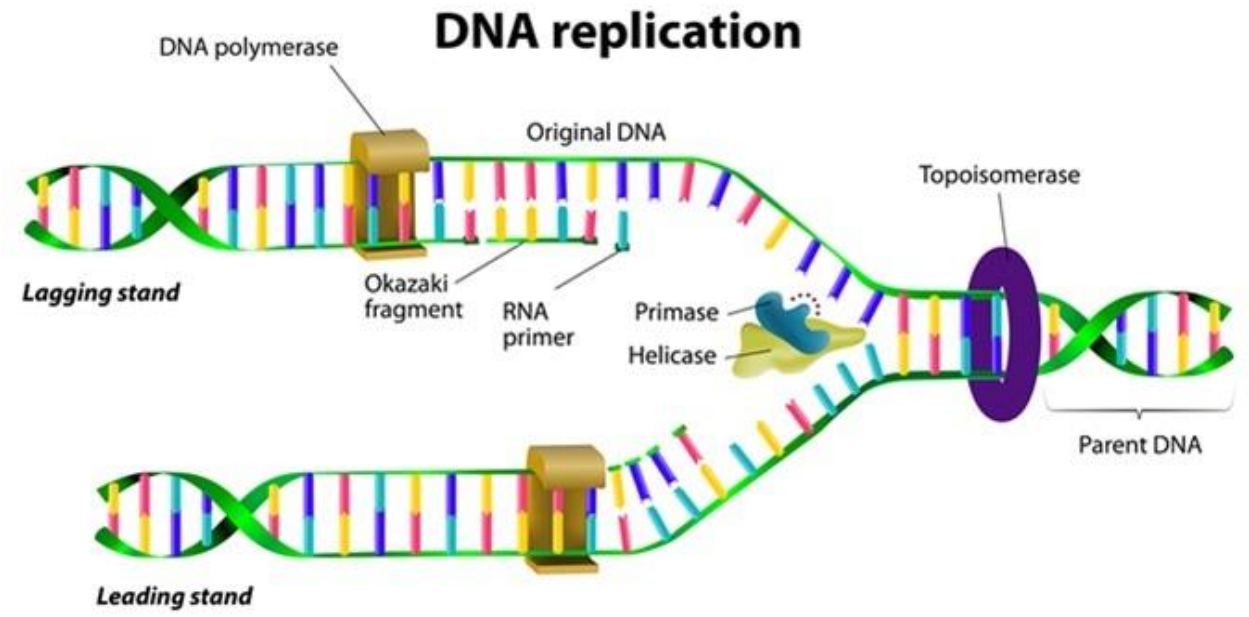

RNA UNIVERSE
Coding mRNA
Non coding RNA
Small ncRNA
Long ncRNA
Functional
Regulatory
tRNA
rRNA
snRNA
miRNA
siRNA
piRNA
Genomic location
Mechanism of action
DNA effects
LincRNA
Antisense
Sense
Divergent
Signal
Decoy
Guide
Scaffold
Cis-acting
Trans-acting

Figure 3: Classification of transcripts (transcriptome), especially non-coding RNA (ncRNA) involved in **Genomic Reaction** [11].



(A)



(B)

Figure 4: DNA synthesis (replication) **(A)** & **(B).**

Starts for DNA synthesis = Origins. DNA polymerase recognizes (binds to) start signals called origins (Ori's) for replication.
Starts for RNA synthesis = Promoters. RNA polymerase recognizes (binds to) start signals called promoters (P's) for transcription.

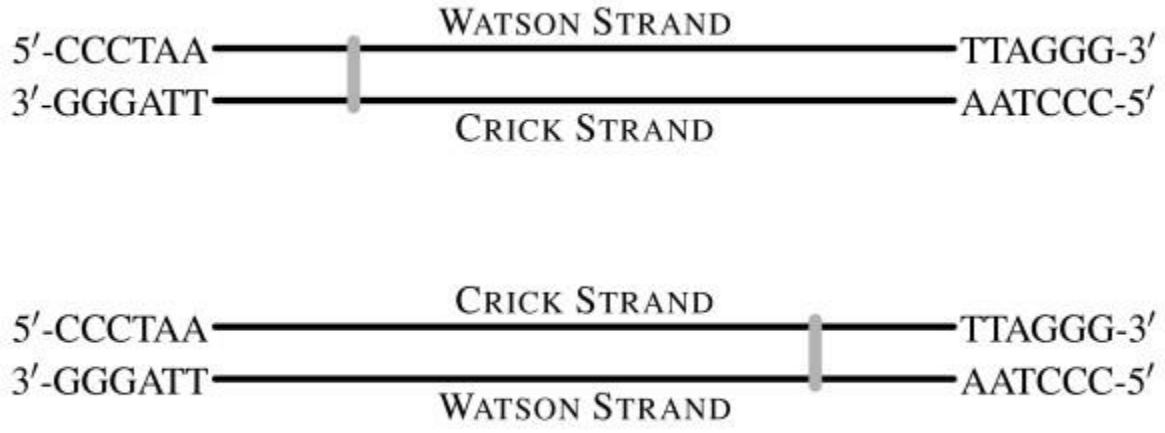


Figure 5: Crick strand and Watson strand in DNA molecules.

Definition	**Watson strand**	**Crick strand**
Transcriptional	antisense	sense
Replicational	lagging strand	leading strand

Watson strand is the strand where its 5'-end is at the short-arm telomere side and its 3'-end is at the long-arm telomere side. The Crick strand is the strand where its 5'-end is at the long-arm telomere side and its 3'-end is at the short-arm telomere side.
The beginning of each long or short-arm side of telomere is the **centromere** where the sister chromatids (sister DNA molecules) are linked (attached or tied) to each other. Sister chromatids with the **centromere** is seen during cell division.

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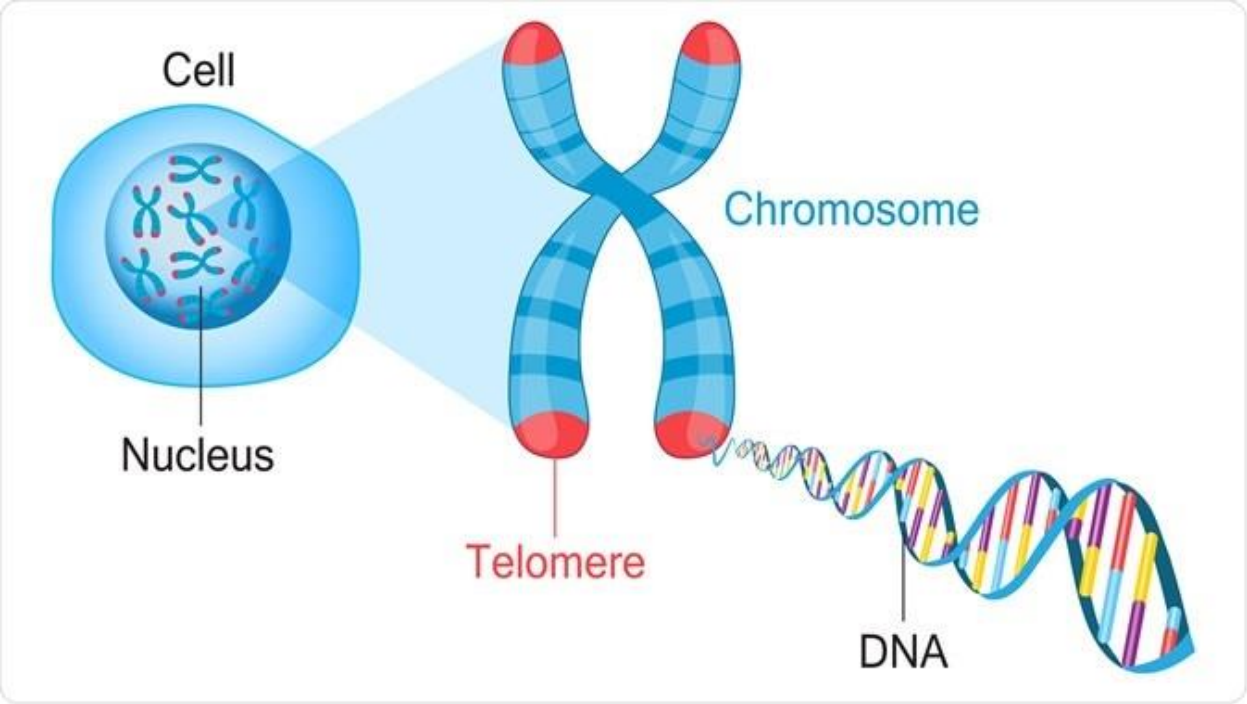

Figure 6: Location of telomeres in sister chromatids (sister DNA molecules).

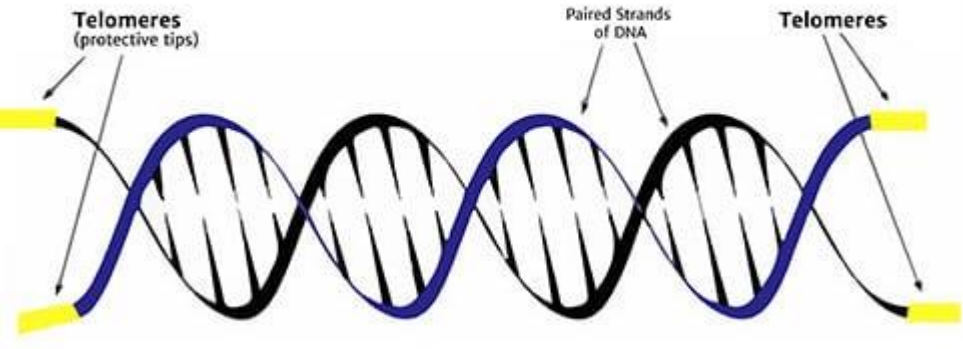

Figure 7: Location of telomeres in the strands of a DNA molecule.

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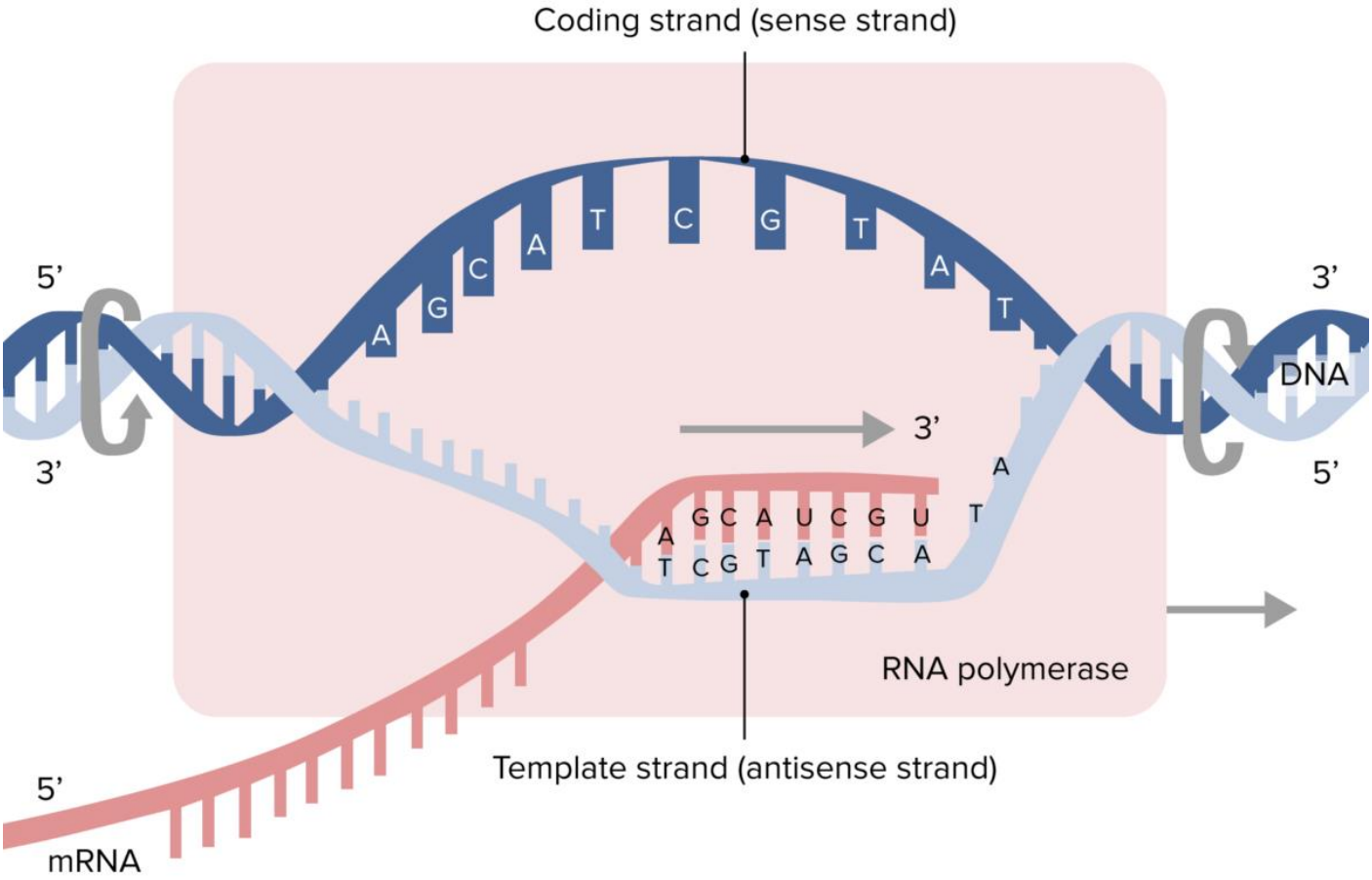

RNA polymerase reads the template strand of the DNA (light blue)

Figure 8: Transcription of mRNA.

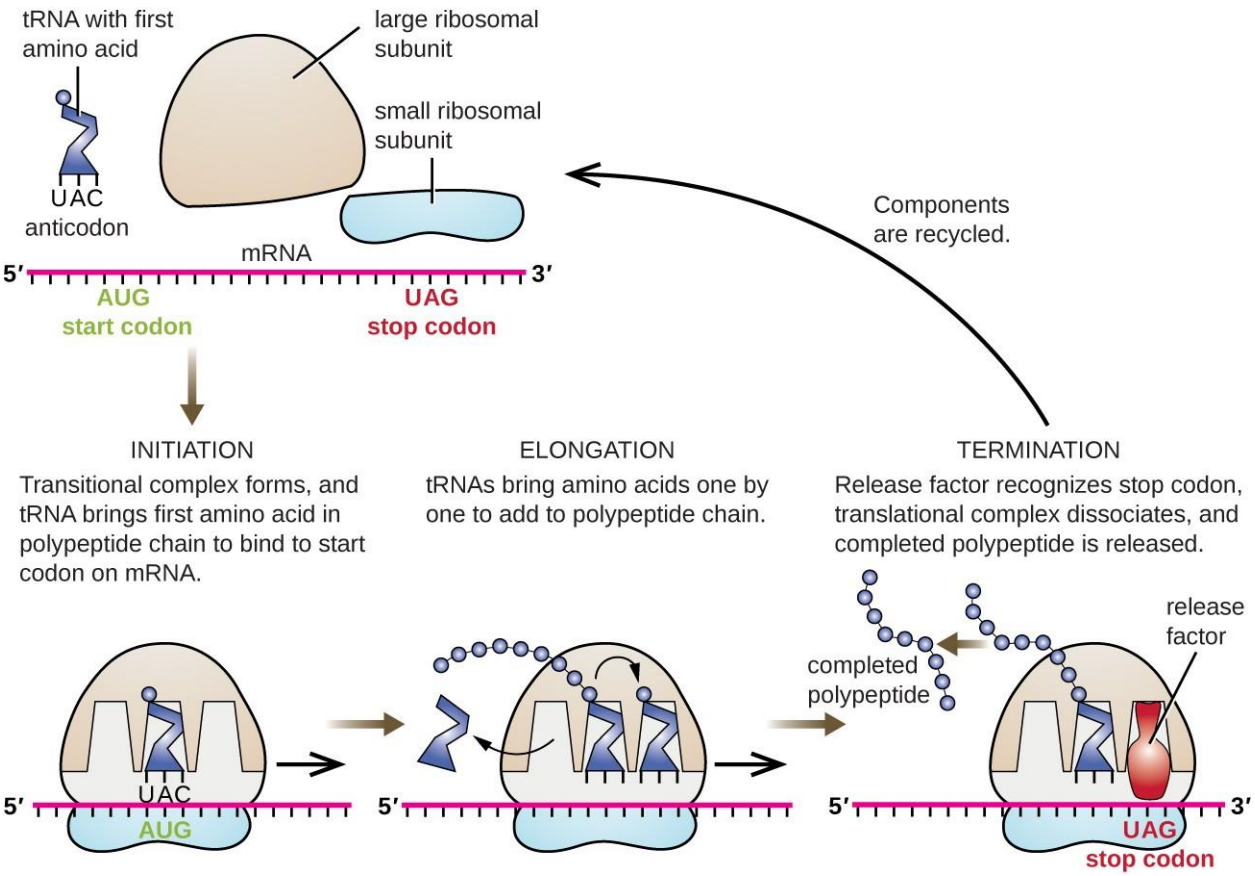

Figure 9: Translation of mRNA into protein (polypeptide).

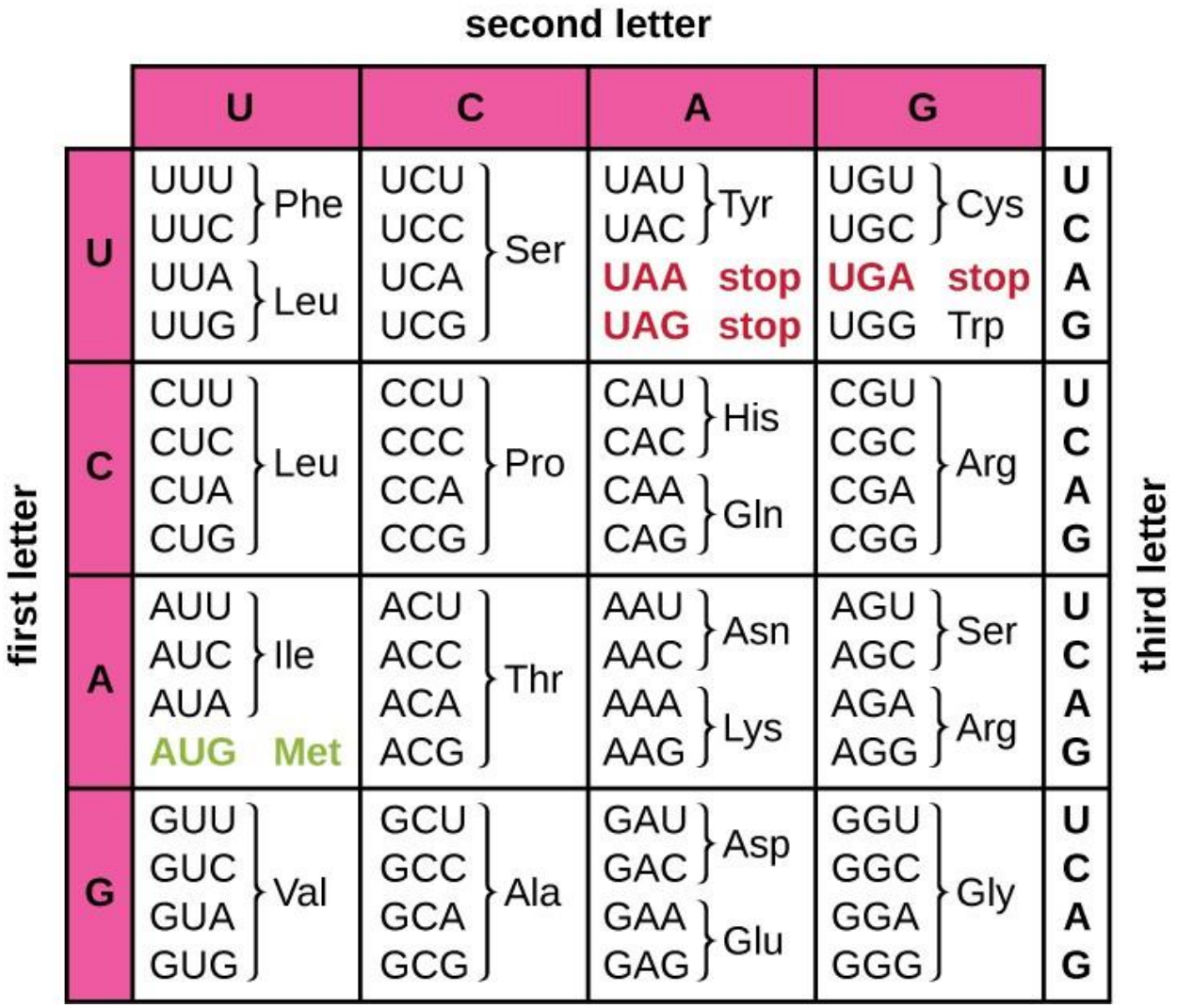

Figure 10: A codon chart or table showing the amino acid specified by each mRNA codon.

Multiple codons can code for the same amino acid. The codons are written 5' to 3' as they appear in the mRNA. AUG is an initiation codon; UAA, UAG, and UGA are termination (stop) codons. In other words, the codon AUG is the start signal for translation which places the amino acid, methionine (Met) at the beginning of each protein.

How to read the codon chart

For reading the codon chart (table), it can be labelled as:

►First letter in codon,
First base in codon, or
First nucleotide in codon (**on Left Hand Side of the Chart**),

►Second letter in codon,
Second base in codon, or
Second nucleotide in codon (**on Top of the Chart**), and
►Third letter in codon,
Third base in codon, or
Third nucleotide in codon (**on Right Hand Side of the Chart**).

Reading frame of mRNA codons

To reliably get from a mRNA to a protein, we need one more concept: that of **reading frame**. Reading frame determines how the mRNA sequence is divided up into codons during translation. That's a pretty abstract concept, so let's look at an example to understand it better. The mRNA below can encode three totally different proteins, depending on the frame in which it's read:

mRNA sequence: 5'-UCAUGAUCUCGUAAGA-3'

Read in Frame 1:

5'-UCA UGA UCU CGU AAG A-3'

Ser-STOP-Ser-Arg-Lys

Read in Frame 2:

5'-U CAU GAU CUC GUA AGA-3'

His-Asp-Leu-Val-Arg

Read in Frame 3:

5'-UC AUG AUC UCG UAA GA-3'

Met(Start)-Ile-Ser-STOP

The start codon's position ensures that Frame 3 is chosen for translation of the mRNA.

So, how does a cell know which of these protein to make? The start codon is the key signal.

Because translation begins at the start codon and continues in successive groups of three, the

position of the start codon ensures that the mRNA is read in the correct frame (in the example above, in Frame 3). Mutations (changes in DNA) that insert or delete one or two nucleotides can change the reading frame, causing an incorrect protein to be produced [12].

Termination: Translation ends when the ribosome reaches a STOP codon (UAA, UAG or UGA). There are no tRNA molecules with anticodons complementary to stop codons, instead protein release factors (RF) recognize these codons when they arrive at the A site. Binding of a release factor causes the polypeptide (protein) to be released from the ribosome. The ribosome subunits dissociate (split) from each other and can be reassembled later for another round of protein synthesis.

The terms "sense" and "antisense" are relative only to the particular RNA transcript in question, and not to the DNA strand as a whole. In other words, either DNA strand can serve as the sense or antisense strand. Most organisms with sufficiently large genomes make use of both strands, with each strand functioning as the template strand for different RNA transcripts in different places along the same DNA molecule. In some cases, RNA transcripts can be transcribed in both directions (i.e. on either strand) from a common promoter region, or be transcribed from within introns on either strand (see "ambisense" below). The RNA transcript itself (mRNA) is sometimes described as "sense".

Starts for DNA synthesis = Origins. DNA pol. recognizes (binds to) start signals called origins (Ori's) for replication.
Starts for RNA synthesis = Promoters. RNA pol. recognizes (binds to) start signals called promoters (P's) for transcription.

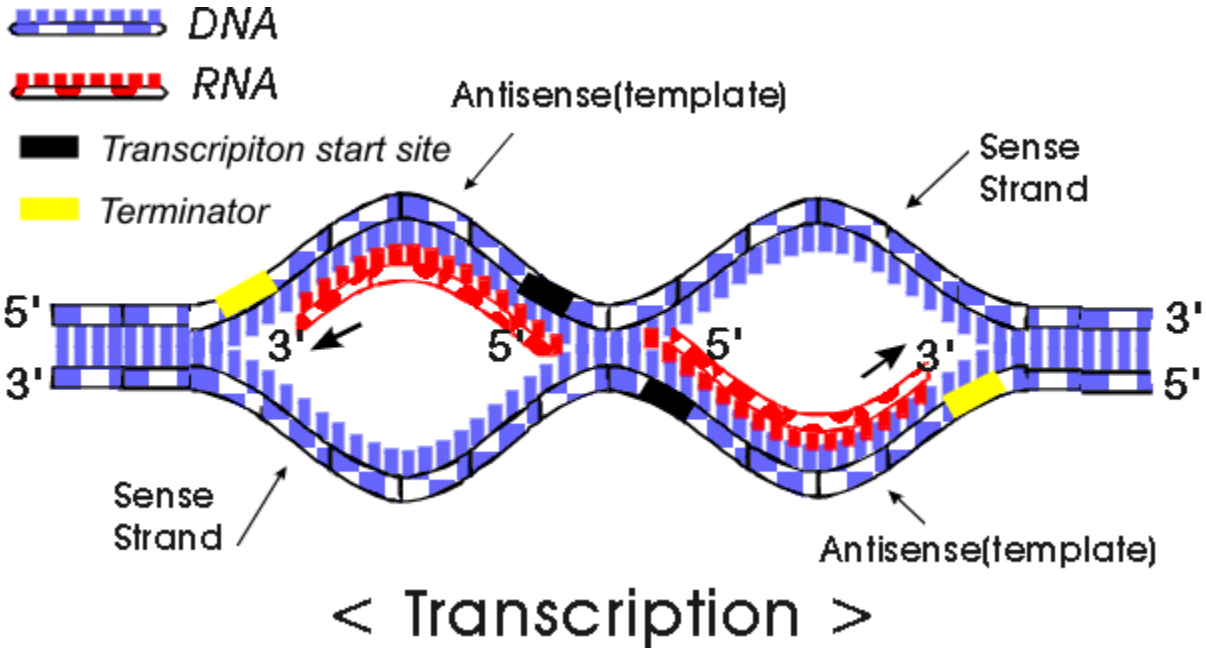

Figure 11: The RNA synthesized (transcribed) is complementary and antiparallel to the template strand of DNA [13].

One Strand is Template for RNA polymerase. For any one gene or region, RNA polymerase uses Crick or Watson, but not both, as template. RNA that is made is complementary (and antiparallel) to the template strand. Note that an entire strand is not used as template throughout. The "Watson" strand of DNA is used as template in some sections and the "Crick" strand in others.

Continuous vs. discontinuous synthesis.

DNA synthesis: Replication fork moves down DNA making complements to **both** strands; one new strand is made continuously and one discontinuously. Ligase is needed for synthesis of lagging strand.

RNA synthesis: RNA polymerase moves down DNA making complement to one strand **or** the other (in any particular region). Therefore RNA synthesis is continuous and doesn't need ligase.

a. Transcribed Strand. Strand used as template is called the transcribed or template strand or the antisense strand (in that region). This strand is **complementary to** the RNA that is made.

b. Sense Strand. Strand that is **not** transcribed (in that region) is called the sense strand or coding strand. The base sequence of this strand is **identical to** the RNA that is made (except that the RNA has U and the sense strand has T).

c. An entire DNA strand (going the length of a whole molecule) is not all "sense" or "antisense." "Watson" may be sense in one section and "Crick" may be sense in the other (as in Figure 11). The terms "sense" and "transcribed" strand are defined for each section of the DNA that is transcribed as a unit (usually a gene or small number of genes).

d. Sense RNA. The usual RNA transcribed from the DNA is said to be "sense." (Sense RNA, i.e., mRNA matches the sense strand of the DNA.) The complementary RNA to mRNA, if it exists, is said to be "antisense."

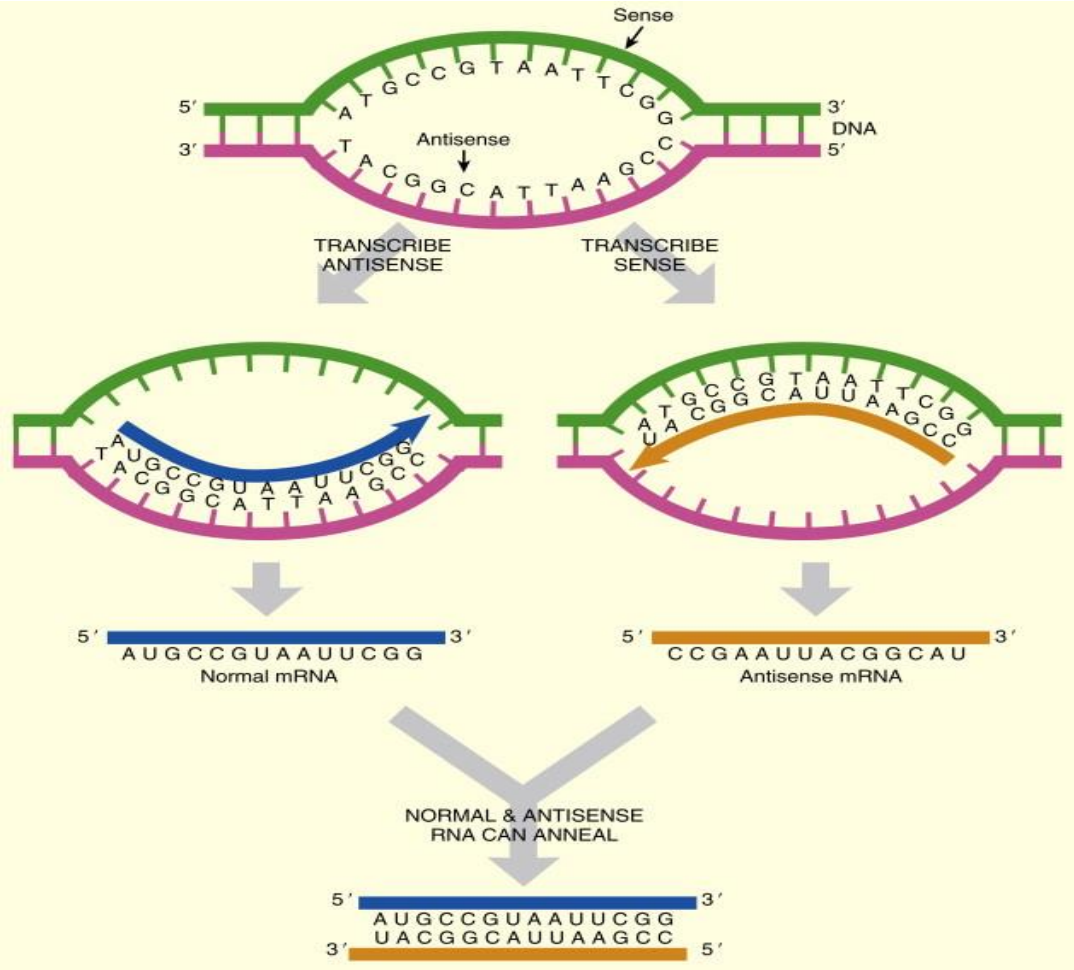

Figure 12: Synthesis of sense & antisense RNAs (to form a duplex) from the same region or segment of a double stranded DNA molecule [14].

Antisense RNA is made in normal cells of many different organisms, including humans. Artificial antisense RNA is also made for manipulating gene expression in laboratory settings. When a cell has both the mRNA (i.e., the sense strand of RNA) plus a complementary antisense copy of that mRNA, the two single strands anneal to form double-stranded RNA. The duplex can

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either inhibit protein translation by blocking the ribosome binding site, or inhibit mRNA splicing by blocking a splice site.

Ambisense: A single-stranded genome that is used in both positive-sense and negative-sense capacities is said to be **ambisense**. Some viruses have ambisense genomes. Bunyaviruses have three single-stranded RNA (ssRNA) fragments, some of them containing both positive-sense and negative-sense sections; arenaviruses are also ssRNA viruses with an ambisense genome, as they have three fragments that are mainly negative-sense except for part of the 5′ ends of the large and small segments of their genome.

Antisense RNA: In *Antisense RNA,* an RNA sequence that is complementary to an endogenous mRNA transcript is sometimes called "antisense RNA". In other words, it is a non-coding strand complementary to the coding sequence of RNA; this is similar to negative-sense viral RNA. When mRNA forms a duplex with a complementary antisense RNA sequence, translation is blocked. This process is related to RNA interference. Cells can produce antisense RNA molecules naturally, called microRNAs, which interact with complementary mRNA molecules and inhibit their expression. The concept has also been exploited as a molecular biology technique, by artificially introducing a transgene coding for antisense RNA in order to block the expression of a gene of interest. Radioactively or fluorescently labelled antisense RNA can be used to show the level of transcription of genes in various cell types. Some alternative antisense structural types have been experimentally applied as antisense therapy. In the United States, the Food and Drug Administration (FDA) has approved the phosphorothioate antisense oligonucleotides fomivirsen (Vitravene and

mipomersen (Kynamro) for human therapeutic use.

RNA sense in viruses: In virology, the term "sense" has a slightly different meaning. The genome of an RNA virus can be said to be either **positive-sense**, also known as a "plus-strand", or **negative-sense**, also known as a "minus-strand". In most cases, the terms "sense" and "strand" are used interchangeably, making terms such as "positive-strand" equivalent to "positive-sense", and "plus-strand" equivalent to "plus-sense". Whether a viral genome is positive-sense or negative-sense can be used as a basis for classifying viruses.

Positive-sense: In *Positive-sense single-stranded RNA virus,* positive-sense (5′-to-3′) viral RNA signifies that a particular viral RNA sequence may be

directly translated into viral proteins (e.g., those needed for viral replication). Therefore, in positive-sense RNA viruses, the viral RNA genome can be considered viral mRNA, and can be immediately translated by the host cell [15]. Unlike negative-sense RNA, positive-sense RNA is of the same sense as mRNA. Some viruses (e.g. Coronaviridae) have positive-sense genomes that can act as mRNA and be used directly to synthesize proteins without the help of a complementary RNA intermediate. Because of this, these viruses do not need to have an RNA

polymerase packaged into the virion—the RNA polymerase will be one of the first proteins produced by the host cell, since it is needed in order for the virus's genome to be replicated.

Negative-sense: In *Negative-sense single-stranded RNA virus*, negative-sense (3′-to-5′) viral RNA is complementary to the viral mRNA, thus a positive-sense RNA must be produced by an RNA-dependent RNA polymerase from it prior to translation. Like DNA, negative-sense RNA has a nucleotide sequence complementary to the mRNA that it encodes; also like DNA, this RNA cannot be translated into protein directly. Instead, it must first be transcribed into a positive-sense RNA that acts as a mRNA. Some viruses (e.g. influenza viruses) have negative-sense genomes and so must carry an RNA polymerase inside the virion [16].

Connect your computer to Internet. **Steps of opening the video:** Select, copy and paste the title of the video (only the blue colored) on Google search space on your computer desktop screen and then press Enter Key of your computer keyboard. Click Video. Now, click the slide with the correct Title of video you pasted because when the video is copied & pasted, several other unwanted videos will appear together. When video **1** ends playing, repeat the same steps for playing of video 2 etc.

Video 1: Photosynthesis Steps and Pathways

Video 2: ATP In Cellular Respiration per Glucose 32, 36 or 38 Explained

Vide 3: genomics and proteomics, transcriptomics and metabolomics

Video 4: Difference between Sense Strand and Antisense Strand of DNA

Video 5: Protein Synthesis (Updated)

Vibeo 6: Protein Synthesis

Video 7: ncRNAs - all types of non-coding RNA (lncRNA, tRNA, rRNA, snRNA, snoRNA, siRNA, miRNA, piRNA)

Video 8: Structure, Function and Types of RNA (mRNA, tRNA, rRNA,lncRNA, miRNA, siRNA, snoRNA, snRNA, piRNA)

Chemical Reactions

Chemical reaction is a process that involves the breaking or making of interatomic bonds in nongenomic-things and the transformation of a substance (or substances) into another. Chemical reaction normally occurs outside the nucleus of the atom. Chemical reaction is a type of reaction where two molecules interact or the atoms of an element reorganize themselves to form a whole new product. When chemical reactions occur elements hold their identity and the nuclei of atoms also remain unchanged. Chemical reaction is an extra-nuclear type of reaction.

Example, chemical reaction: $CH_4 + 2O_2 \longrightarrow CO_2 + 2H_2O$ (mass of reactants and that of products are balanced & the identity of elements of the reactants are retained in the products).

Nuclear Reactions

In nuclear reactions, the nuclei of atoms change completely and new elements are formed. The main difference between chemical reaction and nuclear reaction is based on how or where the reaction takes place in the atom. A nuclear reaction can be termed as either **fission** or **fusion,** because a radioactive decay is the change of a less stable atomic nucleus to a more stable nucleus by itself where no outside particle is needed to react. A typical nuclear reaction involves two reacting particles – a **heavy target nucleus** and a **light bombarding (smashing or slamming) particle** – produces two new particles, - a **heavier product nucleus** and a **lighter ejected particle**. In a nuclear reaction, mass is not strictly conserved. Some of the mass is converted into energy. Nuclear equations represent the reactants and products in radioactive decay, nuclear fission, or nuclear fusion. Instead of chemical equations where the different number of elements is conserved in a reaction, in nuclear reaction the atomic mass and proton number are conserved.

Nuclear fusion: is the joining of two small atomic nuclei into one nucleus.

Nuclear fission: is the splitting of one large atomic nucleus into smaller fragments.

Radioactive decay: is the change of less stable atomic nucleus to a more stable nucleus.

In chemical reactions, atoms become more stable by participating in a transfer of electrons or by sharing electrons with other atoms. In nuclear reactions, it is the nucleus of the atom that gains stability by undergoing a change of some kind. Some elements have no stable isotopes, which means that any atom of that element is radioactive. For other elements, only certain isotopes are radioactive. In nuclear fission a heavy atomic nucleus splits into smaller nuclei of intermediate mass. Because the smaller atomic nuclei appearing more stable, the fission process releases tremendous amounts of energy. In nuclear fusion, light mass atomic nuclei combine to form a heavier and more stable nucleus. Nuclear fusion produces even more energy than fission [17-19].

Table 1: Differences between chemical reactions and nuclear reactions.

Ser.No	Chemical Reaction	Nuclear Reaction
1	Atoms retain their identity of elements.	Atoms usually change their identity- from one element to another.
2	Reactions involve only electrons and usually only outermost electrons.	Reactions involve mainly protons and neutrons. It does not matter what the valence electrons do.
3	Reaction rates can be influenced by temperature, pressure or catalyst.	Reaction rates are unaffected by such factors.
4	The energy absorbed or given off in reactions is comparatively small.	Reactions sometimes involve enormous changes in energy.
5	Mass is conserved. The mass of products equals the mass of starting materials.	Huge changes in energy are accompanied by measureable changes in mass ($E = mc^2$).
6	Chemical reactions can either be reversible or irreversible.	Nuclear reactions are mostly irreversible.

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Example, nuclear reaction:

●(H) + ●(He) ⟶ ● + Energy

Mass of starting elements

mass of products + Energy

Energy is equivalent to mass. The loss of mass in products is equivalent to the gain of energy gained in the product side. This is what **Einstein's Equation** means as follows: $\mathbf{E = mc^2}$, where **E** represents energy, **m** represents units of mass and $\mathbf{c^2}$ represents speed of light squared.

Hence, the mass of **reactants** on the left hand side of the equation and that of the **products** on the right hand side are balanced.

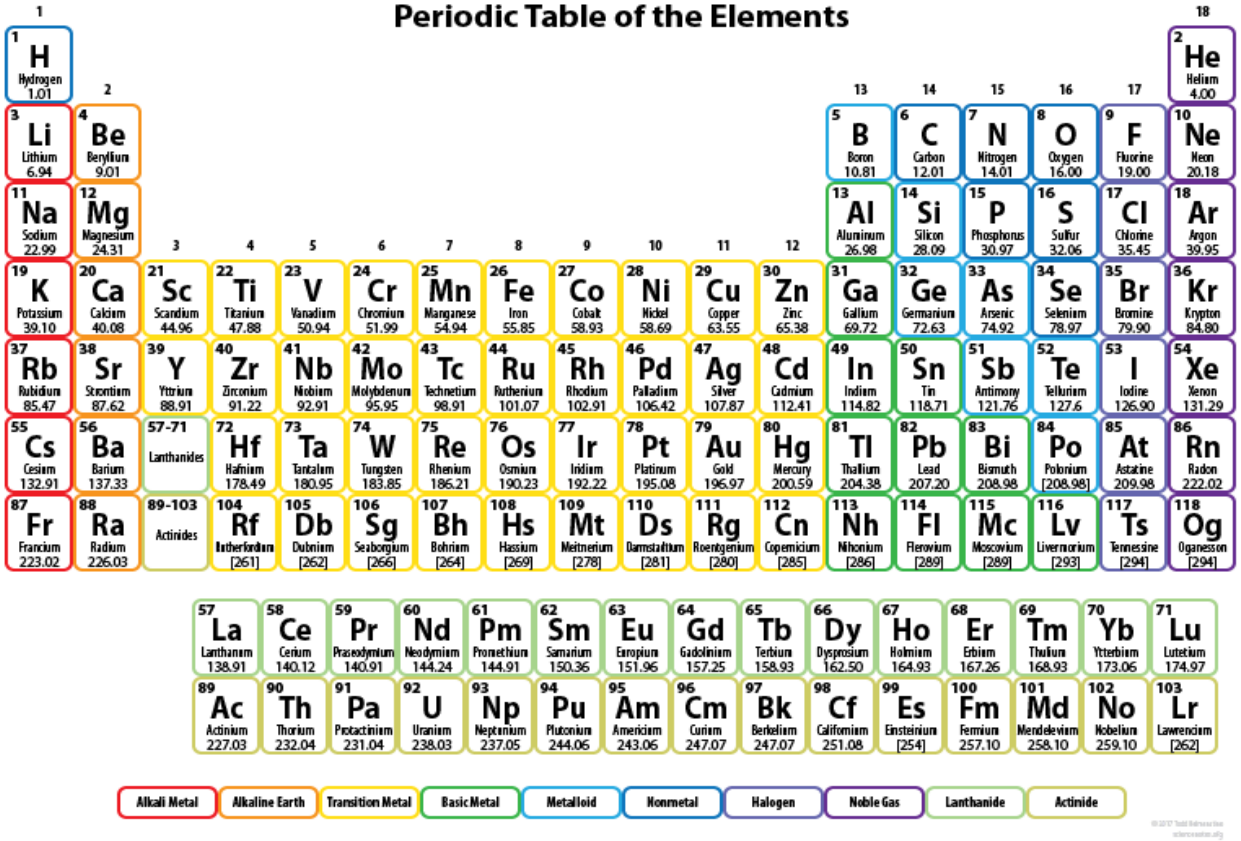

Figure 14: Periodic Table of 118 elements.

Periodic table radioactivity:

Blue – Elements**:** that contain at least one stable isotope.

Green – Radioactive elements**:** the most stable isotope is very long-lived, with s half-life of over four million years.

Yellow – Radioactive elements**:** the most stable isotope has a half-life between 800 and 34.000 years.

Orange – Radioactive elements**:** the most stable isotope has a half-life between one day and 103 years.

Red – Highly radioactive elements**:** the most stable isotope has a half-life between several minutes and one day.

Purple – Extremely radioactive elements**:** the most stable isotope has a half-life less than several minutes. Very little is known about these elements due to their extreme instability and radioactivity.

Half life

Half life is the time that it takes for half of the original value of some amount of a radioactive element to decay. Half life in radioactivity is the interval of time required for one-half of the atomic nuclei of a radioactive sample to decay (change spontaneously into other nuclear species by emitting particles and energy).

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Video 1: Nuclear Half Life Calculations

Video 2: Half Life Chemistry Problems - Nuclear Radioactive Decay Calculations Practice Examples

Video 3: Half life Radioactivity Physics FuseSchool

Figure 15: Videos of half lives of elements.

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Mass Number Versus Atomic Number and Atomic Mass

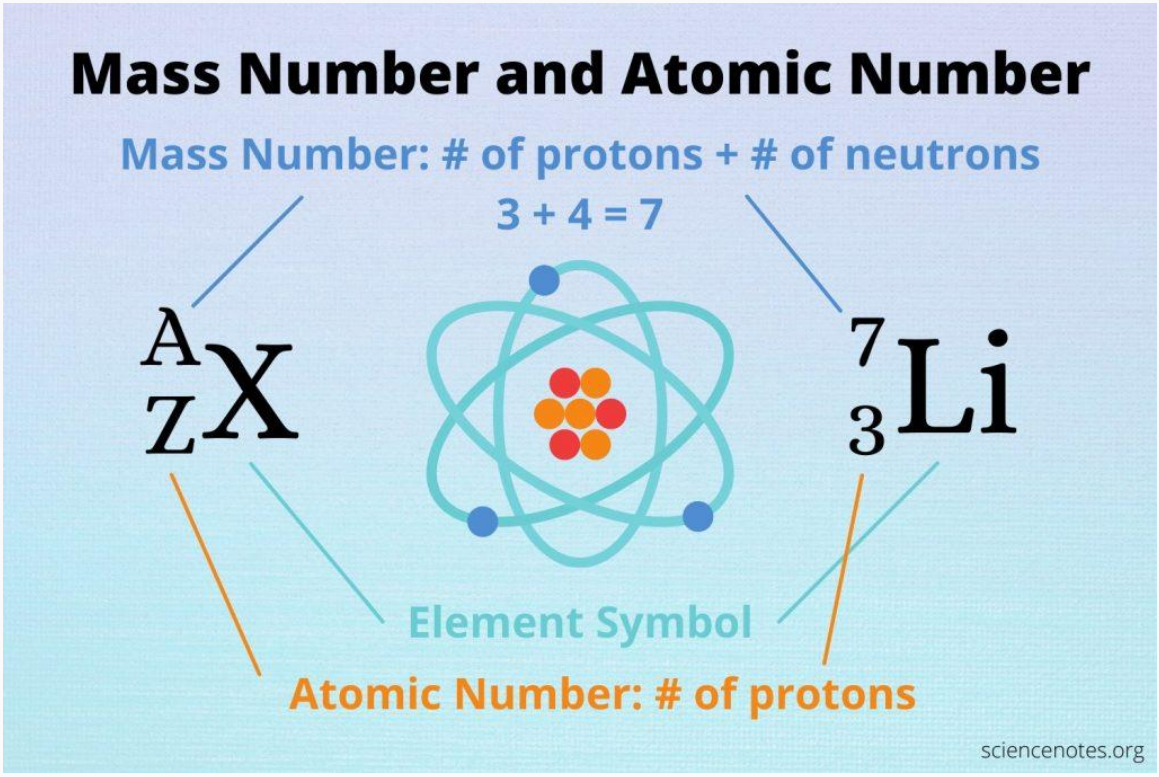

Figure 16: Anatomy of a Lithium (Li) atom [20].

Atomic number is the number of protons (Z) in an atom, while mass number is the number of protons and neutrons (A) in an atom.

Mass number, atomic mass, and atomic number are three related concepts in chemistry.

- **Atomic number** is the number of protons in an atom of an element. It is a whole number or the symbol Z in general notation. It isn't always listed because you can figure out the number of protons if you know the element symbol.
- **Mass number** is the sum of the number of protons and neutrons in an atom. In other words, it is the number of nucleons in an atom. Mass number is also a whole number, with the symbol A in general notation. It is given on the upper right or upper left side of an element symbol.

- **Atomic mass** (atomic weight) is the *average* number of protons and neutrons in a sample of an element. It is a number calculated based on the natural abundance of isotopes of an element, so it doesn't have to be a whole number. For example, the atomic mass of helium is 4.003 rather than 4.

Atomic Mass and Mass Number

Both atomic mass and mass number reflect the number of protons and neutrons in a sample. The difference is that atomic mass on the periodic table is the average mass of all the isotopes of a naturally-occurring sample of an element. In contrast, the mass number is the number of protons and neutrons of a single atom of an element. For example, the mass number of $^{7}_{3}$Li is 7, while the atomic mass of lithium is 6.941. What this tells you is some atoms of natural lithium have a mass number lower than 7.

Atomic Number and Mass Number Examples

Atomic number is an element's identity. The periodic table of elements lists elements according to increasing atomic number, with hydrogen having an atomic number of 1, helium with an atomic number of 2, and so on until you reach oganesson, with atomic number 118. If you look up an element on the table, the atomic number is the whole number given on an element tile.

Sometimes you'll see atomic number in isotope notation, but other times you'll only see the mass number. For example, in $^{4}_{2}$H is the mass number is 4 and the atomic number is 2. The mass number is 4 in ^{4}He. Another way to write mass number is following the element symbol. For example, He-4 and He-3 designate two isotopes of helium. The first has a mass number of 4, while the second has a mass number of 3.

Atomic number does not change for any element isotope. Only mass number changes, because the number of neutrons determines the isotope.

There is one instance where atomic number, atomic mass, and mass number are the same. This is for a pure sample of the isotope of hydrogen called protium, which has one proton and no neutron. All of the numbers are "1."

Find the Number of Protons and Neutrons

You can use the mass number and either the atomic number or element symbol to

determine the number of protons and neutrons in an atom.

For example: Find the number of protons and neutrons in $^{14}_{6}$C (also written as carbon-14).

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The larger number is the sum of the protons and neutrons. The number of protons or atomic number is 6, which you get either from the notation or by looking up the atomic number of carbon on a periodic table. To get the number of neutrons, subtract the number of protons from the mass number:

Number of Neutrons = Mass Number – Atomic Number
Number of Neutrons = 14 – 6
Number of Neutrons = 8

The number of protons is the atomic number, 6.

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Video1: Conservation of Mass in Chemical Reactions

Video 2: What Is an Atom and How Do We Know

Video 3: What is the difference between an Atom, Element, Molecule and Compound

Video 4: Difference between an Atom, a Molecule and a Compound

Video 5: Pure Substances Elements & Compounds

Video 6: The law of conservation of mass - Todd Ramsey

Video 7: Chemical Reactions vs Nuclear Reactions

Video 8: Nuclear and Chemical Reaction a Comparison - Nuclear Energy

Video 9: Introduction to Electrochemistry

Video 10: Nuclear Transmutation Part 1

Video 11: Nuclear Transmutation Part 2

Figure 17: Videos of Law of Conservation of Matter, chemical reaction, and nuclear reaction.

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Video 1: Hiroshima Dropping The Bomb - Hiroshima - BBC

Video 2: HOW FAT MAN WORKS Nuclear Bomb ON Nagasaki WORLD'S BIGGEST NUCLEAR BOMB

Video 3: Nuclear Explosion Power Comparison

Video 4: Russia releases secret footage of 1961 Tsar Bomba hydrogen blast

Video 5: Russia Releases Declassified Video Of Largest-Ever Hydrogen Bomb Blast Tsar Bomba

Video 6: Amid NATO Tension, Russia To Get Superheavy, Sarmat Missile That Can Carry Hypersonic Glide Vehicles

Video 7: Rare Nuclear Bomb Footage Reveals Their True Power WIRED

Video 8: What is a hypersonic missile 2-minute tech

Nuclear Transmutation

Nuclear Transmutation is the transformation of one element into another by a nuclear reaction.

A subatomic particle is any one of the many units of matter smaller than an atom.

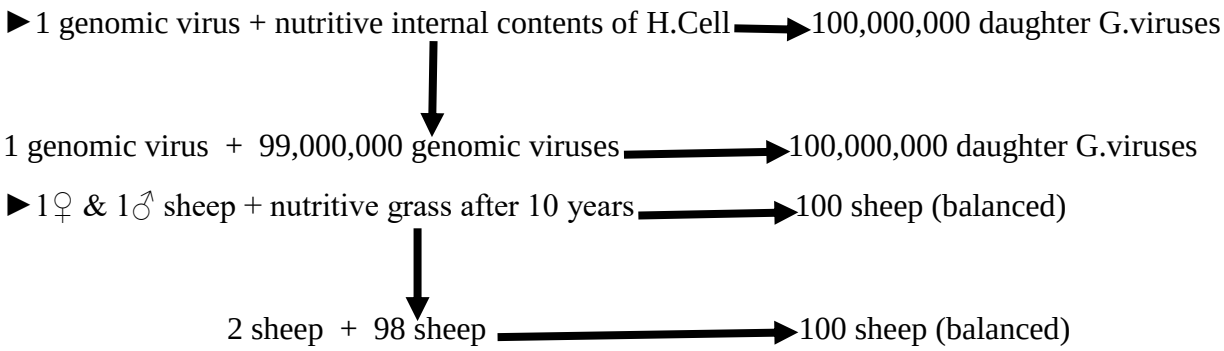
A particle accelerator is a device that uses electromagnetic fields to propel charged particles to high speeds and to contain them in well-defined beams. **There are two basic classes of accelerators:** electrostatic and oscillating field accelerators. While current particle accelerators are focused on smashing subatomic particles together, early particle accelerators would smash entire atoms together, inducing nuclear fusion and thus nuclear transmutation. Nuclear transmutation is the conversion of one chemical element or isotope into another. In other words, atoms of one element can be changed into atoms of another element by transmutation. This occurs either through nuclear reactions in which an outside particle reacts with a nucleus, which can be supplied by a particle accelerator, or through radioactive decay, where no outside particle is needed.

DISCUSSION

Science is the search for truth and it is =dynamic in discarding or dismissing fakenesses when it finds identified errors in its course of progressive development. It had been ascertained that

matter (universe of things) cannot be created or destroyed except changing its form. In other words, everything (any kind of matter) exists or lives endlessly with the possibility of changing its form that is equationally balanced in quantity when its form or state is changed.

1. Two examples about matter can neither be created nor destroyed in genomic reactions**:**



In the equational examples given above, nutritive internal contents of the host cell was transformed into genomic viruses by the automatic synthesizer genome of the genomic virus, and nutritive grass was transformed into sheep by the automatic synthesizer genome of the sheep respectively.

In the same way, chemical reaction equations are always done by balanced equations. Nuclear reaction equations are also similarly balanced accurately and supported by **Einstein's Equation** (**$E=mc^2$**) in order to interpret the fact that **Energy** is equivalent to **Mass** although the form or state of matter is changed from one form of element into another element by a change in its atomic number (a change in number of proton) that can be caused by fusion, fission or by radioactive decay (also nuclear transmutation is applied).

This is the verified truth in science. However, the fake sciences of Biology categorizes the nongenomic-things as nonliving-things whereas they are actually living-things being in a position that they can neither be created nor destroyed except changing the form, or state of being solid, liquid, or gas as well as changing the elemental state of atoms by a change in number of proton of the atom where the initial state or form is equivalent (balanced) in the quatitative equation to the changed state (form). Because science is dynamic & finds errors or fakenesses in its course of progressive development ; by this very dynamic nature of science, the identified fake sciences of Biology are dismissed from the fields of Genomological sciences.The correct term for what Biology states as **living-things** is **genomic-things** and the correct term for what Biology fakely classifies as **nonliving-things** is **nongenomic-things**.

In the life cycle of *Homo sapiens*, the automatic synthesizer genome functions in each individual being synthesized as follows. 2-5% of human genome codes for protein synthesis whereas the remaining 95-98% of its transcripts being a set of noncoding for protein synthesis that is

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abbreviated as RNAs (ncRNAs) does perform crucially indispensable regulatory functions in transcription\, translation, splicing, modification of other of other RNAs, making inactive one of the X DNA molecules in females, signaling, and other diverse functions beginning from gametes to single-celled zygote and up to a mature adult individual person. It is in this way that the genome synthesizes (constructs) each individual's body of us with tissues, organs, and systems what the zygote of each of us did not have[21-27]!!!! 2-5% of human genome (set of transcripts) codes for protein synthesis. Protein synthesis is not the only function that constructs our body. Look at your own body, how it is constructed**:**

Two nostrils, two eyes, two ears, two hands with five fingers for each of them, two legs with five toes for each of them, etc. Count the number of joints in your body parts and also count the number of cavities in your body. All parts and design (framework) of a person's body are constructed by the indispensable involvement of regulatory functions of various types of noncoding RNAs (ncRNAs) (See Fig. 3; Fig. 13, videos 7, 8).
The automatic synthesizer molecule of every genomic-thing is termed **genome**. This automatic synthesizer molecule is **unique to genomic-things** and the name **genomic-thing** is derived from the name of this unique synthesizer molecule. Because of this scientific truth at hand the term **genomic-thing** is rewardingly the best (perfect) scientific name to replace the fake term called **Living-thing**. The only reason for why biologists had admitted that they could not define what a living-thing was, was because they didn't realize that genome was**:**

►**unique to genomic-things**, and

►the **automatic synthesizer** of each individual in each species of all genomic-things from genomic viruses up to humans.

CONCLUSION

 Feleke Eriso Orbalo is the**:**

►father of Genomic-things,

►father of Genomosphere, and

►universal omniscient in discarding (dismissing) fake sciences of **Biology** & in generating correct sciences of **Genomology**.

 The only reason for why biologists had admitted that they could not define what a living-thing was, was because they didn't realize that **genome** was**:**

►**unique** to genomic-things, and

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►the **automatic synthesizer** of each individual in each species of all genomic-things from genomic viruses up to humans.

Genomosphere is defined as all genomic-things found in **Lithosphere** (terrestrial habitat), **Hydrosphere** (aquatic habitat), and **Atmosphere** (aerial habitat). In other words, the genomosphere is the sum of all the ecosystems on Earth where the genomic-things live. The genomic-things of the genomosphere consist of plants, animals and microorganisms (fungi, algae, bacteria, genomic viruses, etc).

Sun rises in & sets in Feleke's Genomosphere, because genomic-things are omnipresent on Earth**!!!!**.

The wrong prefix "bio-" derived from the erroneous term **Biology** and found in terms such as biochemistry, biotechnology, biophysics, biostatistics, biometrics, and biosphere is proved to be replaced by the correct prefix "genomo-" derived from the correct term **Genomology** so that the aforementioned sample terms will become**:** -genomochemistry, genomotechnology, genomophysics, genomostatistics, genomometrics, and genomosphere respectively.

There is no chance at all to repair or modify and maintain the terms**:**

►**Biology,**

►**Living-thing,** and

►**Nonliving-thing**

in the field of natural sciences because all of them are scientifically fake (false) or unrepairably absurd.

The three main or universal kinds of reactions in **matter** are**:**

►**Genomic reaction** (in genomic-things),

►**Chemical reaction** (in nongenomic-things in outside the nuclei of atoms), and

►**Nuclear reaction** (in nuclei of atoms).

The **genome** is the only automatic synthesizer molecule of itself and of each & every individual in each species of all genomic-things.

 There is nothing as wonderful as the **genome** in the entire world or in the universe of matter!!!!

 **Genome** is the unique universal wonder in the world of science and nothing can be compared with it about wonderfulness and there is nothing as automatic as the **genome** on this planet (Earth).

 **Genome** is the most expensive thing on Earth that money cannot buy it!!!! It synthesizes diversity of nutritive substances (plants & animals) for humans. Different types of **genome** of genomic-things synthesize food chains and food webs of eating and being eaten so as to make the environment sustainable and safe.

 Without the **genome** the scientists could not be synthesized and no science could exist because the scientists are the creators of science!!!!

 In genomic reactions, during the growth and life cycles of individuals in a species of multicellular genomic-things from the microscopic single-celled zygote up to the sexually mature large size (eg., of about 500 kg in weight among cattle), the **Genome** does not lose its **identity** and goes on synthesizing (by its directives) itself and the whole individual organisms for indefinite number of generations using **its nutritive substances** as raw materials in **its compatible environment**.

 From the conservational, or ecological point of view, extinction or deletion of a **genome** of one species from the genomic-things is an irreversible and degrading loss in the environment or ecosystem that is an irritating pain to genomologists & activists of Environmental Protection.

 Among the three universal reactions of matter, the most indispensably, crucially, or critically important one of priority to make our planet (Earth) a better place for humans to live is the **Genomic Reaction**:

►for fighting off famine via increasing food production by agricultural & genomological technology, and

►for implementing the science of Environmental Protection against factors such as diseases, soil erosion, devegitation, and war.

 Becareful not to misunderstand!! We need chemical reactions and nuclear reactions because they can be redirected or modified by science for good; for instance, to enhance genomic reactions in favor of well-being of the Environment & Humans (somewhat analogous to the

application of bacteriophage therapy against bacterial infections, being a redirected benefit from damageful genomic viruses). This is achievable by setting global law of security against nuclear war by empowering global scientists engaged in the three universal reactions of matter. Otherwise, we will see and face worse than that we saw when nuclear bombs named "Little Boy" & "Fat Man" were dropped and the grounds (sites of environment) were made **Zero** in Hiroshima and Nagasaki, Japan. We do not want that to happen & see again**!!!!** Look, the price of Plutonium per 1g is $60,000,000 USD because it is seriously wanted for the production of nuclear weapons!!!!

The "Little Boy" & "Fat Man" bombs can be considered as the primitive pioneer or prototype stage bombs of nuclear explosives. The current nuclear weapons are ones that are unbelievably elevated (in their destructive power) by intensive research activities & capacitated to delete humans, science & technology we have, and all forms of genomic-things from the surface of this planet within few hours (see & watch Figure 17, videos of nuclear weapons)!!!! Global politicians are not in a comfortable position to avoid nuclear war and they are accusing one another. We know that the human races of the globe believe & trust the scientists of the **Universal Reactions of Matter** far better than any team of force to safeguard them against the terrifying danger of nuclear war. We know that there are many countries harboring packaged nuclear weapons at present and are waiting to see symptoms of conflict to start nuclear war. The relevant team of scientists will have to come up with something of global peace now (todayitself). Prevention is better than cure. There is no one to be blamed and it will be immoral for us if things go wrong without doing anything to prevent the onset of it!!!!


Now, **Genomologists, Chemists, and Physicists** are at the very good stage of development to understand one another with the same language of **Universal Reactions of Matter** and they will have to work together more concerned than ever before.


Super power in **Medical & Agricultural Sciences** in the entire world is **India** at present,

Super power in **Economy** in the entire world is **USA** at present,

Super power in **Nuclear Military Science** in the entire world is **Russia** at present, and

Super power in **Power of Mind in Genomological Sciences** in the entire world with no rival or claimer is **Feleke Eriso Orbalo** forever**!!!!**

Genomology Chemistry Physics

Ethics: I declare that no ethical error is committed in the production of this paper. I also declare that I don't have any conflict of interest with anybody.

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Video 2: KIKI_Yonatan Tadese (Dula)_ Seteye New Eritrean music Offical Video ዮናታን ታደሰ ዱላ ሰትየ 2021

Video 3: BOHARA BERHANU (DAANGAA BIYYAA)New Ethiophian Oromo music 2021

Video 4: Ethiopian Music ደመላሽ ንጉሴ ማስተዋል እያዩ ሙሉጌታ እሸቴ (ጠባቂ ነኝ) - New Ethiopian Music 2021

Video 5: Endalik Wube - Endih New እንዲ ነው - New Ethiopian Music 2021

Vide 6: Ethiopian Music Girmaa Olaanaa (Waamuu Waamuu) - New Ethiopian Music 2021

Video 7: Fano Solomon Neguse New Ethiopian Music 2021

Video 8: Rabbirraa Hayiluu - Kun hin malu - New Ethiopian Oromo music – 2021

Video 9: Awtar Tv - Yigerem Simachew (Lanesasaw) ይግረም ስማቸው (ላነሳሳው) New Ethiopian Music 2021

Video 10: Yared Negu - Yegir Esat ያሬድ ነጉ - የእግር እሳት - New Ethiopian Music 2021

Video 11: Anih naado yasin kedir

Video 12: Melake Abraham - Mendelay መልኣከ ኣብርሃም (መንደላይ) - New Eritrean Music 2021

Video 13: New Eritrean music 2022 - ሪመይ'ያ ዓደይ Rimey Adey Merhawi Tekeste መርሃዊ ተኽስተ (ሞክባዕቲ) eritreanmusi

Video 14: Bereket Goytom - Smur Hizbi በረኸት ጎይትኦም (ስሙር ህዝቢ) - New Eritrean Music 2022

Video 15: Salina Tv - New Eritrean Music(Wenanitey) by Yohannes Qelit ሓዳስ ቪድዮ ክሊፕ ዮውሃንስ ቀሊት ወናኒተይ(Video 2022)

Video 16: Dawit Mengesha - Anchi Tisikialesh አንቺ ትስቂያለሽ - New Ethiopian Music 2021

Video 17: Abraham Gebremedhin Ethiopia Hagere Lyrics አብርሀም ገብረመድህን ኢትዮጵያ ሀገሬ በግጥም

Video 18: Biniam Okbagaber (Chapin) - Muley ሙለይ ብ ቢንያም ዑቅባጋብር (ቻፒን) - New Eritrean Music 2021

Video 19: NewEritrean Music # 2021#Official Music Video #By Alazar Misgina(Jerry) SRE ERITRAWIAN

Video 20: Tesfay Mehari (Fihira) - ልሳን ታሪኽና Lsan Tarikna New Eritrean Music 2021 - Live On Stage

Video 21: Awtar Tv - Abinet Agonafir - Alen - (አለን) New Ethiopian Music 2021

Video 22: Ayalew Mesfin - Hager Sitithara - እያሌዉ መስፍን - ሀገር ስትጣራ - New Ethiopian Music 2021

Video 23: Hussein Berhale - Wagte Me'a (ዋግቱህ ሜኣ) - NEW! Official Music Video 2017

Video 24: Ethiopian Music Neway Debebe ነዋይ ደበበ (የታሪክ መዝገብ) - New Ethiopian Music 2021

Video 25: Wendi Mak - Men biyayubish ምን ቢያዩብሽ - Ethiopian Music 2021

Video 26: Awtar Tv - Dagne Dan ዳኜ ዳን - ወልቃይቴ - Kila_Belew ክላ በለው - New Ethiopian Music 2022_

Video 27: Ethiopian Music Teddy AB (Hands off from Ethiopia) - New Ethiopian Music 2022

Video 28: Mihreteab Michael | New Eritrean Music 2021 ~ yibezih Alo | ይበዝሕ ኣሎ ¤ #eritreantgrignamusic

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Video 29: **Hot GUAYLA SAMI NEW ERITREAN MUSIC guday millen#hailu and #yared#negu zeykones guday (ዕየት) eya zela**

Video 30: **ela tv - Sadat Ahmed - (Wedi Mazu) - Aleku bel - New Eritrean Music 2020**

Video 31: **Nati TV - Shumay Ghiwet Joli l aQedmyo {ኣቕድምዮ} - New Eritrean Tigrigna Music 2021**

Vvideo 32: **Weyneshet Ayenew - Habeshanete ሀበሻነቴ - New Ethiopian Music 2021**

Video 33: **Kifle Berhe - Kohayiney Adey ቆሓይነይ ዓደይ - New Eritrean Music 2021**

Video 34: **Galaanaa Gaaromsaa - Wal Agarra - New Ethiopian Oromo Music Video 2021**

Video 35: **አንች እናትዬ ♥ wubete belay ውበቴ በላይ**

Video 36: **Ayanaw Tirualem - ኢትዮጵያ እማማ ♥ Ethiopia emama ♥**

Video 37: **Essayas Salih (Rasha) - ይኽእሎ በል - New Eritrean music 2021**

Video 38: **TEDDY AFRO - አርማሽ (ቀና በል) - [New! Official Single 2021] - With Lyrics_**

Video 39: **Bililign Beriso & Mekdes Kidu - Kecheleme Semay ከጨለሞ ሰማይ - Ethiopian Music 2021**

Figure 19: Musical films in honor of automatic synthesizer of genomic-things, called **Genome**.

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(a) **(b)**

Figure 20: National flags of (a) Ethiopia; and (b) Eritrea.

Feleke Eriso Orbalo BSc, MSc, PhD

Feleke EO is:

►the **first** global integrator of **Genomology**, **Chemistry**, & **Physics** by way of the same language of **Universal Reactions of Matter**,

►the father of **Genome Model**,

►the father of **genomic-things**,

►the father of **genomosphere** that is in sunlight the whole 24 Hrs as the sun rises & sets in the genomosphere,

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►the **universal omniscient** in dismissing fake sciences of **Biology** & in generating correct sciences of **Genomology**,

►the son of rain-bow colored **Ethiopia** by birth,

►one of the **unique Educational Assets** of all human races of this planet (Earth), and

►the Super power in **Power of Mind in Genomological Sciences** in the entire world with no rival or claimer forever!!!!

Note to Anyone Country of the Globe:

I am willful to be employed (recruited) by anyone country of the globe which wants me to make its unique trainer of outcompetent candidates who are eager & motivated to be universal geniuses in **genomological sciences**.

Genomological sciences = pure genomology & genomotechnology + medical sciences + agricultural sciences.

Thanks!

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