

Sample essay on the beginning of the word

[Health & Medicine](#), [Body](#)



The research revealed that a certain prototype for artificial bone marrow has been discovered as a potential source of hematopoietic stem cells.

Accordingly, the porous structure of the prototype coincides with the properties of the natural bone marrow. This can be used as foundational stem cells for laboratory cultivation. This breakthrough may lead to possible treatment for diseases like leukemia (Karlshure). The contextual structure of this paper constitutes the usage of scientific terms. The roots of these scientific words derived from Greek and Latin origins that have so greatly influenced the modern science are detailed in this paper. This is a discussion about the how the scientific terms derived from Greek and Latin origin became the word they stand for today. This paper trace back to the beginning or birth of many of the scientific terms.

Cell is a scientific term that pertains to the basic structure of living organisms. It is derived from the Latin word *cella*, defined as a place of concealment, granary, store room or chamber. Cell is widely used in the field of biology as it is considered as the building blocks of life. The word was discovered by Robert Hooke in 1660 as he studied a piece of cork under a primitive microscope. When a piece of cork was magnified, it looked like series of walled compartments that reminded him of the monks “ *cella*” (Waggonner). The definition of cell in biology use is relevant with the Latin definition referring to the monk’s small room. As described by Hooke, the resemblance of the shape of the individual cells magnified with a microscope is close to the actual box shape of the monk’s *cella*. Although there is a magnanimous disparity in their actual size, but their shape is taken into consideration. Thus, the cell referred in biology was popularized.

Erythrocyte is a biological term referring to red blood cells. They are the most common blood cell that carries oxygen to the various parts of the body and delivers carbon dioxide out of the body. The word is broken down into erythro + cytes. Erythro is a Greek word that means “ red” while cytes come from the Greek word kytos used as a suffix referring to cell. The combination of the two Greek words together constitutes the close definition of erythrocyte. It is just a verbatim translation of the English definition of red blood cells.

The word hemotopoietic or hematopoiesis means the development and formation of blood cells and other formed elements (Medical Dictionary). This word originated around 1850-55. This technical and scientific term is derived from the Greek word haematopiosis. It is broken down into hemato and – poiesis. Hemato or haemato comes from the Greek word haimato which means “ blood” whereas poiesis is a Greek word referring to a composition, literary fabrication, poetry, or to make or compose. Literally, the English definition coincides with the Greek word origins. Haemato + poiesis equates to “ blood” + “ fabrication” or “ formation”. To put them together means formation of blood that is exactly the definition in english scientific term.

Leukemia is a term referring to a disease of the bone marrow characterized with gross proliferation of the white blood cells or leucocytes. It is usually accompanied with blood clotting, anemia, enlargement of the liver, spleen and lymph nodes (Medical Dictionary). Leukemia is derived from the Greek words leukos and heima. The Greek word leukos means “ white” or “ clear” while heima means “ blood”. The combination of the two Greek words means “ white blood”. The term leukemia refers to abnormal formation of white

blood cells in the body, thereby making it as a disease. The Greek derivation of terms matched exactly to what the word stands means. There was a slight alteration in the spelling. This term is now accepted as universal in the English Dictionary.

Transplant is a medical, scientific term that refers to the transfer of tissue, organ or any body part from one part of the body or another, or from one individual to another. It is a procedure in surgery that involves a transfer of body parts (Medical Dictionary). This word originated around 1400-50s.

There are two derivative words for the word transplant, “trans” and “plant”. Trans is a Latin word that means “to cross over”. The term plant is derived from the Latin word plantare that means to plant or put set on the ground for growth. The Latin derivation of the word transplant coincides with the individual meaning of the two roots. It denotes actions of planting an organ across a body. As the terms are combined from these two Latin words, the term is then adapted universally as to what it stands for today.

Microscopic is an adjective pertaining to the root word microscope.

Microscope is an instrument used for magnifying very small objects that can not be viewed by the visual eye. Microscopic pertains to the small objects that need to be magnified with the use of a microscope in order to see them (Medical Dictionary). Microscope is derived from the Latin word microspium. It is broken down into micro and skopein. Micro is a Greek word that means “small, trivial or little”. On the other hand, skopein means “to look or see” (Online). Microscope is equated to “small” + “to look” which is indeed the exact translation and usage in English. Microscopic only pertains to those unseen objects due to their very small size and need to be looked under a

microscope.

Sponge referred to the context is the thing characterized as porous rubber and cellulose. They are said to become calcareous skeleton. This word originated even before the year 1000. It is derived from the Latin word *spongea*, or the Greek word *spongia*. This means to clean up something with the used of sponge (Online). Sponge is very near its origin word, and the term is a mere translations from its root word into the English. Even so, the sponge referred as a noun is used as a verb.

Matrix used this context refers to the intercellular ground substance of certain tissue. It is derived from the Latin word *matrix* that pertains to “pregnant animal, womb, origin”. Matrix in the sense of context refers to the “medium for something being developed”(Online). To base the literal meaning of the English usage with that of the Latin root may not result to accurate translation. However, the word is used as such as place for development of cells is related to the womb where humans are made via pregnancy.

Nutrient is defined as the nutritious substance that provides nourishment. It is originated around the year of 1640 from the Latin word *nutrientem* which means “nominative nutriens”(Online). The English word is derived from the exact Latin derivation with little alteration with the spelling. The word itself and the definition it stands has been accepted in the English vocabulary and richly used in the field of biology.

Oxygen is a gas present in the Chemical table of elements characterized with an odorless, colorless, and tasteless property. It comprises around 20 percent of the atmosphere. It is the most important form of gas as they are

vital for the survival of living organisms. It was discovered by Joseph Priestly in the year 1774 (Medical Dictionary). Oxygen is a word derived from the Greek word oxys which mean “ sharp or acid” and genes which means “ formation”. To add them together would create the definition as formation of acid or the acid producer. The word was first coined by Antoine Lavoisier thinking that all acids need oxygen in their composition since it is found in most of the common acids. The Latin word oxygenium is then later adapted in the English vocabulary pertaining to the element.

Scientists are experts known in the field of science. The word is coming from its roots, science. Science comes from the Latin word scientia which means “ knowledge” (Online). The word then evolved into the term science and accepted as part of the universal English vocabulary. The literal meaning of the word depicts what its definition stands for. Science is a wide body of knowledge dealing with facts about the physical and material world. The definition of the Latin word “ knowledge” exactly fits what science is all about. Scientist just evolved from the word science referring to the people expert with the so called “ knowledge”.

The word polymer is a scientific term that refers to the chain of small molecules called monomers forming a high molecular weight substance. These monomers undergo the process of polymerization linking and binding these molecules creating them as plastics, rubber, glass and so on (Medical Dictionary). This word comes from the Greek word polymers. It is broken into poly, which means “ many” and meros, which means “ part”. Joining the two words means “ having many parts” (Online). Polymers are indeed a combination of various parts of monomers. The root of the word strikingly fits

what Polymer stands for.

The word protein is a scientific term that denotes a group of high molecular weight nitrogenous compounds essential in the body structure of all living organisms. The term is derived from the Greek word proteios which mean “ the first quality” or “ primary” or “ first place”(Online). This Greek word is adapted in the English vocabulary signifying the prime importance of the term in the organism structure. Although the definition of the Greek word does not necessarily coincide with the scientific definition of the term, it is still relevant in such a way that “ proteins” are regarded as first class of the molecules. It just describes the weight of importance of the substance. The term was still modified into its English universal word and accepted in the English vocabulary.

Artificial is a term defined as not occurring naturally or simply produced by man. Scientifically, it pertains to the superficial characteristics not related to natural interrelationship of organisms (Medical Dictionary). The term is coined from the Latin word artificialis which mean “ of art” or “ belonging to an art”. It can also come from artificium which means “ made by man” (Online). The derivation of the word exactly fits what the term artificial stands for. The word speaks of man made things that is referring to all those things not coming from nature. The adaptation of the word was later recognized in the universal English vocabulary.

The term synthetic scientifically refers to compounds that are formed through a chemical process and not occurring naturally. The tem comes from the Greek word synthetikos that means “ skilled in putting together”. It can also come from synthetos that means “ put or compound together” (Online).

This derivation of the term is closely related to what the term synthetic stands for. The Greek origin pertains to putting together which pertains to human skill to create or fabricate. This can be related to the scientific definition where compounds are fabricated by man, and things compounded from human skills.

There are still a lot of scientific terms derived from Greek and Latin origin. These Greek and Latin terms are coined by early scientist as they are the first set of words known to men. These terms are then modified through time with slight alterations of the spelling. They are introduced to the public and gradually they are accepted in the English universal dictionary. These words coming from Greek and Latin words are results of evolution of language. This also proves the authenticity and universality of the oldest form of language on this earth. Greek and Latin language is no longer spoken today. However, they are inevitably the roots of many modern day words and terms. Indeed, they are the beginning of many of the words existent today.

Works Cited

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Researchers develop artificial bone marrow; May be used to reproduce hematopoietic stem cells

Blood cells, such as erythrocytes or immune cells, are continuously replaced by new ones supplied by hematopoietic stem cells located in a specialized niche of the bone marrow. Hematopoietic stem cells can be used for the treatment of blood diseases, such as leukemia. The affected cells of the patient are replaced by healthy hematopoietic stem cells of an eligible donor.

However, not every leukemia patient can be treated in this way, as the number of appropriate transplants is not sufficient. This problem might be solved by the reproduction of hematopoietic stem cells. So far, this has been impossible, as these cells retain their stem cell properties in their natural environment only, i. e. in their niche of the bone marrow. Outside of this niche, the properties are modified. Stem cell reproduction therefore requires an environment similar to the stem cell niche in the bone marrow.

The stem cell niche is a complex microscopic environment having specific properties. The relevant areas in the bone are highly porous and similar to a sponge. This three-dimensional environment does not only accommodate bone cells and hematopoietic stem cells but also various other cell types with which signal substances are exchanged. Moreover, the space among the cells has a matrix that ensures a certain stability and provides the cells with points to anchor. In the stem cell niche, the cells are also supplied with nutrients and oxygen.

The Young Investigators Group " Stem Cell-Material Interactions" headed by

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Dr. Cornelia Lee-Thedieck consists of scientists of the KIT Institute of Functional Interfaces (IFG), the Max Planck Institute for Intelligent Systems, Stuttgart, and Tübingen University. It artificially reproduced major properties of natural bone marrow at the laboratory. With the help of synthetic polymers, the scientists created a porous structure simulating the sponge-like structure of the bone in the area of the blood-forming bone marrow. In addition, they added protein building blocks similar to those existing in the matrix of the bone marrow for the cells to anchor. The scientists also inserted other cell types from the stem cell niche into the structure in order to ensure substance exchange.

Then, the researchers introduced hematopoietic stem cells isolated from cord blood into this artificial bone marrow. Subsequent breeding of the cells took several days. Analyses with various methods revealed that the cells really reproduce in the newly developed artificial bone marrow. Compared to standard cell cultivation methods, more stem cells retain their specific properties in the artificial bone marrow.

The newly developed artificial bone marrow that possesses major properties of natural bone marrow can now be used by the scientists to study the interactions between materials and stem cells in detail at the laboratory. This will help to find out how the behavior of stem cells can be influenced and controlled by synthetic materials. This knowledge might contribute to producing an artificial stem cell niche for the specific reproduction of stem cells and the treatment of leukemia in ten to fifteen years from now.