

Review of Scientific Interpretation of Al Ayat Al Kawuniyah Fi Al Quran Al Karim Against Immunity and Vaccination

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ABSTRACT

For two years, people in the world are still battling an outbreak caused by the covid-19 virus that continues to mutate. Health is an important thing that must always be considered to maintain the body's defenses from current viral attacks. Vaccination is one of the results of efforts by doctors to reduce the danger caused by the virus to the body. However, there are still many people who doubt the usefulness of vaccines. They think the vaccine will damage the body because it puts bacteria into it. Through this paper, the authors put efforts to analyze the correlation between immunity and vaccines through vaccination methods. The author will review verses related to scientific signals related to the topic of discussion in the view of scientific interpretation of Zaghul an Najar's work in Al Ayat Al Kawuniyah Fi Tafsir Alquran Al Karim to support the analysis.

Keywords: Immunity, Vaccination, Scientific Interpretation.

1. INTRODUCTION

The world has been horrified by a new variant called covid-19. One of the most severe effects of this virus can cause death in some cases. In an effort to reduce the surge in cases, the government is calling on the public to use vaccinations with the aim of adding the immune system to the body as anticipation to reduce the danger of attacks from the virus. However, anti-vaccine calls began to rise on the other hand and the public began to worry about the use of vaccinations. They consider that vaccination is dangerous because bacteria or viruses are inserted into the body will be bad. In addition, the issue of whether it is allowed and not allowed of vaccines is one of the strong reasons for the rejection of vaccination.

In the medical world, the use of vaccination becomes a method that can help a person to stimulate immunity. Immunity is one of the systems that have an important role in the human body. This system is cell-

shaped and these types of cells work according to their function. If this system does not work properly it will have an effect on the body that causes the body to become weak and sick and even death. Therefore, immunity or body immune is very important. Through vaccination the body will receive antigen fluid that help to stimulate the body's resistance to a disease. Vaccines are the result of development in the field of immunology that began in the discovery of a memory tissue in the immune system in humans.

This discovery is a remarkable achievement for humans. However, the Qur'an centuries earlier put it forward in scientific cues on human creation in *kawuniyah* verses [1]. Man is created by a process that has been perfectly calculated, even parts of man are neatly and specifically arranged. In the human body, the organs are arranged as their respective functions, one of which is the arrangement of cells in humans. In a day humans consume approximately 125 millions of their

own cells and at the same time humans also form new cells that are approximately the same number [2].

In the study of the journal titled *Sosialisasi Kemukjizatan Alquran terhadap Komunitas Pendengar Radio Baiturrahman Aceh melalui Program Interaktif Alquran dan Sains*, which discusses the material to be delivered by the listening community related to the natural phenomena listed in the Qur'an and has been proven. From the results of the study, they found that many of the listeners still have a lack in understanding the insight of knowledge of the Qur'an. Through this program they feel enthusiastic as if they are enlightened and add new insights in their religion [3].

Immunity and vaccination are sciences that enter the realm of *kawniyah* through the inspiration from Allah SWT to HIS people. Then humans conduct scientific research or *trial and error*, where the truth is relative, specialists, and the results of the means of life. Vaccination is a treatment that includes in the modern category. Scientific interpretation is one of the interpretations that developed in the field of science in the Qur'an [4]. The pattern in this interpretation of science utilizes science to prove against what is contained in the Qur'an verses [5]. In this study, the authors wanted to explore the correlation between immunity and vaccination associated with information in Qur'an verses through scientific analysis.

2. METHOD

In this writing, this type of research is literature or library research and the data analysis method used in this study is a method of descriptive analysis. In the method of data collection, the author collects data that will be used to create a description that corresponds to the theme. The data that has been obtained will be analyzed and studied and then interpreted to get a solution to the problem formulation. The data sources used are primary and secondary data. The primary data used are various journals and several books related to the correlation of the immune system and vaccination.

Secondary data is taken from the book of interpretation Al Ayat Al Kawniyah Fi Qur'an Al Karim by Zaghlul an Najar. The method of data processing is done by displaying primary data that is analyzed. Furthermore, the data that has been collected is outlined by a method of analysis of the exposure of correlation between immunity and vaccination which is then reviewed through scientific interpretation to find a truth from the formulation of the problem.

3. RESULTS AND DISCUSSIONS

3.1 Immune System

Immunity or body immune is a cell that is in the body, they are working in a system to maintain the balance of the body from viruses that enter or attack into the body. Before we know about how the immune system works, it is best to know first how the definition of the immune system in the body. In short the immune system can be defined as a soldier who is very discipline, hardworking, and regularly protect the body that affected by the external enemies. Every system, organ, or group in a cell will represent the whole in a division to work perfectly. Every failure in the system is destroyed then the body's defense system i.e. immunity will be very necessary. The immune system is a defense system that works to protect against pathogenic microbial agents. In addition, the system also helps the body in fighting toxins and allergenic substances that enter the surface and mucosa of the body. A set of cells, tissues, and molecules that mediate the body's resistance to microbes is referred to as the immune system. The immune system comes from white blood cells that develop in the bone marrow of the thymus gland. Some of the blood flows into the circulation or thymus gland and some remains where it came from and the body's resistance reaction works when a foreign object enters [6]. The cells that are infected are called immune responses.

1.) Immune Mechanism

Non-specific system. A non-specific system is a protective mechanism against infection that operates in the absence of adaptive immunity. This system is a leading defense system and has been functioning since birth. In addition, innate immunity also has an important role that modulates adaptive immunity. Parts of this system include the external system consisting of skin and mucous membranes, nose hair, cilia, good bacteria compete with pathogenic bacteria in obtaining nutrients, sweat where oil produced mucous membranes and salivary skin, tears or called the first defense system. The internal system is the body's defense triggered by chemical signals or activated by innate immune that uses antimicrobial proteins, inflammation, natural killer cells, and phagocyte cells (monocytes and neutrophils), this system is the body's second defense system. [7]

Specific system. This system has the ability to recognize and destroy pathogens and certain foreign substances. Lymphocyte cells and antibodies are the third defense system. The adaptive system [8] is a much stronger immune response than the non-specific system because each pathogen will be remembered by adaptive cells [9]. In this type, the system has humoral immunity involving B cells and the production of antigens and cellular immunity mediated by T cell immunity. This immune response does not involve antibodies and is carried out by protein molecules stored in the lymph and blood plasma. In B cells there is a type of B cells that form plasma B cells that work to form antibodies and memory B cells. T cells consist of cytotoxic T cells that work to attack incoming pathogens and infected body cells and cancer cells. Then helper T cells are cells that stimulate other T cells, release cytokines and activate plasma B cells for phagocytosis. Other cells are suppressive T cells that decrease and stop the immune response by decreasing antibody reproduction and reducing the activity of cytotoxic T cells after infection is successfully treated. [10]

2.) Types of Immunity

a. Active Immunity

The body actively produces its own antibodies. Active immunity consists of two, they are natural and artificial. Natural immunity, the body naturally forms its own antibodies and this process occurs. When the body has been exposed to disease, the body will induce plasma cells from these cells antibodies will form. Artificial immunity is the immunity created to produce antibodies and usually this immunity is given through immunization or vaccination.

b. Passive immunity

There are two parts: natural and artificial. Natural passive immunity is through breast milk containing antibodies. Artificial passive immunity is the administration of serums such as tetanus or serum for people affected by snake bites.

When the virus will attack the body, the innate immunity will first work. If the virus successfully passes through the first defenses such as the skin, digestive tract, and digestive tract. The next defense cells are cells that work in specialized centers such as the spinal cord, spleen, thymus, and lymph nodes. These cells are called macrophages and lymphocytes. When the defense system works the body experiences a rise in temperature and the cells that work will form antibodies. This is the process when certain cells will store the necessary information about bacteria or viruses that have invaded the body so that when the same enemy re-attacks the body, the immune system will give, fight, and destroy it[11].

3.2 Vaccination Working System

Vaccination is a method used to transfer antigens into the body to provide stimulation to the body in forming antibodies against a virus. As explained earlier, this vaccine is an adaptive immune system in the body. Liquid antigens in the form of microorganisms that have been processed into toxoids, recombinant proteins that when given to a person will cause actively specific immunity to certain infectious diseases. The human body

has cells that can form antibodies against viruses or bacteria that enter the body. But antibody owned by the body has limits in preventing attacks where every day the virus will continue to develop and multiply in the body. Through adaptive systems, there are memory B cells that have stored information against a virus and when the virus comes a second time this system will effectively work quickly [12].

The work of vaccines is to activate the adaptive immune system by applying antigens to the immune system. Such as preparing various information by preparing an army to conduct training in rooting out the enemy. Vaccine fluids can be whole viruses or bacteria that have died or been attenuated or part of a special molecule of viruses or bacteria can be proteins or that are currently relatively new, namely with DNA from viruses or bacteria[13].

Through vaccination the fluid will be injected into the skin or intracutaneous under the skin or subcutaneous or into the muscle or internal muscular. When the vaccine is injected, the antigens in it will enter the body and deal with the innate immunity system, one of which plays an important role is the reaction of APC (Antigen Presenting Cell) cells. In APC cells there are professional and non-professional such as macrophages, after which antigens by APC will be digested or phagocytosis in the cell and antigens will be stored on the surface of the APC and united with a special surface molecule namely MHC class II. Then the APC will move from the tissue around the place that has been injected to the regional lymph nodes. In this lymph, the APC carrying MHC class II will meet the T immature lymphocyte cells, the T cells will recognize the antigen through the T cell receptor molecule and as a result of this interaction will activate the immature cell and will change. One important change is that immature T cells turn into CD4 T cells or helper T cells, and it is these cells that have important role in activating the adaptive immune system. Then these cells will interact with immature B cells in the lymph nodes. The result of the

interaction of the two is to activate the B cell then project and turn into a plasma cell that produces antibodies. As for the return of memory B cells will turn into memory B cells and this cell will be a reminder if one day virus returned to memory B cells will act quickly by forming plasma cells that make antibodies and neutralize viruses. [14].

Successful vaccination certainly requires a whole immune system in order to work properly. Conditions that can weaken immunity such as malnutrition, deficiency of T cells raised by HIV or chemotherapy, genetic disorders or severe pain that affect the immune system that can reduce the effect of work in vaccination. In the use of vaccines also required gradual dosing, time lag is used by the body to optimize the production of stronger antibodies in the body and the development of viral reminder cells. This is the reason some vaccines are done by giving in several stages [15].

3.3 Correlation of Immunity and Vaccination

Correlation between vaccine-induced immunity through vaccination methods for protection in the body. Through the induction of antibodies in serum or mucus that block infection or interfere with the invasion of the body's microbes[16]. Adaptive responses related to protection, such as whether the response will have maximum effect or not because not all vaccine correlations work to treat infections [17].

The relationship between the work of the immune system to viruses has an important role in fighting viruses or bacteria. When the body has formed antibodies a virus through the antigen fluid there is a period before the virus enters the extracellular nerve axon and is sensitive to the action of the antibody. Passive injections are gradually useful for knowing antibodies to be the core of protection.

3.4 Scientific Interpretation Survey

1. QS. Al-Waqiah : 58 – 59

In the kawniyah verses contained in surah Al-Waqiah, he chose to focus on the importance of belief in

the truth that the true resurrection exists that is evidenced by the early creation when man would be resurrected without knowing in what form. Allah Swt says,

قَرَأَيْتُمْ مَا تُمْنُونَ ءَأَنْتُمْ تَخْلُقُونَهُ أَمْ نَحْنُ الْخَالِقُونَ

"So tell me about the nutfah that you have given. Did you create it, or did We create it?"

The meaning of the connotations of the two verses above is, المني which literally means he who is destined or determined, that is, destined for you. Then the word الخلق is a straight destiny used in initiating the creation of something without its origin or model. It's like creating something from something else and only Allah almighty has the creativity to create.

In these two verses there is a scientific signal about the greatness of Allah's copyright, He is the one who created man and blew the spirit on him and created him in pairs as the survival of man until Allah Swt. They want to give them the blessings of a child. Through two small cells that cannot be seen with the naked eye and are no more than 0.005 millimeters in length in men and 0.02 millimeters in a woman. In addition, thousands of billions cells in the body are regulated by specialized tissues in specialized organs and specialized systems that work to serve these noble beings. The human body contains 70% of the water and 30% consists of solid materials including calcium and phosphorus, potassium, sodium, magnesium, iodine, and other chemical substances in the body. The average adult human body also has the same number of cells, it's just that the age of the cell size will change.

The chemical reactions that take place in the human body and the bodies of other creatures work with the help of enzymes that convert raw materials reaching cells into proteins and other complex compounds needed by humans. It is amazing that the constituents of all organisms are one and they have all sorts of different types that are in a gene and there are more than two hundred thousand different types of proteins. Scientists

wonder how the immune system works in the human body and how it can sense a foreign body with a rapid response and how chemical energy is converted into kinetic energy and how it is controlled.

Allah subhanahu wata'ala has created hormones to activate or inhibit the process of growth and among many other vital activities, which God then places to store control abilities in the genetic code carried by sperm and then decreases with puberty. The genetic code is one of the most recent discoveries by humans after the advent of the 17th century microscope tool. In this verse Allah rebukes the pagans regarding the creation of man as recorded in the two verses above. In addition, this discovery makes it clear that the Qur'an is a precedent and book that is global and valid until the end of time. [18]

2. QS. Al-Waqiah: 60

Zaghlul an Najar in his book writes an interpretation of the cell in Surah Al-Waqiah verse 60. Allah has decreed death upon his servant, which depends on his death. Modern science has proven that in every living cell there is a special mechanism that can control life, it takes the form of a long lid located at the end of a chromosome. Over time, the lid will experience division so that its length will continue to decrease. When the division process stops, the living cells will also stop working as well. This is as hinted in Surah Al-Waqiah, the scientific propositions of the noble verse "how did death happen?" God has said,

أَفَرَأَيْتُمْ مَا تُمْنُونَ ءَأَنْتُمْ تَخْلُقُونَهُ أَمْ نَحْنُ الْخَالِقُونَ نَحْنُ قَدَرْنَا بَيْنَكُمْ الْمَوْتَ وَمَا نَحْنُ بِمَسْبُوقِينَ عَلَى أَنْ نُبَيِّلَ أَمْثَلَكُمْ وَنُنشِئَكُمْ فِي مَا لَا تَعْلَمُونَ وَلَقَدْ عَلِمْتُمُ النَّشْأَةَ الْأُولَىٰ فَلَوْلَا تَذَكَّرُونَ

"So tell me about the nutfah that you have given. Did you create it, or did We create it? We have determined that death between you and We will never be defeated, to replace you with those who are like you and to create you in a state of unknownity. And you know the first creation, so why did you not learn a lesson? ""

It is the meaning of what God says. It is in the sentence *مُتَّئِنُونَ* which means a fertile liquid or droplet (mixed semen). This is confirmed by the words of God. In other verses,

وَأَنَّهُ خَلَقَ الذَّرِّيَّاتِ الذَّكَرَ وَالْأُنثَىٰ مِنْ نُطْفَةٍ إِذَا تُمْنَىٰ

"And it is He who created the pairs of men and women, from semen, when it is emitted."

Sperm is a complex structure in its construction and becomes Nutfatu al Amsyaj. What is in it is determined so accurately that it is not a product that becomes accidental or random, but must be created by the great approximation of the creator.

Then there is a question of denial, a decree as Allah subhanahu wata'ala., *وَأَنَّا نَحْنُ الْخُلُقُونَ*, then came the answer in the next verse. *نَحْنُ قَدَرْنَا بَيْنَكُمْ* *الْمَوْتَ وَمَا نَحْنُ بِمَسْبُوقِينَ*, which shows that the provision of death is a premeditated. It has been scientifically proven that in every living cell in detail.

In 1971 Russian scientific experts proposed the need for a special mechanism to make the process of division in cancer cells out of control. Then in 1985 a figure of Greider and Blackburn had found two caps at the ends of chromosomes where each end was known as the end capoor telomere (the builder of the chromosomes cap or enzyme). In 1986, Howard Cooke discovered that the length at the chromosome cap will undergo a division of living cells that will age then the cell will stop dividing and begin to malfunction. In 1989 Morin noted that there was a clear relationship between increased secretion of enzymes and telomerase in living cells and abnormal activity in division known as "cancerous activity". This results from road closure effects of excessive enzyme secretion. Therefore, the cancer cell continues to undergo rapid fertilization without stopping until it is killed. Cessation of excessive enzyme activity, removal of tumors, and cancer through specially prepared drugs. Death gradually descends to every living part of the body from organelles to cells then to tissues continuing to organs

and bones and ending with a total organism that is medically declared that the heart and lungs have stopped working [18].

3.5 Relevancy of Zaghlul an Najar's Interpretation of Cells to the Discovery of Immune Science and Vaccination

Once upon a time, knowledge about prevention and treatment of deadly diseases was still very limited. Achievements that have been achieved in the field of modern medical science today include antibiotics, vaccines as a prevention of various dangerous infectious diseases, effective therapies for cancer and genetic diseases, coroner's heart surgery, organ transplantation, the use of artificial tissue, and many unknowns [19]. Over time, the discoveries that were successfully achieved through scientific studies attracted the spirit of the health community to conduct various studies in order to reveal various facts based on scientific evidence [20].

The meaning in the Qur'an can be seen through the instructions that exist in all aspects of life. This opinion seems to be a motivation about the emergence of Muslim efforts in studying and understanding in interpreting the Qur'an according to the needs and insistence of the challenges of the times. This assumption apparently also attracts Zaghlul an Najar who is a contemporary Mufasir with one of his books, namely the interpretation of al Kawniyah Fi Qur'an Al Karim. In explaining his interpretation, he did not cite the interpretation of the verse to know the context or meaning of the language in the verse. The results of scientific discoveries outlined in the book of interpretation, apparently have a correlation of scientific cues.

In QS. Al-Waqiah: 58:59 Which says, *"Have you noticed the (seed of man) that you radiated. Did you create it or were we its creator?"* According to Zaghlul's interpretation, the verse speaks of a man who was created through a drop of semen and developed until the spirit was blown to him. In research, most of

the human body consists of calcium, phosphorus, potassium, iodine, proteins, toxins, and other compositions in living cells. The human body has thousands of trillions of cells of very small size and these cells vary according to the function of each meat cell, muscle cells, skin cells, then in specialized tissue cells such as lung heart cells, liver, kidneys, and cells of the digestive and reproductive systems. All these tissue cells have their own defense systems that will work together for human survival.

In the verse it is explained that the process of human creation with a process that has been perfectly calculated, even part of the human self is also neatly and detailed. Humans who are only from a set of semen then experience a period of growth so that the cells in it will also experience development as well. Allah subhanahu wata'ala has created every cell to work according to its function. Each human being has thousands of trillions of cells that on average are organized by specialized tissues into a specialized system and work to serve. The cells in the body are mostly very small in size so that there are only a few cells that can be seen with the naked eye.

One of the cells in the human body is a cell on the skin. The skin is an innate immune system that has been owned by humans since birth. The skin is the layer that covers the human body. The function of the skin is to protect the body from disease-causing microorganism. Each new cell that moves is produced by division from the inside of the skin to the outer surface and the fluid elements present in the skin cells will produce a powerful protein called keratin. Then this keratin will form hard compounds. Attackers such as bacteria or viruses will not be able to easily get something to destroy from the skin layer. Imagine if humans do not have a layer of skin, maybe the virus will directly enter easily to get into the blood vessels so that it is easy for the virus to spread into the body.

In verse 60, *"We have determined that death between you and Us will never be defeated."* In Zaghul

an Najar's view the verse explains how the role of cells in the human body. God has decreed death upon every human being according to his time. Science has proven that in living cells there are special mechanisms that control. The cell is in the form of a long lid on each chromosome and the length will continue to decrease along with each division. To some extent the division process will stop and the cells will die. In the above interpretation we can see, that the cells in the body play an important role in the survival of humans. Humans who are originally from a drop of semen will grow to develop, as well as existing cells. As we get older, the cells in the body will weaken. This is because humans will experience a period before aging, so that cells such as chromosomes have undergone division that over time the size of chromosomes will also be reduced. Especially if the human body is continuously attacked by enemies such as bacteria or viruses, the body will work more often and experience division. From time to time, attack cells do so in a very ingenious way, they can hide so neatly inside the body's cells that neither antibodies nor T cells can recognize. The existence of vaccination methods helps the body to more quickly form antibodies so that when the virus is attacking the body will quickly be destroyed by the defense system.

In his book Zaghul an Najar asserts that the genetic code, is one of the latest discoveries by humans and this discovery was discovered after the advent of the microscope tool in the 17th century. This proves that the Qur'an is not at all a human creation, but a book that contains the words of Allah Swt. Go down to the Holy Prophet. As the prophet's last messenger. This book will always be global as time goes on until the end of time and the Qur'an is also a reference that contains past and future events. [21]

The scientific cue contained in Surah Al-Waqiah verses 58 -60 is proof that human creation is a sign of the greatness of Allah Swt. and as a reminder that man will experience death in accordance with the provisions of his death. This verse is also an affirmation

of the Musyrikin Jews who do not believe in the existence of life after death.

4. CONCLUSION

Based on the above presentation, the author concludes that human is a perfect creature. One of the greatness of the scientific facts of human creation found by researchers is the cells in the immune system. This is in accordance with Qs. Al-Waqiah verses 58-59, regarding the creation of man from a drop of semen that grows along with the structure of the body in man. There are thousands of trillions of cells that have their own functions in the body. The cells that work on the defense system help the body to maintain its stability from viral/bacterial attacks. When cells in the body stop working it results in death. This is in accordance with the scientific cue in Qs. Al-Waqiah verse 60 regarding death in humans seen from medical science. Although there is no Qauliyah proposition about vaccination does not mean this is contrary to the teachings of the Prophet (peace be upon him) because vaccination falls into the realm of kauniyah proposition, the science obtained from the results of research by humans on human creation. As for immunity with vaccination has a relationship that has a role in maintaining the health of the human body. Vaccines can help the body to first recognize a virus so that when the virus starts to enter the body, the antibody system will be easier to destroy it.

AUTHOR'S CONTRIBUTION

No one is perfect in this world, for the perfectness belongs only to Allah Swt. who is the creator of all beings and the universe. In this writing there are still shortcomings and far from perfect words. In terms of the use of words in sentences, systematic presentation is still not appropriate. Therefore, further studies are still needed for better results in the discussion of Zaghlul an Najar's interpretation. It is hoped that this research can provide benefits for readers

to learn lessons from the signs of the power of the leader of Allah Swt. and useful in scientific treasures, especially in the field of interpretation of the Qur'an.

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REFERENCES

- [1] B. S. Bambang Sugiyanto, "Embryology Development of Quran and Science Perspectives", *Journal of Science Education Studies*, vol. 3, 2017.
- [2] M. d. Dr.M. 2016. *Saifudin Hakim, Islam, Science and Health*. Yogyakarta: Muslim Library.
- [3] d. Andri Nirwana, "Socialization of The Qur'an's Peace to the Baiturrahman Aceh Radio Listening Community Through the Interactive Qur'an and Science Program", *Journal of Community Engagement*, vol. 1, 2019.
- [4] A. Armainingsih, "Scientific Tafsir Study: Al-Jawahir Fi Tafsir Al-Qur'an Al-Karim By Sheikh Tantawi Jauhari", *Jurnal At-Tibyan*, vol. 1, 2016.
- [5] Wan Ahmad, "Methods of Interpretation of Al-Ilmiy Hamka and Al-Maraghiy on verses of Al-Kawniyyah: A Comparison", *Journal of Islam and Contemporary Society*, p. 15, 2017.
- [6] H. Yahya. 2000. *The Miracle of The Immune System*. London: Ta-Ha.
- [7] Irianto. 2012. *Anatomy and Physiology*. Bandung: Alfabeta.
- [8] Roit. 1997. *The subjects of immune science*.
- [9] Kresno. 1991. *Immunology Diagnosis and Procedure Laboratorium*.
- [10] Tizard, "Vaterinary Immunology. An Introdution", *Saundress company*, 2004.
- [11] A. Endris. 2017. *Immune Smart Books*.

- [12] B. KG. 1991. *Basic Immunology, Second Edition*. Jakarta: Faculty of UI.
- [13] K. K. RI. 2013. *Basic Health Research, RISKESDAS*. Jakarta: Balitbang Ministry of Health.
- [14] d. Mazengia H, "Evaluation of Newcastle Antibody Level after Different Vaccination Regimes in Three Districts of Amhara Region", *J Infect Dis immune*, 2009.
- [15] d. Supriyadi H, "Characterization of Pathogens, Specific Host and Distribution of Mycobacterius", *Indonesian research journal*, vol. 9, no. 2, pp. 39-45, 2002.
- [16] S. A. Plotkin, "Correlates of Vaccine-Induced Immunity", *Clinical Infectious Diseases*, vol. 47, no. 7, p. 401, 2008.
- [17] M. L. A. P. e. a. Chen RT, "Measles Antibody: Reevaluation of Protective Titers", *J Infect Dis*, vol. 1, p. 162, 1990.
- [18] Z. an-Najar. 2008. Interpretation of Al Ayat Al Kuniyah Fi Al Quran Al Karim. Beirut: Maktabah al-Tsarwah al-Dauliyyah.
- [19] V. H, *Testimony on the Value of Clinical Research*.
- [20] The Value, *Importantce and Oversight of Health Research*.
- [21] M. Q. Shihab. 1997. *Miracles of the Qur'an Are Viewed from aspects of language, scientific signals, and Ghoib giving*. Mizan Pustaka.