

CHAPTER IV
SCIENTIFIC INDICATIONS OF GENETIC THEORY
IN HADĪTH

The Messenger -*sallallāhu `alaihi wa sallam*- has been given the privilege with *jawāmi` al kalim*, which given a brief sentences when spoken but has many meanings in the law and science. *Qur`ān* and *hadīth* should not be interpreted textually, because in both also find implicit understanding. There are any *jawāmi` al kalim* in *Qur`ān* and *hadīth*. Short verses but have long interpretations, Short word with long description. It looks flat but has deep meaning.¹

Syuhudi Ismail proposed the concept of understanding *hadīth*; he said that that *Qur`ān* had been explaining the functions and duties of the prophet as *Rahmatan li al `alamīn* and as human. Therefore, what is born from the expression of the Prophet, besides having the universal charge, at the same this expression also arise from Muhammad his self as a human being who lives in the context of limited time and area.²

He also explained that what was recorded from the actualization of the Prophet –that now known as *hadīth*- is a text which can be understood from the explicit meaning, and also can be understood from the context aspect. That's why there are some *hadīth* that can be

¹ <http://al-ilmu.us/al-qur%27an-and-al-hadits/syarah-al-arba%27in-an-nawawiyah/?wap2> on 18/05/2011

² Hasan Asy'ari Ulamai, *Mikro Al Qur`ān* (Semarang: PUSLIT IAIN, 2006), p.14

understood textually and some must be understood contextually.³ Furthermore, he charted the form of *matan hadīth* that has different understanding, for example a short sentences that has solid meaning (*jawāmi` al kalim*), symbolic expression, dialogue, and analogy.⁴

In order to know the meaning of *hadīth*, we can use textual understanding that more emphasis on the text of *hadīth* and contextual understanding that more emphasis on science approach. This contextual meaning has both positive and negative impacts. Positive impact because we will get a wider and deeper understanding on the *hadīth*, while the negative impact, because the scientific truth is relative and always changing, so if we used it in the *hadīth*, means the meaning of *hadīth* is also changing.⁵

According to Dr. Maurice Buchaile, which need to be underlined is the difference between the two kinds of texts is literary terms and in terms of content. In fact, its impossible to make comparison in the style of *Qur'ānic* term and the structure of *hadīth*. If we compare the content of the both (*Qur'ān* and *hadīth*) text with the results of modern science, we will be surprised because there is a huge difference:

-On the one side, the statement of *Qur'ān* often seem trivial, but if scientifically investigated with the results of modern science would turn out that these statements show the things that later justified by science.

-On the other side, many statements of *hadīth* that seems appropriate

³ Syuhudi Ismail, *Hadīth Nabi yang Textual dan Kontekstual*, (1994, Jakarta: Bulan Bintang), p.6-7

⁴ Syuhudi Ismail, *Hadīth Nabi yang Textual dan Kontekstual*, p.9

⁵ <http://isjd.pdii.lipi.go.id/admin/jurnal/142078690.pdf> on 18/05/2011

with way of thinking at that time, but these statements consist of what those are now scientifically unacceptable. Those statements are tucked in and the Islamic legal doctrine that all people consider authentic and dare not to discuss.⁶

But, the sciences is also *haq*. It produced from all experiments and tests. Even sciences always growth and changed but the present result convinced as scientific truth. So it can be used to interpret the *Qur'ān* or the prophet traditions (*hadīth*).⁷

Some clues that show clearly about what is known as the modern science of genetics was the basis for review in the *Qur'ān* and *hadīth*. The Holy *Qur'ān* and *hadīth* mention scientific facts about the law expressed by the genetic inheritance.

Islam is a perfect teaching. *Qur'ān* and *hadīth* as the main guidance for Muslims control all aspect of human life, including the traits heredity of the parents to their children. Islam teaches us to choose a good partner and good living environment; because the nature of a person not only determined by the gene but also affected by the environment. Prohibition of God to marry a sibling (blood brother/sister), not without reason, because in genetics said that marriage between siblings have the possibility to suffer both physical and mental disorders that is greater than the married between peoples who were not blood relationship.⁸

⁶ Dr. Maurice Bouchaile, *La Bible, le coran et la science*. Diterjemahkan oleh Prof. Dr. Rasjidi, Bible, *Qur'ān*, dan Sains Modern. (Jakarta: Bulan Bintang, 1978), p.286

⁷ Ahmad Baiquni, *AL Qur'ān Ilmu Pengetahuan dan Teknologi*, (Yogyakarta: PT Dana Bhakti Wakaf, 1994) p.73

⁸ Ambarwati, dkk, *Makalah Genetika Dalam Sudut Pandang Islam*, Fakultas Kedokteran Universitas Muhammadiyah Surakarta, 2005.

A. Developmental genetics

Qur'ān also spoke widely about the man and one of them is a matter of human reproduction and the stages in its path until created human as God's creation that different from another God creations.

وَلَقَدْ خَلَقْنَا الْإِنْسَانَ مِنْ سُلَالَةٍ مِنْ طِينٍ (12) ثُمَّ جَعَلْنَاهُ نُطْفَةً فِي قَرَارٍ مَكِينٍ (13) ثُمَّ خَلَقْنَا النُّطْفَةَ عَلَقَةً فَخَلَقْنَا الْعَلَقَةَ مُضْغَةً فَخَلَقْنَا الْمُضْغَةَ عِظَامًا فَكَسَوْنَا الْعِظَامَ لَحْمًا ثُمَّ أَنْشَأْنَاهُ خَلْقًا آخَرَ فَتَبَارَكَ اللَّهُ أَحْسَنُ الْخَالِقِينَ⁹

man We did create from a quintessence (of clay);
then We placed him As (A drop of) sperm in a place of rest,
firmly fixed;
then We made the sperm into a clot of congealed blood; then
of that clot we made a (foetus) lump; then we made out of
that lump bones and clothed the bones with flesh; then we
developed out of it another creature. so Blessed be Allah, the
best to create!

In *Qur'ān* verse al-Mu'minun (23) :12-14) above, explained that the process of human reproduction stated in stages from phase to phase. The process of human formation (*taswiyah*) that occurs in the uterus of a woman is going through a process of transformation from phase to phase. The process is begun from the phase *sulalah min thin* (an extract from the ground), then *nuthfah* (meeting of sperm and ovum), then *'alaqah* (implant of zygote to the lining of the uterus), then *mudghah* and *idzāmm*

⁹ Al Mu`minun: 12-14

(lump of flesh and bone), and finally arrived at its perfect point, that is a harmonious of phisyc form¹⁰.

Prophet traditions (*hadīth*) also spoke about the development of fetus that consists of three phases, *nuthfah*, *alaqah*, and *mudghah* that all of those stage pass through about first 40 days in fetus¹¹. If we analyze those *hadīth*, we can take the three stage of fetus:

a) *Nuthfah*

In Arabic, the word *nuthfah* means a drop of water that can be wetting. There is also means a result of the meeting of sperm and ovum.¹²

¹⁰ See at tin:4-6,

¹¹ *Hadīth* from Anas about developmental genetics

حَدَّثَنَا مُسَدَّدٌ قَالَ حَدَّثَنَا حَمَّادٌ عَنْ عُبَيْدِ اللَّهِ بْنِ أَبِي بَكْرٍ عَنْ أَنَسِ بْنِ مَالِكٍ
عَنِ النَّبِيِّ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ قَالَ إِنَّ اللَّهَ عَزَّ وَجَلَّ وَكَلَّ بِالرَّحِمِ مَلَكًا يَقُولُ يَا رَبِّ نُطْفَةٌ يَا رَبِّ عَلَقَةٌ يَا
رَبِّ مُضْغَةٌ فَإِذَا أَرَادَ أَنْ يَمْضِي خَلَقَهُ قَالَ أَذْكَرٌ أَمْ أُنْثَى شَقِيٌّ أَمْ سَعِيدٌ فَمَا الرِّزْقُ وَالْأَجَلُ فَيُكْتَبُ فِي بَطْنِ
أُمِّهِ

And also *hadīth* narrated from Abdillah

حَدَّثَنَا أَبُو بَكْرِ بْنُ أَبِي شَيْبَةَ حَدَّثَنَا أَبُو مُعَاوِيَةَ وَوَكَيْعٌ ح وَحَدَّثَنَا مُحَمَّدُ بْنُ عَبْدِ اللَّهِ بْنِ مُمَيَّرٍ الْهَمْدَانِيُّ
وَاللَّفْظُ لَهُ حَدَّثَنَا أَبِي وَأَبُو مُعَاوِيَةَ وَوَكَيْعٌ قَالُوا حَدَّثَنَا الْأَعْمَشُ عَنْ زَيْدِ بْنِ وَهَبٍ عَنْ عَبْدِ اللَّهِ قَالَ
حَدَّثَنَا رَسُولُ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ وَهُوَ الصَّادِقُ الْمَصْدُوقُ إِنَّ أَحَدَكُمْ يُجْمَعُ خَلْقُهُ فِي بَطْنِ أُمِّهِ
أَرْبَعِينَ يَوْمًا ثُمَّ يَكُونُ فِي ذَلِكَ عَلَقَةً مِثْلَ ذَلِكَ ثُمَّ يَكُونُ فِي ذَلِكَ مُضْغَةً مِثْلَ ذَلِكَ ثُمَّ يُرْسَلُ الْمَلَكُ فَيَنْفِخُ
فِيهِ الرُّوحَ وَيُؤَمَّرُ بِأَرْبَعِ كَلِمَاتٍ بِكُتُبِ رِزْقِهِ وَأَجَلِهِ وَعَمَلِهِ وَشَقِيٌّ أَوْ سَعِيدٌ فَوَالَّذِي لَا إِلَهَ غَيْرُهُ إِنَّ أَحَدَكُمْ
لَيَعْمَلُ بِعَمَلِ أَهْلِ الْجَنَّةِ حَتَّىٰ مَا يَكُونُ بَيْنَهُ وَبَيْنَهَا إِلَّا ذِرَاعٌ فَيَسْبِقُ عَلَيْهِ الْكِتَابُ فَيَعْمَلُ بِعَمَلِ أَهْلِ النَّارِ
فَيَدْخُلُهَا وَإِنَّ أَحَدَكُمْ لَيَعْمَلُ بِعَمَلِ أَهْلِ النَّارِ حَتَّىٰ مَا يَكُونُ بَيْنَهُ وَبَيْنَهَا إِلَّا ذِرَاعٌ فَيَسْبِقُ عَلَيْهِ الْكِتَابُ
فَيَعْمَلُ بِعَمَلِ أَهْلِ الْجَنَّةِ فَيَدْخُلُهَا

¹² M. Quraish Shihab, *Tafsi Al Misbah*, vol. 8, (Ciputat: lentera Hari, 2002), p.337.

In 1883, Van Bender proved that sperm and ovum possess the same role in the formation of seed, and in 1912, Morgan proved the role of chromosomes in the formation of the fetus.¹³

In the science of embryology was explained that the semen ejected with a high strength into fallopian tube to fertilize the ovum. Semen contains around two hundred million spermatozoa, and most of it will die on uterus. Meanwhile, those who reached the ovum are only about a hundred more. In a recent study noted that each sperm only has 1.5% chance to fertilize the ovum. According to these studies, only one sperm can fertilize ovum in the ovary. Perhaps in this case is the relevance of the Prophet: ما من كل الماء يكون الولد¹⁴

Ibn Hajar explained that when sperm meet ovum, at the same time God make it as a fetus, and then He will prepare the uterus. Woman uterus have two capacities: first, the catch capacity (*quwah inbisath*), to catch one of spermatozoa that enter to the entire female body. Second, hold capacity (*quwah inqibadh*), it to hold sperm so it will not go back through the vagina, whereas the position of the uterus is inverted, womb door facing into the vagina. That is why God calls it in a verse (al-Mu`minun: 13) with: ثم جعلناه نطفة في قرار مكين¹⁵

Called by قرار مكين because the uterus is a place nuthfah settled with sturdy and keep it in good repair. Ibn Abbas interpret

¹³ See muhammad Kamil Abdul Shamd, *I'jaz al Ilmy fi Al Qur'ān*, p.201

¹⁴ <http://stain-samarinda.blogspot.com/2009/08/hadis-tentang-perkembangan-embrio.html> on 11/05/2011

¹⁵ then we placed Him As (A drop of) sperm In a place of rest, firmly fixed;

nuthfah with *nuthfah amsyāj*, namely fluid consisting of a combination of sperm and ovum. This interpretation is relevant to the science of developmental genetics especially on the development of embryo; it implies that men and women are responsible for the forming of a balanced human zygote. Thought of Ibn Abbas is proven the true through research Van Benden in 1883, whereas before it, the embryo log have different opinions about the role of the two elements in the formation of the zygote.¹⁶

In perspective of Biology, human reproductive system consists of the testes for males and ovaries for women.¹⁷ The formation of new individual begins from the meeting of sperm and ovum in the uterus. Fertilization¹⁸ will occur in the fallopian tube and there would be only one sperm from the thousands of sperm that successfully fertilize the egg. Only sperm that have undergone capacitating that can cross the pellucid zone and into vitelus ova. After that, the pellucid zone changes, so that ovum cannot be passed by other sperm.

[*Nuthfah* -Sperm-and ovum] A single sperm penetrates the mother's egg cell (ovum) and the developing child gets half of its genetic information (in the form of DNA) from the mother (this is contained in the egg), and half from the father (from the sperm).

¹⁶<http://stain-samarinda.blogspot.com/2009/08/hadis-tentang-perkembangan-embrio.html> on 15/05/2011

¹⁷ Lewis, Ricki, *Human Genetics: Concepts and Application.....*, p.48.

¹⁸ Fertilisation or conception is the process by which sperm and ovum combine to create a single cell called a zygote, which then duplicates itself again and again by cell division to become a baby. Papalia, Diane E, dkk, *Human Development*, (New York: Mc. Graw Hill, 2005), p.63

The resulting single cell is called a zygote. The zygote spends the next few days traveling down the Fallopian tube and divides to form many attached cells. A ball of cells is produced, each cell including a copy of the genes that will guide the development of the baby. Once there are about 32 cells, the developing baby is called a morula. With additional cell division, the morula becomes an outer shell of cells with an attached inner group of cells. Now the developing baby is in the "blastocyst" stage. The outer group of cells will become the membranes that nourish and protect the inner group of cells which will become the embryo (the next stage for the future baby).

b) `Alaqah

Professor Moore explains that the word '*alaqah*' has three meanings: first leech. The second meaning is something floating or sticks, and the third is 'blood clot'. In comparing the freshwater leech with embryo in the level of '*alaqah*' he concludes that both have very similar appearance.¹⁹

In comparing the freshwater leech with embryo in the level of '*alaqah*' he concludes that both have very similar appearance. He showed pictures of leech and embryo and demonstrate to scientists in several conferences. Leech and embryo have similarity because they both attach to and suck blood. The second meaning '*alaqah*' is floating or attached thing, and we can see that

¹⁹ <http://www.rohis-31.co.cc/2010/06/embriologi-dalam-perspektif-al-quran.html>, on 18/05/2011

in this phase of the embryo attached to the uterus (womb) mother. The third meaning is a blood clot. Professor Moore states that the embryo in the phase of '*alaqah* experienced internal processes, such as blood formation in the closed tubes and therefore the embryo get a blood clot. Both these statements fairly represented the Holy Qur'an by '*alaqah*, a phrase which is very appropriate.

[*Alaqah* - "A thing that clings"] The blastocyst reaches the uterus at roughly the fifth day, and implants into the uterine wall on about day six. At this point in the mother's menstrual cycle, the endometrium (lining of the uterus) has grown and is ready to support a fetus. The blastocyst adheres tightly to the endometrium where it receives nourishment via the mother's bloodstream. During the time between implantation and the eighth week, the cells of what is now called the embryo not only multiply, but begin to take on specific functions. This process is called differentiation and is necessary to produce the varied cell types that make up a human being (such as blood cells, kidney cells, nerve cells, etc.).

c) *Mudgah*

Embryo in 40-42 days old that grows no more similar to animal embryos because it was equipped with hearing, sight, skin, muscle and bone, as mentioned in the hadith of the Prophet Muhammad narrated from ibn Asid Hudhayfah: "When *nuthfah* been through 42 nights of creation, God send angels to shape it and create a hearing, sight, skin, muscle and bone. Then the angel

said: O Allah, this will be a boy or a girl? And God decides what she wants.²⁰

[*Mudghah* - "A thing like chewed flesh"] This is the "teeth-mark" or "masticated border" appearance of the human-formed fetus in the *Qur'ānic* phrasing for the post-embryonic stage. The end of the eighth week marks the beginning of the "fetal period" and the end of the "embryonic period."

We might say that the terminology *nuthfa-'alaqa-mudgha* roughly corresponds to the following sequence:

Nutfa [1] zygote/morula

'Alaqa [2] blastocyst/embryo

Mudghah [3] fetus.²¹

Those the stage of human embriologi that its a beginning the process of heredity transformation from parents to their children.

²⁰ حَدَّثَنِي أَبُو الطَّاهِرِ أَحْمَدُ بْنُ عَمْرٍو بْنِ سَرْحٍ أَخْبَرَنَا ابْنُ وَهْبٍ أَخْبَرَنِي عَمْرُو بْنُ الْحَارِثِ عَنْ أَبِي الرَّبِيعِ الْمَكِّيِّ أَنَّ عَامِرَ بْنَ وَائِلَةَ حَدَّثَهُ أَنَّهُ سَمِعَ عَبْدَ اللَّهِ بْنَ مَسْعُودٍ يَقُولُ الشَّقِيُّ مَنْ شَقِيَ فِي بَطْنِ أُمِّهِ وَالسَّعِيدُ مَنْ وَعِظَ بَعِيرَهُ فَأَتَى رَجُلًا مِنْ أَصْحَابِ رَسُولِ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ يُقَالُ لَهُ حَدَيْفَةُ بْنُ أَبِيبِذٍ الْغِفَارِيُّ فَحَدَّثَهُ بِذَلِكَ مِنْ قَوْلِ ابْنِ مَسْعُودٍ فَقَالَ وَكَيْفَ يَشْقَى رَجُلٌ بَعِيرٍ عَمَلٍ فَقَالَ لَهُ الرَّجُلُ أَتَعْجَبُ مِنْ ذَلِكَ فَإِنِّي سَمِعْتُ رَسُولَ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ يَقُولُ إِذَا مَرَّ بِالنُّطْفَةِ يُنْتَانِ وَأَرْبَعُونَ لَيْلَةً بَعَثَ اللَّهُ إِلَيْهَا مَلَكَ فَصَوَّرَهَا وَخَلَقَ سَمْعَهَا وَبَصَرَهَا وَجَلَدَهَا وَحَمَمَهَا وَعِظَامَهَا ثُمَّ قَالَ يَا رَبِّ أَدَّكَرْتُ أَمْ أَنْثَى فَيُفْضِي رَبُّكَ مَا شَاءَ وَيَكْتُبُ الْمَلَكُ ثُمَّ يَقُولُ يَا رَبِّ أَجَلُهُ فَيَقُولُ رَبُّكَ مَا شَاءَ (رواه مسلم)

²¹ http://www.livingislam.org/n/hfh1_e.html on 24/04/2011

In genetics, sperm is a material of traits inheritance from one generation to the next generation, because the sperm contained within the smallest units of heredity, the gene. Surviving sperm and ovum become very important because the embryo is created from sperm and ovum, each containing half of chromosomes of the parent. Furthermore, the embryo will develop from one cell into two cells, and so on. Based on the blue print that is contained in the genes inherited by both parents, the cells differentiate accordance with the functions and objectives of cell establishing.²²

This is what is called in modern genetics with developmental genetics which is study and explore how the process of heredity that is delivered from one stage of the cell into another cell stage, so the various genetic disorders can be studied from its mechanism and can be prevented.²³

B. Heredity

Qur'ān and the tradition of the Prophet (*hadīth*), as shown above clearly indicate that the Holy *Qur'ān* and *hadīth* mentions scientific facts about the development of human being that becoming the beginning of law expressed by the genetic inheritance that it's in the sperm of man and ovum of woman. The holy Quran and prophet tradition (*hadīth*) has been talking about reproduction and genetics. The prophet of Allah ever talked about

²² Roni, Dr. Noor Rahman, dkk, *Rahasia dan Hikmah Pewarisan Sifat.....*,p.11-13

²³ Roni, Dr. Noor Rahman, dkk, *Rahasia dan Hikmah Pewarisan Sifat.....*,p.12

genetic factors and explains to an Arab that, when *nuthfah* was in *rahim*, God Almighty determines their genetic relationship with their ancestors through into Adam (Ibn Jarir Tabari and Ibn Abi hatim)²⁴.

This *hadith* explain about the resemblance of children with his parents. The prhophet said that the resemblance of children not only with his parent because when *nuthfah* was in *rahim*, God Almighty determines their genetic relationship with their ancestors through into Adam.

If we coherently back into the division process in line with the flow of history, then we will find that the entire genetic code in the body of every child of Adam and all combined in a single genetic code in the coccyx when he created Adam.²⁵

That does why a child resemblance is not confined to her father and mother but someone also has the possibility to get

²⁴حدثني محمد بن سنان القرّاز، قال: ثنا مطهر بن الهيثم، قال: ثنا موسى بن عليّ بن أبي رباح اللّحمي، قال: ثنا أبي، عن جدي، أن النبيّ صلى الله عليه وسلم قال له: " ما وُلِدَ لَكَ؟" قال: يا رسول الله ما عسى أن يولد لي، إما غلام، وإما جارية، قال: "فَمَنْ يُشْبِهُهُ؟" قال: يا رسول الله من عسى أن يشبهه؟ إما أباه، وإما أمه؛ فقال النبيّ صلى الله عليه وسلم عندها: "مَنْ، لا تُقَوْلَنَّ هَكَذَا، إِنَّ النُّطْفَةَ إِذَا اسْتَقَرَّتْ فِي الرَّحِمِ أَحْضَرَ اللَّهُ كُلَّ نَسَبٍ بَيْنَهَا وَبَيْنَ آدَمَ، أَمَا قَرَأْتَ هَذِهِ الْآيَةَ فِي كِتَابِ اللَّهِ (فِي أَيِّ صُورَةٍ مَا شَاءَ رَكَّبَكَ)"²⁴ قال: سَلَكْتُكَ

²⁵ An Najjar, Dr. Zaghlul, *Pembuktian Sains dalam Assunnah*, (Jakarta: Amzah, 2007), p.137

inherit traits from their grandparents even though the distance between them a hundred years.²⁶

He *-sallallāhu `alaihi wa sallam-* also told to another Arab Baduwi who complained that his wife bear a baby who is black, even though both parents are not black. His response was the baby may inherit skin color from ancestry (narrated by Bukhari, Muslim, Nasa'i, Tirmidzi, Ibn Majah, Abu Dawud, and Ahmad ibn Hanbal).²⁷

In biological perspective, The differences of children skin color with both parents skin color caused by the father or mother, or one of his ancestors have the character of the black color as a recessive color that may not appear in both, but the character could would gather at one of the children/grandchildren-great grandchild of them as the dominant character, so the black color is evident in their children.²⁸

Genes are units of heredity (descent). Genes control

²⁶ Ahmad, Yusuf Al Hajj, *Ensiklopedi Kemukjizatan Ilmiah Dalam Al Qur'an dan As Sunnah: Kemukjizatan Tentang Manusia dan Ibadah*, (Jakarta: PT Kharisma Ilmu), p. 54

²⁷ حَدَّثَنَا قُتَيْبَةُ بْنُ سَعِيدٍ وَأَبُو بَكْرِ بْنُ أَبِي شَيْبَةَ وَعَمْرُو النَّاقِدُ وَرُحَيْمِيُّ بْنُ حَزْبٍ وَاللَّفْظُ لِغُثَيَّةَ قَالُوا حَدَّثَنَا سُفْيَانُ بْنُ عُيَيْنَةَ عَنِ الرَّهْرِيِّ عَنِ سَعِيدِ بْنِ الْمُسَيَّبِ عَنِ أَبِي هُرَيْرَةَ قَالَ جَاءَ رَجُلٌ مِنْ بَنِي قُرَازَةَ إِلَى النَّبِيِّ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ فَقَالَ إِنَّ امْرَأَتِي وَلَدَتْ غُلَامًا أَسْوَدَ فَقَالَ النَّبِيُّ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ هَلْ لَكَ مِنْ إِبِلٍ قَالَ نَعَمْ قَالَ فَمَا أَلْوَانُهَا قَالَ حُمْرٌ قَالَ هَلْ فِيهَا مِنْ أَوْزُقٍ قَالَ إِنَّ فِيهَا لَوْزُقًا قَالَ فَأَيُّ أَتَاهَا ذَلِكَ قَالَ عَمْسَى أَنْ يَكُونَ نَزْعُهُ عِرْقٌ قَالَ وَهَذَا عَمْسَى أَنْ يَكُونَ نَزْعُهُ عِرْقٌ (رواه مسلم)

²⁸ An Najjar, Dr. Zaghlul, *Pembuktian sains dalam Assunnah*, (Jakarta: Amzah, 2007), p. 118.

many traits, from hair color to the human character. Genes are units of heredity (descent). Genes control many traits, from hair color to the human character. There is a biochemical instruction that tells the cell as the basic unit of life how to manufacture certain proteins. These proteins ultimately underlie specific traits, they provide a great variety of characteristic that create much of our individuality, from our hair and eye color, to the shapes of our body parts, to our talents and personality traits.²⁹

Men have the XY genes (the content of spermatozoa), while female has XX (compounds within the ovum). Allah given privilege in men sperm which has specific Y genes that are not owned by women. That gene is gene carriers of the gene nasab, its holandric gene. This gene has similarity in human body from Adam until us. Gene is composed of amino acids consisting of deoxyribose sugar, phosphate and alkaline (i.e. purine adenine and guanine, pyrimidine Thymine, cytosine, uracil) which are in the genome map. It determines:

- a. The inheritance of physical form (the development of the face form, ears, hands, etc),
- b. The traits of the disease (*Trisomy, Mongoloid, diabetes mellitus, hypertension, etc.*) that can be inherited,
- c. The good and bad qualities of human nature,
- d. Genes can have the dominant or recessive characteristics when happen the formation of the zygote's father and mother.

²⁹ Lewis, Ricki, *Human Genetics: Concepts and Application.....*, p.2

Sometimes husband and wife have a son who is very similar to their parents, or in the contrary there are also families who have children that different from her parents. This is what called the law of gene segregation in Mendel's law.³⁰

Surat al-Insan: 2³¹, the word *nuthfah amsyāj* means the mixed *nuthfah*, means the mixing of sperm and ovum which each have 46 chromosomes.³²

The word *amsyāj* is plural word (*jama'*) of *misyj*. It was taken from *masyaja* means mixing. *Nuthfah amsyāj* is *nuthfah* that is already mixed with the female ovaries. Both have the same role in the formation of seed that entering the woman's uterus³³. A prophet tradition (*hadīth*) also said that human created from man sperm and woman ovum.³⁴

Another concept of genetics also found in the resemblance of children to their parents.

Narrated from Abbas bin Walid dari Walid bi Zurai` from Said from Qatadah from Anas bin Malik, Umm

³⁰ Roni, Dr. Noor Rahman, dkk, *Rahasia dan Hikmah Pewarisan Sifat.....*,p.22

³¹ إِنَّا خَلَقْنَا الْإِنْسَانَ مِنْ نُطْفَةٍ أَمْشَاجٍ نَبْتَلِيهِ فَجَعَلْنَاهُ سَمِيعًا بَصِيرًا (الإنسان: 2)

'Verily, we have created man from Nutfah drops of mixed semen (discharge of man and woman), In order to try him, so we made Him hearer, seer.'

³² Quraish Shihab, *Mu`jizat Al Qur`ān*, (Jakarta: Mizan, 2007) p.174

³³ Quraish Shihab, *Tafsir Al Mishbah*, vol. 14, , (Jakarta: Mizan, 2007) p. 653

³⁴ حَدَّثَنَا حُسَيْنُ بْنُ الْحُسَيْنِ حَدَّثَنَا أَبُو كُدَيْبَةَ عَنْ عَطَاءِ بْنِ السَّائِبِ عَنْ الْقَاسِمِ بْنِ عَبْدِ

الرَّحْمَنِ عَنْ أَبِيهِ عَنْ عَبْدِ اللَّهِ قَالَ

مَرَّ يَهُودِيٌّ بِرَسُولِ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ وَهُوَ يُحَدِّثُ أَصْحَابَهُ فَقَالَتْ قُرَيْشٌ يَا يَهُودِيٌّ إِنَّ هَذَا يَزْعُمُ أَنَّهُ نَبِيٌّ فَقَالَ لَأَسْأَلَنَّ عَنْ شَيْءٍ لَا يَعْلَمُهُ إِلَّا نَبِيٌّ قَالَ فَجَاءَ حَتَّى جَلَسَ ثُمَّ قَالَ يَا مُحَمَّدُ مِمَّ يُخْلَقُ الْإِنْسَانُ قَالَ يَا يَهُودِيٌّ مِنْ كُلِّ يَخْلُقُ مِنْ نُطْفَةِ الرَّجُلِ وَمِنْ نُطْفَةِ الْمَرْأَةِ (رواه احمد)

Sulaym [Anas' mother] said that she once asked the Prophet about a woman that sees, upon waking up, [traces of an emission of fluid] just as a man can. The Prophet ﷺ " replied, "When a woman sees this, let her wash from head to toe." " Umm Sulaym said that she felt shy to ask such a thing and added, "Can such a thing truly take place?" Prophet said ﷺ- "Yes, it can. Where else does [parental] resemblance originate [in the child]? Indeed, the fluid of the man is thick and white while the fluid of the woman is thin and yellow. Whichever of the two surpasses (*ala*) or precedes (*sabaqa*) the other, dictates resemblance."³⁵

If the father's genes are dominant, it means that in carrying out the process of growth and development, so the dominant gene has expressive role in the process of growth and development more than maternal genes that are inactivate. More discussion is devoted to the third and fourth function, which are the nature and character and also dominant and recessive traits. Viewed in terms of its function, the gene has a storage capacity to the nature and characters, copying nature and characters when doing mitosis and meiosis and as expressive as the genes carrier. Holandric, gene of nasab determinant also has the expressive ability to bring nature and human characters in the future.

³⁵ حَدَّثَنَا عَبَّاسُ بْنُ الْوَلِيدِ حَدَّثَنَا زَيْدُ بْنُ زُرَيْعٍ حَدَّثَنَا سَعِيدٌ عَنْ قَتَادَةَ أَنَّ أَنَسَ بْنَ مَالِكٍ حَدَّثَهُمْ أَنَّ أُمَّ سَلِيمٍ حَدَّثَتْ أَنَّهَا سَأَلَتْ نَبِيَّ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ عَنِ الْمَرْأَةِ تَرَى فِي مَنَامِهَا مَا يَرَى الرَّجُلُ فَقَالَ رَسُولُ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ إِذَا رَأَتْ ذَلِكَ الْمَرْأَةُ فَتَغْتَسِلْ فَقَالَتْ أُمُّ سَلِيمٍ وَاسْتَحْيَيْتُ مِنْ ذَلِكَ قَالَتْ وَهَلْ يَكُونُ هَذَا فَقَالَ نَبِيُّ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ نَعَمْ فَمِنْ أَيْنَ يَكُونُ الشَّبَهُ إِنَّ مَاءَ الرَّجُلِ غَلِيظٌ أَبْيَضٌ وَمَاءَ الْمَرْأَةِ رَقِيْقٌ أَصْفَرٌ فَمِنْ أَيِّهِمَا عَلَا أَوْ سَبَقَ يَكُونُ مِنْهُ الشَّبَهُ (رواه مسلم)

Mendel stated that each individual has two factors for each trait, one from each parent. The two factors may or may not contain the same information. If the two factors are identical, the individual is called homozygous for the trait. If the two factors have different information, the individual is called heterozygous. The alternative forms of a factor are called alleles. The genotype of an individual is made up of the many alleles it possesses. An individual's physical appearance, or phenotype, is determined by its alleles as well as by its environment. An individual possesses two alleles for each trait; one allele is given by the female parent and the other by the male parent. They are passed on when an individual matures and produces gametes: egg and sperm. When gametes form, the paired alleles separate randomly so that each gamete receives a copy of one of the two alleles. The presence of an allele doesn't promise that the trait will be expressed in the individual that possesses it. In heterozygous individuals the only allele that is expressed is the dominant. The recessive allele is present but its expression is hidden.³⁶

So, in a crossing, the result of offspring will have some nature that appear or does not appear (hidden) from one of the traits of its parent. Nature that appears in the offspring called the dominant trait. On the contrary nature that does not show up or hidden because of being defeated by the nature of her partner called the recessive trait.

³⁶ http://en.wikipedia.org/wiki/Mendelian_inheritance on 12/05/2011

Therefore, every child inherits properties owned by the mother and half from dad. These combined traits occur randomly and depend on the chance of the combination of traits owned by father and mother.³⁷

In each of the men semen and women ovum, there are chromosomes those containing genes that are different between one people to another. If the gene is dominant, it would look special characteristics and their effects on children born.

1. Genetics and best partner

In the tradition of a certain community, known the principle of 'bobot (weight), bibit (seeds), and bebet (ancestor)' in searching for daughter in law or an ideal companion. This is a real reflection of the application of genetic science for the good preservation of human generation to produce the better next generation.³⁸

Islam is the perfect religion, which regulates all aspects of human life, including the problem of heredity from parent to child (genetics). Islam is well aware that the nature of the parents will be passed on to her child. In Islam we are encouraged to seek a good life partner and looking for good friends (the environment) too. Many Islamic rulings are legislated according to this fact:

First, Islam urges on looking upon the most accurate manners of women before they are taken in marriage. According to Islamic rulings, a great attention should be paid to women's

³⁷ Roni, Dr. Noor Rahman, dkk, *Rahasia dan Hikmah Pewarisan Sifat (Ilmu Genetika dalam Al Qur'ān)*, 2010, Bandung: IPB Press, p.22.

³⁸ Roni, Dr. Noor Rahman, dkk, *Rahasia dan Hikmah Pewarisan Sifat*, p.4

families and lineage so that any state of anticipated mental or physical handicap or deformity would be evaded. The Prophet – *sallallāhu alaihi wa sallam* - asserted the necessity of checking women before marriage. He said, “Marry your women to the suitable, and select for your sperms³⁹.”

Secondly, Islam stresses that women should identify precisely the men they choose as the life partners. This identification is the responsibility of the women’s guardians.⁴⁰

Third, One of prophet *hadīth* said that in determining a mate should be based on four cases: religion, lineage (*nasab*), face and treasure.⁴¹

The formulation of those hadith gives the directions to choose a partner from good family, so that in such marriages would give birth the good offspring .it’s because in marriage sometimes consider heredity and sometimes consider factors (environment), religion and morals, because under the supervision of a mother who has a religion and good morals, would give birth to a generation that good also.

³⁹ حَدَّثَنَا عَبْدُ اللَّهِ بْنُ سَعِيدٍ حَدَّثَنَا الْحَارِثُ بْنُ عِمْرَانَ الْجَعْفَرِيُّ عَنْ هِشَامِ بْنِ عُرْوَةَ عَنْ أَبِيهِ عَنْ عَائِشَةَ قَالَتْ قَالَ رَسُولُ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ تَخَيَّرُوا لِطُفْلِكُمْ وَأَنْكِحُوا الْأَكْفَاءَ وَأَنْكِحُوا إِلَيْهِمْ

⁴⁰ <http://www.imamreza.net/eng/imamreza.php?id=3141> on 13/05/2011

⁴¹ حَدَّثَنَا مُسَدَّدٌ حَدَّثَنَا يَحْيَى عَنْ عُبَيْدِ اللَّهِ قَالَ حَدَّثَنِي سَعِيدٌ بْنُ أَبِي سَعِيدٍ عَنْ أَبِيهِ عَنْ أَبِي هُرَيْرَةَ رَضِيَ اللَّهُ عَنْهُ عَنْ النَّبِيِّ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ قَالَ تُنكِحُ الْمَرْأَةَ لِأَرْبَعٍ لِمَا لَهَا وَلِحَسَبِهَا وَجَمَالِهَا وَلِدِينِهَا فَاظْفَرِ بِذَاتِ الدِّينِ تَرِبَتْ يَدَاكَ

(رواه البخارى)

In genetics, each child had higher levels of similarities and differences with their parents. Selection of a good pair intended for the future we also get good offspring as well. So, in choosing a partner, not only the character of candidates in our mates, but we also need to consider the character of the couple families, this is due to decline in her ancestral character.⁴²

No exception is the diseases that have been suffering or suffered by the elderly and their families. This is important because it is useful to predict whether someone who will marry is a patient / carrier of certain hereditary diseases or not. So from the beginning to avoid the possibility of marriage between two people who are both carriers of the same hereditary disease, because if this happens it will be possible to produce offspring with the number of children with disabilities and the carrier is greater than the marriage between people carrier with normal people.⁴³

This requires us we should not marry with those who still

⁴²أخبرنا أبو محمد عبد الرحمن بن عمر التجيبي ، أبنا أحمد بن محمد بن زياد ، ثنا أحمد بن محمد بن بكر بن خالد بن يزيد ، ثنا أبي محمد بن بكر بن خالد بن يزيد ، ثنا عبيد الله بن العباس بن الربيع الحارثي ، من أهل نجران اليمن بعرفات ، ثنا محمد بن عبد الرحمن البيلماني ، عن أبيه ، عن ابن عمر قال : سمعت رسول الله صلى الله عليه وسلم يقول وهو يوصي رجلا : « يا فلان أقل من الدين تكن حرا ، وأقل من الذنوب يهن عليك الموت ، وانظر في أي نصاب تضع ولدك فإن العرق دساس » (مسند الشهاب القضاعي)

⁴³ Ambarwati, dkk, *Makalah Genetika Dalam Sudut Pandang Islam*, Fakultas Kedokteran Universitas Muhammadiyah Surakarta, 2005.

have blood ties close to us (Muhrim).⁴⁴ The prohibition in Islam on marriage in one muhrim is not without reason because genetically married to people who still have a blood relationship is more likely to produce children / offspring who suffer from diseases that are inherited in a recessive (including mental disorder) than the married person with no relationship blood.

Based on research results, the levels of inbreeding can be calculated by calculating the coefficient value of inbreeding on an individual by using his family genealogy. For example, the coefficient between siblings amounted to $\frac{1}{2}$ (50%). While inter-cousin inbreeding coefficient is amounted to $\frac{1}{4}$ (25%). This number means that the opportunity to obtain the same gene among siblings was 50%. The similarity of our genes with the biological mother and father is 50%, because half of our genes come from our father and 50% more than mothers. In the early stages of inbreeding, usually it will result the better performance of offspring because of the good qualities of elders incorporated and

⁴⁴مُحْرِمَاتٌ عَلَيْكُمْ أُمَّهَاتُكُمْ وَبَنَاتُكُمْ وَأَخَوَاتُكُمْ وَعَمَّاتُكُمْ وَخَالَاتُكُمْ وَبَنَاتُ الْأَخِ وَبَنَاتِ الْأُخْتِ وَأُمَّهَاتُكُمْ اللَّائِي أَرْضَعْنَكُمْ وَأَخَوَاتُكُمْ مِنَ الرَّضَاعَةِ وَأُمَّهَاتُ نِسَائِكُمْ وَرَبَائِبُكُمْ اللَّائِي فِي حُجُورِكُمْ مِنْ نِسَائِكُمُ اللَّائِي دَخَلْتُمْ بِهِنَّ فَإِنْ لَمْ تَكُونُوا دَخَلْتُمْ بِهِنَّ فَلَا جُنَاحَ عَلَيْكُمْ وَحَلَائِلُ أَبْنَائِكُمُ الَّذِينَ مِنْ أَصْلَابِكُمْ وَأَنْ تَحْمَعُوا بَيْنَ الْأُخْتَيْنِ إِلَّا مَا قَدْ سَلَفَ إِنَّ اللَّهَ كَانَ غَفُورًا رَحِيمًا (النساء: 23)

`prohibited to you (for marriage) are:- your mothers, daughters, sisters; father's sisters, Mother's sisters; brother's daughters, sister's daughters; foster-mothers (Who gave you suck), foster-sisters; your wives' mothers; your step-daughters under your guardianship, born of your wives to whom ye have gone in.- no prohibition if ye have not gone in;- (Those who have been) wives of your sons proceeding from your loins; and two sisters In wedlock at one and the same time, except for what is past; for Allah is Oft-forgiving, Most Merciful;-

refined on the individual. In the next stages, the inbreeding will reduce the performance such as reproduction stage decreasing, mortality increasing, production decreasing, and increasing of occurrence of defects and abnormalities.⁴⁵

2. Genetics and environment

Allah has created human in many tribes and nations not only to distinguish them from the language and skin color, but also they provided something else, which may be very specific, such as character, talent, or the nature that make it unique, and can do something that can't do by other people.

Special characters that have become characteristic or identity of a family are not only felt or be proud as a valuable inheritance. This potential needs to be built, nurtured, and developed; therefore it's not frozen and lost in vain. It takes a martyr to encourage those strengths for maximum and give the great benefits. That role can be done by anyone in the family, but certainly needed a better understanding and consistent in doing it.

One of prophet tradition (*hadith*) said that Allah has been determine 4 things to human since in fetus. Those are: death, rizki, charity, and be happy or miserable⁴⁶.

⁴⁵ Roni, Dr. Noor Rahman, dkk, *Rahasia dan Hikmah Pewarisan Sifat (Ilmu Genetika dalam Al Qur'an)*, 2010, Bandung: IPB Press, p.84

⁴⁶ حَدَّثَنَا أَبُو بَكْرِ بْنُ أَبِي شَيْبَةَ حَدَّثَنَا أَبُو مُعَاوِيَةَ وَوَكَيْعٌ ح وَحَدَّثَنَا مُحَمَّدُ بْنُ عَبْدِ اللَّهِ بْنِ مُمَيَّرِ الْأَعْمَدِيُّ وَاللَّفْظُ لَهُ حَدَّثَنَا أَبِي وَأَبُو مُعَاوِيَةَ وَوَكَيْعٌ قَالُوا حَدَّثَنَا الْأَعْمَشُ عَنْ زَيْدِ بْنِ وَهَبٍ عَنْ عَبْدِ اللَّهِ قَالَ

- *Rizqi* (livelihood) has become a matter determined by God Almighty to man. The need to eat, drink, air, wives, children, etc. is the prosperity that God set for us. But how to get it, that being our creativity to get it. If we use a proper way, it would be closer to heaven. If a bad way, it would be closer to hell.
- Death. Each of the living things will feel dead, and it has become *sunatullah*⁴⁷. But how do we die? it will make us be closer to or alienate us to God Almighty.
- Charity (potential). The tendency of humans to the good and the bad man is consequences in human beings as the perfect creature. If the tendency tends towards the good of the charity would be for the better, if the trend leads to ugliness, the charity will go bad.

خَدَّتْنَا رَسُولُ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ وَهُوَ الصَّادِقُ الْمَصْدُوقُ إِنَّ أَحَدَكُمْ يُجْمَعُ خَلْقُهُ فِي بَطْنِ أُمِّهِ
أَرْبَعِينَ يَوْمًا ثُمَّ يَكُونُ فِي ذَلِكَ عَاقِبَةٌ مِثْلَ ذَلِكَ ثُمَّ يَكُونُ فِي ذَلِكَ مُضَعَّةٌ مِثْلَ ذَلِكَ ثُمَّ يُرْسَلُ الْمَلَكُ فَيَنْفُخُ
فِيهِ الرُّوحَ وَيُؤَمَّرُ بِأَرْبَعِ كَلِمَاتٍ بِكُتُبِ رِزْقِهِ وَأَجَلِهِ وَعَمَلِهِ وَشَقِيٍّ أَوْ سَعِيدٍ فَوَالَّذِي لَا إِلَهَ غَيْرُهُ إِنَّ أَحَدَكُمْ
لَيَعْمَلُ بِعَمَلِ أَهْلِ الْجَنَّةِ حَتَّىٰ مَا يَكُونُ بَيْنَهُ وَبَيْنَهَا إِلَّا ذِرَاعٌ فَيَسْبِقُ عَلَيْهِ الْكِتَابُ فَيَعْمَلُ بِعَمَلِ أَهْلِ النَّارِ
فَيَدْخُلُهَا وَإِنَّ أَحَدَكُمْ لَيَعْمَلُ بِعَمَلِ أَهْلِ النَّارِ حَتَّىٰ مَا يَكُونُ بَيْنَهُ وَبَيْنَهَا إِلَّا ذِرَاعٌ فَيَسْبِقُ عَلَيْهِ الْكِتَابُ
فَيَعْمَلُ بِعَمَلِ أَهْلِ الْجَنَّةِ فَيَدْخُلُهَا

⁴⁷ The term of *sunatullah* consists of the word *sunnah* and Allah. The word *sunnah* means habit, so *sunatullah* is the God's habits in treating society. This habit was declared as something that not devolving, '*walan tajida lisunnatihi tahwila*' (Fathir: 43), nor changing, *walan tajida lisunnatihi tabdila* (Fathir: 43). Because of its characters, then it is named the legal community or the provisions for the community. See. Quraish Shihab, *Secercah Cahaya Ilahi, Hidup Bersama Al Qur'an*, (Bandung: Mizan, 2007), p. 427

- Misfortune or true happiness. This case has been established by God Almighty if we get hurt or get happiness. When do we get hurt? its when we act toward things that are not in accordance with the teachings of God Almighty and we'll get happiness when the things we do in accordance with the teachings of God Almighty.

Prophet said: Every child that is born, in a state of nature / purity, only two parents who make it Jewish or Christian or Zoroastrian. (H. R. Bukhari)

If we look at the genetics, every human is born with certain genetic constitution.⁴⁸ Some characteristics influenced by heredity and environment:

- Physical and Physiological Traits
- Intelligence and talent
- Personality
- Diseases

All of those characters besides influenced by heredity, also influenced by environment. We need to know based on the science of genetics that the nature and characteristics of each gene which found in humans can be changed during do the three

⁴⁸ حَدَّثَنَا آدَمُ حَدَّثَنَا ابْنُ أَبِي ذَنْبٍ عَنْ الزُّهْرِيِّ عَنْ أَبِي سَلَمَةَ بْنِ عَبْدِ الرَّحْمَنِ عَنْ أَبِي هُرَيْرَةَ

رَضِيَ اللَّهُ عَنْهُ قَالَ

قَالَ النَّبِيُّ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ كُلُّ مَوْلُودٍ يُوَلَّدُ عَلَى الْفِطْرَةِ فَأَبَوَاهُ يُهَيِّدَانِهِ أَوْ يُنصِّرَانِهِ أَوْ يُمجِّسَانِهِ (رواه

البخارى)

functions (in the medical term called mutation): by external influences, both material and spiritual environment.

In genetics, the expression of a trait is a combination of genes and environmental factors. Or, phenotype is the result of genotype and environment. Although the gene is the blue print, but its expression is largely determined by environmental factors. Environment can trigger gene expression and also suppress gene expression. So, even though a person is born with has a gene that will be made him as a criminal because of the aggressiveness genes, but if the environment do not support, or he get good educations, then the gene expression will be depressed, then he would be a good person.⁴⁹

About the changing of our characters, it depends on how much quality and how long people were exposed by the intensity of the environment in changing expressive genes. By studying the genetics, then we can improve our quality of life. Genetics can be used to find the best possible quality of life in accordance with the abilities (potention) that God gave us. The genes that we inherited from our ancestors can be developed with good environment.

- The physical traits, intelligence, and talent that we have can be developed as capital seeking God rizki

⁴⁹ Roni, Dr. Noor Rahman, dkk, *Rahasia dan Hikmah Pewarisan Sifat (Ilmu Genetika dalam Al Qur'ān)*, 2010, Bandung: IPB Press, p.18

- Health. People with congenital disease that from the beginning dealt with to reduce the risk of death due to genetic disorders
- Personality that is the main capital in social life will largely determine whether or not our life happy. Muslim and Muslimah is a concrete manifestation of a combination of genes inherited from both parents with the environment in which they grow and develop. The genes that inherited both our parents are the primary modal to think and to master the science.⁵⁰

As a Muslims, this balances the two factors that will determine us towards the promised paradise of God. G Factor (gene) as a key factor to be grateful for the favors of Allah, and the factor (environment), which represents our efforts in studying the Islamic sciences that will shape our Islamic character⁵¹

⁵⁰ Roni, Dr. Noor Rahman, dkk, *Rahasia dan Hikmah Pewarisan Sifat.....*, p.3

⁵¹ Roni, Dr. Noor Rahman, dkk, *Rahasia dan Hikmah Pewarisan Sifat*