

Islamic Aqeedah Compliance Index: A Study of Malay Genome in Malaysia

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ABSTRACT

In Islam, *sharia* and *akhlak* are very fundamental in its teaching and so is *aqeedah*. It is another significant foundation and the three are inter-linked to each other. *Aqeedah* forms the basis of *iman* (firm belief), hence if one of the components is missing, one's *iman* is lost or later becomes unbalanced. The basis of this study was to address the prevalent issues of Islamic *aqeedah*, its concepts and their relevancy in the study of Malay genome in Malaysia. Besides, needs consideration were also discussed in implementing *aqeedah*-compliance index when conducting genome studies and researches so that they will not contradict the Islamic ethics and faith. This is also to avoid the destruction of humanity and also capable of providing a system that will solve the problems of humanity. In Malaysia, the studies of Malay genome have been administered by the Centre for Pharmacogenomics (iPROMISE), Faculty of Pharmacy, UiTM Puncak Alam Campus, Selangor Malaysia and the Faculty of Applied Science, UiTM Shah Alam Campus, Selangor Malaysia. Overall, researches on Malay genome have successfully developed a database of Malay genetic structure to help developing new drugs and vaccines, diagnosing diseases as well as providing links for these diseases to drugs commonly used for treating. Apparently, much effort has been made to determine the role of genetic variation and its imbalance patterns towards diseases.

Keywords: Compliance index, Islamic *Aqeedah*, Malay genome, Malaysia

INTRODUCTION

Islam is a comprehensive system of life encompasses three basic important relationships i.e individual's relationship with Allah, relationship between fellow human beings and other creatures (Rasid, 2010). In order to establish these relationships, three fundamental axes have

been central to all Muslims to rely on namely, *aqeedah* (belief), *'ibadah* (acts of devotion) and also *akhlaq* (moral values). Indeed, with this relationship at the core of all matters, it serves as an instrument to strengthen one's principles of Islam which basically involve the confession that there is no god but Allah and Muhammad (pbuh) is His Messenger and no other religions except Islam is acceptable to Allah (Mohd Asri et al., 2006 & 2009 & Ustazi, 2007). It is obvious that all our intentions and actions are performed with full knowledge of His Omniscience. It is noteworthy that seeking knowledge from various disciplines particularly in modern science is Muslim's obligation as this will lead to raise successful Islamic culture and civilization. However, the intellectual effort being made must be in accordance with Islamic teaching and philosophy. Islam has always been concerned with pursuit of modern scientific knowledge provided that such knowledge would bring merits to humanity and serve as a key to the knowledge of Allah and His attributes (Purohit, 2005 & Smith, 1988 & 2009). Evidently, Islam assigns privileges to knowledge and wisdom for Allah's sake. This is particularly true as modern scientific discoveries will increase Muslim's faith in Allah's magnificent creations. Islam also encourages various beneficial technological advances as such will provide huge opportunities for mankind to enjoy the fruits of human ingenuity. To a Muslim, advancements in science and technology in order to fulfill the needs of society should be based on pure faith (*aqeedah*) which is closely related to religious beliefs, morals and values (Purohit, 2005 & Smith, 1988 & 2009).

In Rabat Declaration and the International Conference on Bioethics, serious emphasis has been given on research related to genetics particularly human genome. This definitely involves a number of extremely controversial issues related to ethics and Islamic laws, questions about the soul, the role of God in society and diversity of creation (Muhammad 'Uthman, 2005). This is pertinent as ethical issues are growing more vexing and thus the need for longer research time and specialized knowledge are apparent. At the same time, those practicing clinical ethicists and ethicists should be more competent in clinical ethics consultation and education as well as codes of professional accountability in order to avoid faulty conduct and injustice. With regard to the protection of human rights and dignity of human beings, advancements in science and technological applications should be examined thoroughly so that they do not conflict with the norms of human life. This is also to prevent the occurrence of disasters, health concerns and other severe unforeseen implications. Here are a few detailed recommendations and proposals by the Islamic World Academy of Sciences:

1. Recognizing that the human genome sequence is very significant in the development of human biological research, particularly for certain diseases such as cancer, Alzheimer's, diabetes and heart disease.
2. Serious attention should be paid in relation to the Universal Declaration on the Genome and Human Rights UNESCO's General Conference in 1997, which represented a pioneering instrument universal in biology, medicine and genetics.
3. Several major concerns related to legal, ethical and social have arisen due to new discoveries in the field of molecular biology and genetic engineering.

4. Genetic engineering can create unknown consequences due to lack of knowledge.
5. Providing appropriate mechanisms to maintain and control the genetic resources.
6. Human beings and the environment should not be exposed to danger although some may refer to the products of genetic engineering for the benefit of small or little value.
7. Having a moratorium enforced before a product is approved genetically engineered to be safe for universal use.
8. Issues relating to the ownership of genes must be studied and solved in the context of religion, law, ethics and economics.

SCOPE OF AQEEDAH & AKHLAQ IN USULUDDIN

Traditionally and simply expressed, *Usuluddin* is an alternate term used to refer to the science of Islamic monotheism or *al-tawheed* (Ab. Latif & Rosmawati, 1998). Additionally, there are few more terminologies postulate *usuluddin* which include *Tawheed al-Asma' wa'l-Sifaat* (Oneness of the Divine Names and Attributes), *Ilm al-Kalam* (Science of Discourse), *Fiqh al-Akbar* (the great *fiqh*) as well as *Aqeedah* (Firm Creed) (Kamarul Azmi & Ab. Halim, 2011). With regard to the definition of *aqeedah*, Ibrahim (2001) lays nine related terminologies namely *tawheed* (Islamic monotheism), *usuluddin* (Islamic studies), *as-sunnah* (practices of Prophet Muhammad, pbuh), *fiqh al-akbar* (the great Fiqh), *ahl sunnah wal jamaah* (adherents to the Sunnah), *ahl hadith* (the people of hadith), *salaf* (righteous early Muslims) and *khalaf* (later scholars). This principle is further established by *Ilm al-Kalam* which is literally translated as the science of discourse. Basically, it is a study of Islamic doctrines and fundamental beliefs (*usuluddin*) which are significant for a Muslim to uphold firmly. This discipline is complemented by *Ilm-tawheed* particularly when there is a need to formulate argument standards as in the studies of *Mantiq* (Islamic Logic). It deals fundamentally with formal patterns of inference, its validity, relationship between logic and subject matter (Mat Rofa, 1994). Indeed, analogical or inductive reasoning pointed out by Islamic theologians are vital not only as a source of knowledge yet as a tool to defend the tenets of Islam. By virtue of it, Al Imam At-Taftazani has emphasized that *usuluddin* as to be convincing arguments based on preliminary and fundamental viewpoints namely *aqli* (rational) and *naqli* (transmitted; traditional) (Ku Muhammad Asmadi, 2010).

The most outstanding feature of *usuluddin* is that it covers all issues of *aqeedah*, *'ibadah* (religious deeds) and *shariah*. Not only that, Islamic theological issues such as the divine (*ilahiyat*) and prophethood (*nubuwwat*) as embedded in the six pillars of faith are also thoroughly addressed (Mohd Radhi, 2006 & Rasid, 2010). The essential details of the pillars are the integration of believing in Allah, in the angels, in the revealed books, in the commissioned Messengers, in the resurrection and in the predestination by Allah (swt) i.e. of all things are by act of destiny (*qada'*) and act of decree (*qadar*) (Mohd Kamal, 2008). Likewise, Kamarul Shukri

(2008) reported that four major areas of *tawheed* and *aqeedah* encompass the divine (*uluhiyyat*), prophethood (*nubuwwat*), unseen (*sam'iyat*) and possible existents (*mumkinat*). On the other hand, Ab. Latif & Rosmawati (1998) suggested that *tawheed* is only divided into three main divisions namely lordship of Allah (*rububiyyah*), worship of Allah (*uluhiyyah*) and names and attributes of Allah (*al-asma 'wa al-sifat*). First and foremost, the *tawheed* that is sought from Muslims is *uluhiyyah* (Oneness of Worship). It refers to the oneness of Allah's worship and thus, acts as the fundamental principle in Islam. While independent in every respect, Allah (swt) is not solely the Creator yet He is also the Owner, the Sustainer and the Originator of the heavens and the earth (Idris & Kamarudin, 1999). It becomes clear that Allah (swt) is the centre of Muslims' devotion as He blesses mankind with life, health, wealth, intelligence and many more (Abd. Khalil, 2004). Another important facets in *tawheed* i.e. *nubuwwah* and *sam'iyat* as highlighted by Ab. Latif & Rosmawati (1998), denote the concepts of the prophetic or apostolic and unseen things respectively. As for the contingent beings (*mumkin al-wujud* or *mumkinat*), Allah the Creator has the ultimate power to develop and control them wherein this is one of the tenets of Islam for Muslims to uphold.

The concept of prophethood (*nubuwwah*) is very fundamental particularly to contemporary Muslim belief. This concept of *nubuwwah* is applied to prophets and apostles, duties and responsibilities entrusted to them as well as miracles (*mu'jizat*) as their credentials. In Muslim belief, all these messengers were responsible to preach the same main Islamic teachings and philosophies. Beginning with Adam (a.s) as the first prophet and Muhammad (saw) as the last, they were the intermediaries to deliver His messages to mankind (Engku Ahmad Zaki, 2010 & 2012).

All Muslims unanimously agree that the prophets are the best of mankind and Muhammad (pbuh) was among those great religious figures and he has served as the best exemplar of Muslim life and piety. The *Quran* (Book of God) revealed to Prophet Muhammad (pbuh) had served as his biggest miracle (*mu'jizat*) which is also the primary source of Islamic teachings along with *Hadith* and *Sunnah*. These sources of Islam are meant to guide and lead mankind to the path of righteousness. It has been highlighted by Haron Din et al. (2010) that it is required for Muslims across the ages to believe in all Allah's messengers equally and without distinction, to believe in the relationship between the prophets and their respective people (*ummah*) and to believe that the Prophet Muhammad (pbuh) is the final messenger of Allah swt. Not only that, discussions on abstract ideas and concepts related to miracles (*mu'jizat*) and revelations (*wahyu*) should be discussed in depth separately and great care should be taken as it is the centrality to prophethood (*nubuwwah*) (Teungku Muhammad Hasbi, 2001).

In view of understanding the concepts and doctrines of unseen (*sam'iyat*), authoritative Islamic sources are necessary in order to provide detailed explanations and analysis. This is particularly true with the doctrines concerning angels and *jinns*, signs of Hereafter (*qiyamah*), the stage between this world and hereafter (*barzakh*), the Day of Resurrection, the Balance (*mizan*), the Bridge (*sirat*), Heaven and Hell and other details which

cannot be apprehended with human senses as these matters are beyond human capability to perceive (Ab. Latif & Rosmawati, 1998, Noor Lizza et al., 2012, Kamarul Azmi & Ab. Halim, 2011). Obviously, belief in the unseen is a part of faith and is only born into the heart if someone is in a genuine spiritual state. With respect to faith in the unseen (*sam'iyat*), Kamarul Azmi & Ab. Halim (2011) have included some other elements i.e. the vault of heaven (*'arasy*), God's Throne (*kursi*), sacred scripture (*luh mahfuz*), the spirit (*ruh*), angels and *jinn*s.

Regarding the practice of virtue, morality and manners in Islam (*akhlaq*), Rasid (2010) points out that debates on Islamic behaviour mainly focus on two namely good (*mahmudah*) and evil (*mazmumah*) attributes. In Islam, moral (*akhlaq*) is the utmost important mechanism as it is an indicator of Muslim's strong faith (*aqeedah*) and positive outcome of belief in the unity of Allah (Mohd Asri et al., 2009, Engku Ahmad Zaki, 2010, Haron Din et al., 2010 & 2003). *Akhlaq* embraces the total life of Muslims that will drive them to do what is correct and to avoid what is wrong specifically in this modern age. According to Ramawan (2011) and Abdul Rahim (2009), the knowledge of *akhlaq* is also known as the knowledge of Islamic *Tasawwuf* (Sufism). It refers to the knowledge where someone identifies the states of human soul and how to cleanse it from all forms of impurities. In particular, sufis have categorised the knowledge into two stages in which the first is superior to the second stage i.e.

- i. *Mushahada* – the state of worshipping Allah as if we see Him.
- ii. *Muraqaba* – the state of worshipping Allah with the thought that He is seeing us.

The concept of Sufism in Islam which in fact revolves around *tazkiyat an-nafs* (refinement of the soul) consists of three main processes i.e. *takhalli*, *tahalli* as well as *tajalli*. Passing these processes will generate positive impacts on one's soul and undeniably a cause for success in life and the hereafter. First and foremost, the process of *takhalli* or withdrawal is vital as it indicates the cleansing of soul from all corruptions such as hatred, anger, cheating, envy, wasting time on leisure, love of the world and so forth. Meanwhile, the second process of *tahalli* or symbolic act of adornment refers to constant *dhikr* exercises (watchword), patience, *taubah* (repentance) etc. Consequently, the extent to which one is successful in achieving the first two processes is known as *tajalli*. Historically, it signifies the removal of humanity's *hijab* (veil). In a way, this is the spiritual aim of the Sufi; to pass all the processes. A believer who has attained *tajalli* speaks about commitment to Allah (swt), good values, mercy, compassion, justice and so on and so forth (Abdul Rahim, 2009).

The essence of Sufism in Islam is to become a platform to Muslim's vision of improving manners and feeling close to Allah (swt) under any circumstances. The content of this vision is essentially *aqeedah* which signifies the firm creed in one's heart. It is however, necessary to be strengthened with *akhlaq* and the way to attaining it is through knowledge and understanding. *Aqeedah* and *akhlaq* are the basis to the building of Islam as a whole, specifically in the development of Islamic morality (Haron Din et. al, 2003). In fact, many Sufis of the formative period defined Sufism as *akhlaq* and *adab* (normative code of behaviour). On linguistic ground,

Mohammad Nidzam (2010) in his definition clarifies that there are two lexical roots of Sufism i.e. *safa* (purity) and *suf* (simple cloaks made of wool that early Muslims wore). Hence, when the two are combined, it refers to the Sufi who wears the wool which symbolizes the purity. Above all, majority of Muslim scholars have agreed with this basic definition of Sufism (Samudi, 1987). Besides, Sufism in al-Junaid's opinion is a general view of purity, of preserving one's soul, of reality and perfection of inner self. *Sofaa* is defined as Sufi's attempt to recruit his emotional and intuitive faculties along with undivided attention towards Allah (swt). This is significant for one's spiritual fulfilment and to develop his ability to restrain negative surrounding temptations in which considered a way to seek Allah's pleasure (Hamka, 1978). Despite all interpretations given above, the Sufis, their teachers and Muslims around the world attribute Prophet Muhammad (pbuh) as the perfect personality of spiritual greatness. According to scholars of *Tasawwuf*, there are three major stages involved in Islamic Sufism i.e. knowledge, action and reward (Imadul, 2005). When the understanding or knowledge of Allah (swt) takes shape at the beginning, it considers one's inward and outward actions to lead a life consciously based on fearful awareness of Allah's punishments. Eventually, heart and soul purifications are great rewards that a true believer (*mu'min*) is to achieve. Sahl bin Abdullah Al-Turturi further adds that a *sufi* has a clean heart, sound faith, sincere worship, good and correct actions and virtuous character through submission to Allah (swt), *shariah* as well as *sunnah*. All these interpretations basically entail similar goals i.e. the attainment of Divine pleasure and spiritual excellence.

Additionally, the concept of *Tazkiyah al-Nafs* (soul purification) is an essential element as it involves strong eternal connection between a servant and his Creator i.e. Allah (swt). Apparently, it involves various actions to cleanse the hearts from incorrect beliefs and purifying them from becoming engrossed in anything apart from Allah (swt). Consequently, achieving the highest standing in the sight of Allah (swt) is the ultimate destination. Ibn Qayyim Al-Jauziyah sees humans in two main categories. The first is with the *nafs* (desire) that sovereign over him and it has sovereignty over him. Humans are subjugated by it as if they are subordinates to their own *nafs*, they listen and follow all of its dictates and commands. Another category is those who have overcome their *nafs* and made them obey their commands (Yunasril, 1987). With regard to the process of spiritual transformation, believers must understand the *nafs* as stated in Holy Quran. There are three different types of *nafs* (desires) and these are in rank from the worse to better i.e. *nafs-el-mutmainnah* (the content soul), *nafs-el-lawwamah* (the self-reproaching soul) and *nafs-el-ammarah* (the evil soul) (Imadul, 2005). *Mutmainnah* means that a person is content with the *hukm* (arbitration) of Allah (swt) and he has reached a state of serenity. He has no unlawful desires but only for good things. *Lawwamah* or *lawwam* refers self-reproach, self-incriminate and to have blame. This category of *nafs* sometimes brings the person to do sins yet this *nafs* incriminates itself, he feels bad and guilty. In other words, he is fighting a battle with his own *nafs*. Some scholars claim that this desire indicates that he is a *mu'min* (true believer). Finally, *nafs-el-ammarah* which is the *nafs* that fully commands the person to do wrong. It pushes him to pursue worldly desires such as power, fame, wealth and others. The *nafs* dominates him when he has any wish, any desire or any appetite. Yunasril (1987) also adds that *nafs-el-mutmainnah* has Allah (swt) and angels to assist, to guide and to

help it. The angel guards humans away from wrongdoings and portrays the ugliness of bad deeds. In contrast, *nafs-el-ammarah bissu'* has *Shaytan* (devil) as its ally. It entices the soul to do evil and promises gains and rewards to mankind to follow it. Above all, the state of *nafs* keeps changing from the *nafs-el-ammarah*, to the *nafs-el-lawwamah*, to the *nafs-el-mutmainnah*, which is the ultimate target of Muslim's spiritual perfection.

GENETIC: ITS HISTORY AND SIGNIFICANCE

Klug *et al.* (2010) highlight that Gregor Mendel is actually the pioneer of biological researches specializing in modern science of genetics between 1856 and 1863. Apparently, this "father of modern genetics" gained fame for establishing his laws of Mendelian Inheritance. The profound significance of Mendel's discovery especially in pea plant experiments had led to many rules of heredity and further initiated the science of genetics (Pai, 1985; Wagner, 1989; Peters, 1993; Singh, 2008; Marcus, 2010 & Russel, 2010). Besides, Mendel's extensive research of heredity has been widely accepted and his results have been replicated in many areas of modern age of genetic biotechnology experiments. His demonstration of that crossbreeding of pea plants has benefited many biologists including the genetics of inheritance. Mendel's hypothesis also explains the existence of physical elements in germ cells inherited from one generation to another without change. At that time, research about cells was not yet conducted extensively and cytological science was still at a primitive stage. Hence, Mendel who began his studies on hereditary traits of plants and animals tried unsuccessfully to elaborate on gene inheritance. However, Mendel's work was continued by other researchers such as Hugo de Vries and Carl Correns in the 1900s. In fact, they have also made the same conclusion with Mendel and recognized by most cell biologists as well as plant and animal breeders. As a result, public's interest in genetic has increased and studies in genetic science have expanded massively. This positive development can explain Mendel's experiments including the introduction of inheritance of chromosomes as genetic carriers, understanding the importance of mitosis, nature of meiosis and the concept of reproduction. In 1993, Thomas Morgan was the first recipient of the Nobel Prize in Medicine or Physiology and Chemistry related field of genetics with the chromosome theory of inheritance (Klug *et al.*, 2010). Undoubtedly, recipients of the Nobel Prize in the early and mid 20th century until now have been monopolized by the scientists in the field of genetic research involving recombinant genetic relationships between genes and proteins, DNA structure and genetic code.

Historically, the discovery of deoxyribonucleic acid (DNA) which carries genetic information and also the blueprint for life in 1944 opened a new era of science and technology especially in biotechnology. Later, in 1953 Watson and Crick had proposed that the structure was of the DNA double-helix shape. Following these findings, rapid development in the field of molecular biology or the study of cell biology at the molecular level involving genes and DNA had taken place in the 1960s to the 1970s. In 2002 and 2006, some winners of Nobel Prize in Physiology or Medicine were Sydney Brenner, H. Robert Horvitz & John E. Sulston and Andrew Fire, Craig Mello & Roger Kornberg. Meanwhile, in year 2007, the prize was awarded to M. R. Capecchi, O. Smithies and M. J. Evans (Klug *et al.*, 2010). Not only that, two important

discoveries were found to have spurred the rapid development of modern biotechnology, particularly in research and development (R&D) i.e. genetic engineering and recombinant technologies (Shaikh Mohd. Saifuddeen Mohd. Salleh *et al.* (ed.), 2005). According to Russell (2010), recombinant DNA technology is used to manipulate the genes for analysis or product development purposes or other applications which are known as genetic engineering. In addition, he also noted that the researchers can produce recombinant DNA molecules using cloning techniques. This technique involves the production of the original DNA in large quantities and can be used for many other applications including mapping, sequencing, mutating and cell transforming.

This fact coincides with the findings obtained by Roy (2010) and Rastogi & Pathak (2009) whereby this technique is called gene cloning. This technique basically involves the insertion of the target DNA into the cell via vectors or suitable carriers and is allowed to replicate by itself. It is later transferred to the progeny or breed during the next cell separation resulting organisms have the same genetic makeup. Recombinant DNA technology was originally developed using classical molecular genetics of bacteria, typically *E. coli* and bacteriophage (Roy, 2010). The bacteria are found to be very suitable as a host or vector in carrying out the application of this technology. On the whole, it can be summarized that the recombinant DNA technology is the basis for genetic engineering. Undoubtedly, genetic engineering has a very wide scope for discussion yet in this research, the focus is solely on the application of it. Sanderson (2007) emphasizes that genetic engineering is best known as DNA modification and a part of biotechnology. Engdahl (2006a) further clarifies some of the issues in agriculture and industry, medicine and genetic enhancement of human capabilities which are also related to genetic engineering. Very related to this approach is the application of genetic engineering in plants which yields numerous advantages. These involve an increase in the process of photosynthesis and growth to the maximum stage, an increase in the level of nitrogen absorption and also to produce transgenic plants to name a few (Roy, 2010). This is supported by Engdahl (2006b) who agrees and adds a few more applications of genetic engineering in agriculture, namely the production of genetically modified food (GM food), genetically modified crops (GM crops) and genetically modified organisms (GMOs). According to Sanderson (2007), GMOs are living organisms that have been modified with the eternal nature of the desired result of genetic engineering for use in medicine and agriculture. This is also called transgenic organisms. Further genetic engineering in medicine is more directed to the production of new health products and gene therapy. Roy (2009) stresses that such gene therapy involves replacing dysfunctional genes and later mutating functional better genes using genetic engineering in mammals particularly humans. The main goal of gene therapy is to prevent the production of enzymes and proteins that are not needed and thus can cause diseases. This gene therapy can be divided into two types namely germ cell therapy and somatic gene therapy and involve two approaches i.e. *in vivo* and *ex vivo*. Thus, recombinant DNA technology and genetic engineering are perceived to be able to solve the current problems involving medicine, agriculture, food, environment and so forth.

MALAY GENOME PROJECTS IN MALAYSIA: ISSUES & ACHIEVEMENTS

The genome is the complete set of genetic information relating to the characteristics of an organism. It involves genes encoding proteins and a variety of other DNA sequences (Lewis, 2012 & Wink (ed.), 2011). The human genome is indeed more directed to the collection of DNA in the nucleus of a human cell containing 23 pairs of chromosomes and act as an identification mark or blueprint which varies for each organism (Tramper & Zhu, 2011). Semantically, genomic refers to the study of the genome involved in the application of cloning, sequencing and genome analysis. Additionally, Thieman & Palladino (2012) and Russell (2010) point out that recombinant DNA technology is a principle in gene manipulation for analysis or product development or other applications recognized as genetic engineering. Today, studies related to Human Genome Project (HGP) are being conducted worldwide involving genetic analysis to improve human life itself. According to Van Nostrand's Scientific Encyclopedia: Volume 1 (2002) and Firdos (2012), HGP is to analyze the structure of human DNA and identify the position of all human genes and thus, add more significant contributions in the fields of biology, developmental biology and neurobiology in particular. Smith (2009) also states that previous studies of HGP have increased the level of understanding about basic damage or genetic defects and hence, taking measures to prevent and cure them.

Historically, HGP began as early as 1985 and was spearheaded by James D. Watson as the Head of the National Institutes of Health (NIH) United States beginning 1988. In 1993, Francis Collins took over from him and converted NIH to National Human Genome Research Institute (NHGRI) due to his disagreement with the issue of patenting genes. Generally, a rough draft related to genome was completed in 2000 involving geneticists from various countries such as the United States, United Kingdom, France, Germany, Japan, China, and India (Firdos, 2012). This is supported by Marcus (2010) who asserts that in 2001, Craigh Venter and Francis Collins announced a full draft associated with human genome. Meanwhile, in 2003 the HGP was completed in full i.e. 98 % of the genome has been sequenced with an accuracy of 99.9%. Furthermore, studies of the human genome are very closely linked to the field of bioinformatics and considered as two popular areas in modern biotechnology (Thieman & Palladino, 2012). Bioinformatics is the application of computer science and information technology involving the development of a database and statistical methods to analyze and identify relationships between sets of biological data (Purohit, 2005). In short, the use of this technology accelerates the research process and the transmission of information thereby improving the efficiency of the biological data storage.

After the Human Genome Project was completed 10 years ago, information mapping and sequencing of the entire human genome has been known by researchers. They are now able to understand, identify and isolate genes that are responsible for causing more than 4,000 genetic diseases and this commonly known as gene therapy (Shafii, 2005). Apparently, genetics in modern biotechnology today has been given special emphasis by scientists around the world as it can overcome the problems related to genetic diseases in turn to improve the quality of life of mankind. To date, there are few scientific articles and journals have been published by

iPROMISE and Center for Human Genetics and Biochemistry, Faculty of Applied Sciences, UiTM Shah Alam, Malaysia pertaining Malay genome which are:

1. *Systematic Pharmacogenomics Analysis of a Malay Whole Genome: Proof of Concept for Personalized Medicine* dalam PLOS ONE (Salleh et al., 2013).
2. *Y Polymorphism among the Malay Sub-Ethnic Groups in Peninsular Malaysia* dalam *Science Letters* (Muhd. Shah Jehan et al., 2013).
3. *ACE and TPA25 Alu insertion polymorphisms in Minang Malays subethnic groups in Peninsular Malaysia* dalam *Biotechnology An India Journal* (Nurhayati et al., 2014).

Such biotechnology especially when it involves human subjects raises complicated issues. Among the controversial humanitarian concerns that have been frequently debated among Islamic scholars and scientists are human cloning, molecular biology and genetic (Mustafa Abdul Rahman, 2005). According to Nasser Farid Wasel who was the Mufti in Egypt in 1999, he stresses that human cloning is evidently against the teachings of Islam (Engdahl, 2006). This is in accordance with the nature of human cloning i.e. creating a genetic copy of another human being identical to its principle without the need of sexual intercourse (Marcus, 2010). Kitcher (1996) further shows his concern where he sees human cloning means mocking God's creation and role and that doing so cheapens human life. Spiritually, he adds that if human cloning took place, doctors, counselors, scientists, philosophers, and parents actually question the creation of man and this challenges the existence of God itself. This will contradict the religious and spiritual beliefs that people have been upholding to. In Malaysia, the *fatwa* (decree) on human cloning has been issued by the highest religious authority i.e. the National Fatwa Council in its 51st National Council for Islamic Religious Affairs on March 11, 2002. The committee has decided that human cloning for any purpose whatsoever is illegal because it is contrary to human nature determined by Allah (swt) (Mustafa, 2005).

According to Abu Bakar (2002) and Farrokh (2010), human cloning is considered a threat to humans in the view of religion and law and it is absolutely forbidden in Islam. Therefore, the above statement has been explained in depth to avoid misunderstandings and negative views about human cloning procedure by Sharmin et al. (2012) and Fatima (2008). They stated that cloning is definitely forbidden in Islam if it refers to reproductive human cloning. However, Islam is open to the knowledge emerging in therapeutic cloning where it is purposeful for treating and preventing diseases. While therapeutic cloning is considered permissible by the majority of Sunnite jurists, all of them are with consensus that reproductive cloning is impermissible. It will definitely lead to violation of natural human nature which has been perfectly established by Allah (swt) i.e. legitimate sexual relations between men and women. This certainly involves the question of the pillars of faith. As a matter of fact, the human cloning for reproductive will contribute to denial of the concept of God, loss of kinship and lineage, destruction of family institution, procreation of children outside of marriage and corrupting humans (Abu Bakar, 2002).

In general, Malay genome study is focusing more on medical aspects especially in the production of modern medicines and the latest treatment methods to cure genetic diseases among Malays. Thus, further research in this area which comply Islamic perspective is yet to be done, particularly involving the aspects of aqeedah (faith). Hence, the study has been proposed as a scientific research doctorate (Ph.D.) in Usuluddin, Faculty of Islamic Contemporary Studies at the University of Sultan Zainal Abidin (UniSZA), Gong Badak Campus, Terengganu, Malaysia in 2014. The proposed title is Malay Genome Mapping Project: Implications towards Aqeedah and The Quality Malays' Life. The study is supervised by Prof. Dr. Engku Ahmad Zaki Engku Alwi from the Faculty of Contemporary Islamic Studies, UniSZA, Dr. Wan Rohani Wan Taib from the Faculty of Medicine and Health Sciences, and also Ass. Prof. Dr. Mohd. Hudzari Haji Razali from the Faculty of Bio resources & Food Industry, UniSZA.

Next, the research has been approved in 2015 through a research grant of FRGS 2015-1 under the Ministry of Education (MOE); FRGS/1/2015/SSI03/UNISZA/02/3 entitled Islamic Aqeedah Compliance Index: A Study of Malay Genome Project in Malaysia. A study period of 24 months beginning 1 October 2015 until 30 September 2017 with the allocation of funds of RM82,400.00, is led by Prof. Dr. Engku Ahmad Zaki Engku Ali (FKI, UniSZA) and four other members namely Assoc. Prof. Dr. Mohd. Hudzari Haji Razali (FBIM), Dr. Wan Rohani Wan Taib (FSK, UniSZA), Dr. Syarilla Iryani Ahmad Saany (AQEL, UniSZA) and also Mr. Norazmi Anas (ACIS, UiTM, Tapah Campus). It is hoped that this research is able to produce modules and guidance on the Malay genome from Islamic view in improving the level of confidence towards Allah (swt). Most importantly, the negative response of society to the field of genetic engineering can be corrected and subsequently to manipulate this invention to increase the level of physical and mental health of the Malays themselves. Until now, human genome research involving Malays purely focuses on medical aspects. Therefore, further studies on Malay genomes from the perspective of Islam are seen necessary so that the publics are aware of its implications on faith and the quality of life.

ISLAMIC AQEEDAH COMPLIANCE INDEX OF MALAY GENOME

On 10 February, 2015, Malaysian Prime Minister, Datuk Seri Najib Tun Razak launched Malaysian Shariah Index in conjunction with 2015 Ulama-Umara Premier Programme at the Putrajaya International Convention Centre. The index, the first of its kind ever developed in the world was resulting from the negotiation between Department of Islamic Development Malaysia (JAKIM), International Islamic University of Malaysia (IIUM) and the Islamic Da'wah Foundation Malaysia (YADIM). It is intended to measure and evaluate Malaysia's performance in implementing five principles of *shariah* requirement or "*Maqasid Shariah*" namely the protection of religion, protection of life, protection of the mind, protection of the race and protection of property (*e-muamalat.gov.my*). On top of that, the index also covered eight main areas, namely legal, politics, economics, education, health, culture, infrastructure, environment and social (<http://ummatanwasatan.net>). Therefore, Malaysian Syariah Index is obviously a scientific measurement method to ensure that studies of Malay genome in Malaysia are in compliance with the Islamic faith i.e. to preserve the religion of Islam when conducting studies of human genetics. The development of Malaysian Syariah Index signifies that Malaysian

administration is serious and transparent in measuring its effort and commitment based on the concept of *shariah*. It is also imperative for exalting the greatness of Islamic law, economic development and nation. It is an objective yardstick to determine progress in many sectors so that Malaysia as a high income and progressive country by 2020 will be achieved successfully.

This multidisciplinary study involves scientific research biotechnology integrated with Islamic *aqeedah*. This is seen to coincide with the 4th National Biotechnology Policy (www.biotek.gov.my) that intends to promote multi-disciplinary research which later enhances the development of technology as well as generates new insights into human knowledge. In addition, the National Key Economic Area (NKEA) has given special emphasis on education involving higher education institutions locally and abroad (etp.pemandu.gov). Thus, this study to be conducted is seen indirectly contributing new knowledge in the corpus of integration resulting in both areas i.e. Islamic Studies and Biotechnology.

CONCLUSION

Islamic Aqeedah Compliance Index in human genetic studies will act as a core and guideline for many researchers particularly in Malay genome. This is significant to prevent irregularities and to ensure that the practice is in line with the requirements of Islamic *Shariah*. Most importantly, the studies will never violate Islamic ethics, norms and humanity.

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