

# Mary and the missing Chromosome

By Safi Kaskas

During the month of Ramadan, Muslims [are in](#) the habit of reading as much of the Qur'an as possible. Most importantly though is to try understand and to think about what one is reading.

One morning, my wife came to me and had the Holy Book in her hand. She wanted me to go over some verses with her. The verses were from the "The family of Imran," the third Sura (chapter) of the Qur'an. She began to read and I was listening attentively when she pointed to me something that was worthy of contemplation. Here are the verses<sup>1</sup>:

## The family of 'Imran<sup>2</sup>

*"God chose Adam, Noah, Abraham's family,<sup>a</sup> and the family of 'Imran, over all other people<sup>:33</sup>, in one line of descent—God hears and knows all<sup>34</sup>.*

*'Imran's wife said, 'Lord, I have dedicated what is growing in my womb entirely to You; so accept this from me. You are the One who hears and knows all,<sup>35</sup> but when she gave birth, she said, 'My Lord! I have given birth to a girl'— God knows best what she had given birth to: the male is not like the female—I name her Mary and I commend her and her offspring to Your protection from the rejected Satan.' "Her Lord graciously accepted her and made her grow in goodness, and entrusted her to the charge of Zachariah<sup>36</sup>.*

*Whenever Zachariah went in to see her in her sanctuary<sup>3</sup>, he found her supplied with provisions. He said, 'Mary, how is it you have these provisions?' and she said, 'They are from God: God provides limitlessly for whoever He will.<sup>37</sup> There and then Zachariah prayed to his Lord, saying, 'Lord, from Your grace grant me virtuous off spring: You hear every prayer.<sup>38</sup> The angels called out to him, while he stood praying in the sanctuary, 'God gives you news of John, confirming a Word from God<sup>b</sup> He will be noble and chaste, a prophet, one of the righteous.<sup>39</sup>*

*He said, 'My Lord, how can I have a son when I am so old and my wife is barren?' [An angel] said, 'It will be so: God does whatever He will.<sup>40</sup> He said, 'My Lord, give me a sign.' 'Your sign,' [the angel] said, 'is that you will not communicate with anyone for three days, except by gestures. Remember your Lord often; celebrate His glory in the evening and at dawn.<sup>41</sup>*

*The angels said to Mary: 'Mary, God has chosen you and made you pure: He has truly chosen you above all women.<sup>42</sup> Mary, be devout to your Lord, prostrate yourself in worship, bow down with those who pray.<sup>43</sup>*

*This is an account of things beyond your knowledge that We reveal to you [Muhammad]: you*

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<sup>1</sup> The Qur'an a new translation by M.A.S. Abdel Haleem, Oxford University Press

<sup>2</sup> The Family of 'Imran is the third section (Sura) of the Qur'an

<sup>3</sup> The Sanctuary is located inside the temple in Jerusalem

were not present among them when they<sup>c</sup> cast pens to see which of them should take charge of Mary, you were not present with them when they argued [about her].<sup>44</sup>

*'The angels said, 'Mary, God gives you news of a Word from Him, whose name will be the Messiah, Jesus, son of Mary, who will be held in honor in this world and the next, who will be one of those near to God.<sup>45</sup> He will speak to people in his infancy<sup>d</sup> and in his adulthood. He will be one of the righteous.<sup>46</sup> She said, 'My Lord, how can I have a son when no man has touched me?' [The angel] said, 'This is how God creates what He will: when He has ordained something, He only says, "Be", and it is.<sup>47</sup> He will teach him the Scripture and wisdom, the Torah and the Gospel,<sup>48</sup> He will send him as a messenger to the Children of Israel: "I have come to you with a sign from your Lord: I will make a bird for you out of clay, then breathe into it and, with God's permission, it will become a real bird; I will heal the blind and the leper, and bring the dead back to life with God's permission; I will tell you what you may eat and what you may store up in your houses.<sup>e</sup> There truly is a sign for you in this, if you are believers.<sup>49</sup> I have come to confirm the truth of the Torah which preceded me, and to make some things lawful to you which used to be forbidden. I have come to you with a sign from your Lord. Be mindful of God, obey me—<sup>50</sup> God is my Lord and your Lord—so serve Him: that is a straight path."<sup>51</sup>*

- a. *This means family in the widest sense of the term.*
- b. *verses 45 below: Jesus was given the epithet 'a Word from God'. One explanation is that*
  1. *because it was God's command that brought him into being, rather than the Intervention of a human father (Razi).*
- c. *The priests.*
- d. *f. 19: 29-30. The word mahd means a place smoothed out for a small child to sleep in. It is not a piece of furniture like a cradle.*
- e. *Another possible translation is 'to tell you what you eat and what you store . . .*

The Qur'an tells us here the story of a delegation of angels sent by God to two of His exceptional servants; Zachariah who was the high priest in the Jerusalem temple and Mary, an exceptional female orphan dedicated from her birth to God but raised by Zachariah as she was related to his barren wife Elizabeth.

Zachariah and Elizabeth his wife were, at that time, very old yet he was still longing for an offspring. He knew that despite his old age and his wife's infertility, all is possible with his Lord, so he prayed and he knew that it is in his Lord's ability to fulfill his wish.

When the angels delivered the good tidings to Zachariah, he, in his amazement wondered how that can happen. But the angels replied "*It will be so: God does whatever He will.*"

The same delegation went to Mary to give her a message that was shocking to her about being chosen by God to conceive a miraculous child. This child will not be from a marriage, but she will become pregnant while she is still a virgin through a direct order from God. The child will be a Word and a Spirit from God. He will also be the promised and the long awaited Messiah of the Jews. She heard what the angel was telling her but she was still shocked; how can I have a child when I am not married and no man has ever touched me? [The angel explained], 'This is how God creates what He will: when He has ordained something, He only says, "Be".

In the case of Zachariah the angel said God does whatever He wills. But in Mary's case the angel said God creates what He wills. Why the different terms; does in one case and creates in the other?

The difference became clear fifteen hundred years after the Qur'an was revealed. It has to do with Mary's missing Y chromosome.

## The Y chromosome

The **Y chromosome** is the sex-determining chromosome in humans. It contains the gene SRY, which triggers testis development, thus determining sex. The human Y chromosome is composed of about 60 million base pairs.

In humans, each cell normally contains 23 pairs of chromosomes, for a total of 46. Twenty-two of these pairs, called autosomes, look the same in both males and females. The 23rd pair, the sex chromosomes, differs between males and females. Females have two copies of the X chromosome, while males have one X and one Y chromosome.

## XX/XY sex chromosomes

The **XX/XY sex-determination system** is one of the most common sex-determination systems and is found in human beings and most other mammals.

In the XY sex-determination system, Mary had two of the same kind of sex chromosome (XX), while two distinct sex chromosomes of males (XY) were missing. Under normal circumstances, a woman would get them from her husband if she is to get pregnant with a baby boy. Hence, with Mary God had to create them, while in the case of Zachariah the **XX/XY** chromosomes were present as he was married.

Genes and chromosomes are a 20<sup>th</sup> century discovery. Investigation into the human karyotype took many years to settle even the most basic question. How many chromosomes does a normal diploid human cell contain? In 1912, Hans von Winiwarter reported 47 chromosomes in spermatogonia and 48 in oogonia, concluding an XX/XO sex determination mechanism<sup>4</sup>. Painter in 1922 was not certain whether the diploid number of man is 46 or 48, at first favoring 46<sup>5</sup>. He revised his opinion later from 46 to 48, and he correctly insisted on man's having an XX/XY system<sup>6</sup>.

New techniques were needed to definitively solve the problem:

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<sup>4</sup> von Winiwarter H (1912). "Études sur la spermatogenese humaine". *Arch. Biologie* **27** (93): 147–9.

<sup>5</sup> Painter TS (1922). "The spermatogenesis of man". *Anat. Res.* **23**: 129.

<sup>6</sup> Painter TS (1923). "Studies in mammalian spermatogenesis II. The spermatogenesis of man". *J. Exp. Zoology* **37**: 291–336. [doi:10.1002/jez.1400370303](https://doi.org/10.1002/jez.1400370303).

1. Using cells in culture
2. Pre-treating cells in a hypotonic solution, which swells them and spreads the chromosomes
3. Arresting mitosis in metaphase by a solution of colchicine
4. Squashing the preparation on the slide forcing the chromosomes into a single plane
5. Cutting up a photomicrograph and arranging the result into an indisputable karyogram.

It took until the mid-1950s to become generally accepted that the human karyotype consists of only 46 chromosomes. Considering the techniques of Winiwarter and Painter, their results were quite remarkable<sup>7</sup>.

Nowadays, we talk about chromosomes as if the subject is public knowledge, while in fact it was impossible for even my father to know anything about it. Not even the terms were known. Mohammad (PBUH) recited these passages<sup>8</sup> without access to the knowledge we have today, yet he and his companions and the generations of believers that followed continued to repeat them, knowing that the birth of John the Baptist was a miracle because of his parents' age while that of Jesus Christ was a miracle because Mary was a virgin. No one knew the miracle of the Y chromosome. Mohammad recited words the Lord put in his mouth<sup>9</sup>. He was illiterate yet he related to us in The Last Testament modern scientific miracles.

What is more amazing is that the Qur'an in few short passages was able to site a well known biblical event and put it into a different prospective for us, providing clues to what really happened in order to prepare for Jesus' birth. In the case of John the Baptist, while his birth through an elderly couple was a miracle up to recently (nowadays it can be duplicated with modern science), the real miracle is the birth of Jesus Christ whom God chose his birth to be through the Virgin Mary, a miracle of the past two thousand years. Unbeknown to us, the text of the Qur'an hid other miracles that humanity will continue to discover for years to come<sup>10</sup>.

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<sup>7</sup> Tjio JH, Levan A (1956). "The chromosome number of man". *Hereditas* **42**: 1–6.

Hsu T.C. *Human and mammalian cytogenetics: a historical perspective*. Springer-Verlag, N.Y. p10: "It's amazing that he [Painter] even came close!"

<sup>8</sup> 29:48 You (Muhammad) never recited any Scripture before We revealed this one to you, nor did you ever wrote one down with your hand. If you had done so, those who follow falsehood might have had cause to doubt

<sup>9</sup> Deuteronomy 18:18 "I will raise up for them a prophet like you from among their brothers; I will put my words in his mouth, and he will tell them everything I command him. what was revealed to him"

<sup>10</sup> Qur'an 6:67 "Every prophesy has its fixed time to be fulfilled: you will come to realize this."