



## ***Iya Khalil***

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By Nahil Sharkasi

*"I was curious about the nature of time. I thought if I studied physics I could actually find out."*

What is the nature of time? Iya Khalil asked herself this question as a young student, and the quest for the answer inspired and propelled her to great success. With an undying belief in herself and support from her family, Iya navigated her way through some of the country's top scientific institutions to the head of a well recognized bio-tech research company. As the co-founder and executive vice president of Gene Network Sciences, Inc., Iya leads a team of scientists in the search for a cure for cancer. She is strongly grounded in her culture, and is inspired and motivated by Libyan role models in her life.

Iya's interest in science, she says, comes from two places: her family and her religion. She holds fond childhood memories of being in the lab with her father, [Gamal Khalil](#)<sup>1</sup>, who is a chemistry professor at the University of Washington. She also credits her mother, Mofida, for always emphasizing the mind as a person's most valuable and important asset.

Iya says religion inspired her to study physics: "Islam teaches that as human beings we should be constantly learning, questioning and discovering what are the laws that govern the physical world. Nothing could be more divine than studying science." Iya also had a strong role model in her grandfather, the scholar and poet, El Sheikh Abdusallam Khalil. Iya says her grandfather "spent most of his life learning and speaking to us about the value of knowledge and the power of the human mind."

### **Iya Khalil, Ph.D.**

**Born:**

June 6, 1972, Seattle, Washington

**Parents:**

Gamal Khalil and Mofida Elbahi

**Residence:**

Ithaca, New York

**Occupation:**

Co-Founder, Vice President of  
Research & Development,  
Executive Vice President, Gene  
Network Sciences, Inc.



*Iya and Gamal, Cannon Beach, Oregon (flying a kite)*

With inspiration from her family and faith, Iya threw herself into the study of physics. She sought out to unlock the secrets of the physical world, “I was curious about the nature of time. I thought if I studied physics I could actually find out.” Though her original goal was not realized, her ambitions remained high. She earned her Bachelor of Science degree in physics in 1994 from the University of Washington. She received a scholarship and was recognized as Outstanding Senior by the physics department. Iya worked in many labs as an undergraduate, including her father’s at the University of Washington. She worked on varied projects from aerodynamics to optics. After graduation, Iya worked at Fermi Lab and Abbott Laboratories, both in Chicago, always approaching her work with a meticulous dedication.

Iya attended Cornell University, receiving her Ph.D. in 2000. Upon finishing a doctorate in physics, she found two avenues open to her: academia or management consulting. She didn’t like either. Out of the blue, a colleague, Colin Hill, presented her with the idea for Gene Network Sciences, a business that would use physics and computation to understand biology. Iya jumped right in, without a second thought to her lack of background in biology, “I had to teach myself the field completely from scratch. I just dove right into it.” Iya was fascinated by the complexity of biology, “Biology was a field that did not use mathematics and computation and this was a ripe opportunity. Anything we did here would be ground breaking work as it was all new.”



*Iya, Colin Hill, George Pressly & GNS staff, 2001*

*Gene Network Sciences (GNS<sup>2</sup>)* is a systems biology company that is developing whole cell genome wide data driven models for drug discovery and development. GNS models are used to predict efficacy and toxicity of targets and lead compounds and reveal critical information on cellular process that conventional drug discovery methods are unable to reveal. Their research focuses not only on studying the individual parts (cells, proteins, genes, etc.) of an organism, but also studying how the parts work together. GNS is using mathematics, computation, and computer science to understand cells in order to help find cures for complex human diseases.

The decision to pursue GNS has been rewarding for Iya, though it was not an easy one to make. Iya and Colin had to struggle to find support to get the company off the ground. They are still working to establish the company on more comfortable ground, but they are rewarded daily with the [growth and progress](#)<sup>3</sup> of GNS. “GNS has been in operation for a little over two years,” says Iya proudly, “and has made significant technological and business strides that place it as one of the leading and cutting edge companies in this field.” GNS has been recognized by the president of Cornell University, and The Wall Street Journal. In October 2002, the company was awarded a \$2 million Advanced Technology Program grant from the National Institute of Standards and Technology.

Iya's propulsion towards success doesn't stop with GNS; she already has plans for her "second career." Iya hopes to enter the political arena and improve Arab-American relations. She says, "I want to promote justice, democracy, peace, and freedom in Arab countries." She has actively voiced her opposition to the war in Iraq. She marched in the March 15 rally in Washington D.C. proudly bearing a sign that read "I am Arab, Show me love not war," as well as leading smaller rallies in Ithaca. As a firm believer in "the collective power of people," Iya is in frequent correspondence with her representatives and recently wrote a letter to president Bush challenging his foreign policy. She is saddened by the reputation of Arabs around the world, and the standard of living in Arab countries, however she is optimistic about the power of people's collective will.

Iya's mind is immersed in science, but her heart yearns for her culture. She can't resist dancing to a Libyan beat, yullilating (tzaghreet), or the "challenge of eating bazeen"... skills much more easily mastered than unlocking the nature of time. It took a Ph.D. to satisfy some of Iya's curiosity about physics, but her natural hunger for science will never be satisfied. Iya concludes, the nature of time "is a very difficult question." She later adds, "... maybe, I'll come back to it another time!"

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1) <http://www.tibra.org/awards/2001/judges/khalil.htm>

2) <http://www.gnsbiotech.com>

3) <http://www.gnsbiotech.com/news.shtml>

Iya's grandfather wrote on her graduation:



يَا آيَةَ أَنْتِ بِحَقِّ آيَةَ  
 مَا مِنْ جَلِيسٍ أَوْ سَمِيرٍ مُؤَنَسٍ  
 غَيْرِ الْكِتَابِ مُجَالِسًا وَمُسَامِرًا  
 فِي سُلْمِ التَّعْلِيمِ كُنْتَ تُؤَدِّجَانِ  
 كُلَّ الْمَرَّاحِلِ قَدْ عَبَّرْتَ جُسُورَهَا  
 قَدْ كُنْتَ دَوْمًا لِلْكَوْصِ عِدْوَةً  
 مَا كُنْتَ يَوْمًا تُشْعُرِينَ بِرَهْبَةٍ  
 لِرَصِيدٍ قَدَرَاتٍ لَدَيْكَ مَهِيًا  
 مَا كَانَ فَوْزُكَ بِالنَّشْهَةِ مَطْلَبًا  
 بَلْ كَانَ تَوَجُّحًا لِجُهْدٍ فَاتِقٍ  
 أَحْرَزْتَ مَا أَحْرَزْتَهُ بِحَدَاثَةٍ  
 دَكْتُورًا الطَّبِيعَةَ قَلْدُوكِ وَسَامَهَا  
 فِي مَهْرِ جَانِ جَامِعِي حَاشِدٍ  
 هَذَا الْقَوْلُ لَلَّيْتَهُ مِنْ هَيْبَةٍ  
 هَا أَنْتِ أَصْبَحْتَ وَقَدْ نَزَلَ الْعَا  
 وَظْفَرْتَ ابْتِثَابًا ضَخْمَ نِسْرَةٍ  
 بَلْ هِيَ كُنْتُ مَعَارِفِ عَصْرَةٍ  
 عَلِمَ الطَّبِيعَةَ قَدْ غَدَا فِي عَصْرِنَا  
 وَاللَّيْلُ يَمْنَحُ مَرَّهً أَعْلَى النَّسِي  
 يُعْنِيهِ مِنْ قَفْرِ وَيَرْفَعُ قَدْرَهُ  
 يَا آيَةَ الْيَوْمِ أَنْتِ جَدِيدَةٌ  
 أَنْشَرْتَ فِي دُنْيَا الْجَهَالَةِ كَوْكَبًا  
 وَبَلَّغْتَ فِي التَّعْلِيمِ أَعْلَى قَمَّةٍ  
 وَرَفَعْتَ مَرَأْسَ بَنِي خَلِيلٍ عَالِيًا  
 هَذَا الْحَفِيدَةُ مِنْ طَرَانِ نَادِمٍ  
 بَيْنَ الْأَوَائِلِ دَانِمًا فِي فِصْلِهَا  
 وَهِيَ يَشْأَلُ لِلْبُيُوعِ وَأَسْوَدُ  
 وَوَسَامُ فَخْرٌ يُحْتَدِّدُهُ بِنَائِمًا  
 يَدَاكَ نِسْرًا آيَةَ قَدْ دَبَّجْتَ  
 شَرَفًا نَائِلَ خَلِيلِ آيَةَ  
 عَمَّرْتَ قَلُوبَ الْأَمْرِيْقِينَ بِبَاهِجٍ  
 عَمَّتْ جَمِيعَ الْأَقْرَبِينَ بِشَائِرٍ  
 وَمَجْدَدًا أَنْزَجِي التَّهْمَانِيَّ صَادِقًا

فَمَا جَبَّكَ اللهُ مِنْ مَلَكٍ كَانَ  
 أَوْ نَحْيَ إِخْلَادٍ لَطُولِ سُبُكٍ  
 فِي أَيَّامٍ وَقَتٍ مِنَ الْأَوْقَاتِ  
 لِسَوَاكِ مِنْ أَنْرَابِكَ الْفَتِيَانِ  
 مَرْفُوعَةَ السَّرَاسِ بِبِلَا عَمْرَاتِ  
 وَإِلَى الْأَمَامِ سَرَّيْعَةَ الْخَطِّوَاتِ  
 فِي الْأَمْتِحَانِ وَتَسَامِرِجِ النَّجَبَاتِ  
 وَفِي يَدَيْكَ تَبَجَّأَوْنِ الْعَقِيَانِ  
 دَانَ الْقَطْرُوفِ مِنْهُدِ الطَّرْفَاتِ  
 وَلَمْ يَكُنْ هَيْبَةً مِنَ الْمِهْيَاتِ  
 وَبِفَضْلِ مَا أَوْتَيْتِ مِنْ طَاقَاتِ  
 مَهْمُورَةً مِنْهُمْ بِتَوْقِيْعَاتِ  
 قَدْ صَدَّ مِنْ عَلَمَانِهِمْ مَنَاتِ  
 عَلِيَّةٍ مِنْ أَشْهُرِ الْمُهَيْنَاتِ  
 دَكْتُورَةً عَرِيَّةَ التَّنَمَاتِ  
 لَكِنَّمَا لَيْسَتْ مِنَ الْعُمَلَاتِ  
 وَرِصِيدُ أَنْفِكَ سَامِرٌ وَمَعْلُومَاتِ  
 عَقَبَ الْحَيَاةِ وَصَاعِ النَّهْمَاتِ  
 وَخَلُودِ ذِكْرٍ وَأَنْزَادِ حَيَاةِ  
 ثَمَّالًا أَسْدَادُهُ مِنْ خِدْمَاتِ  
 بِإِقَامَةِ الْأَفْرَاحِ وَالْحَفَلَاتِ  
 بِهَدْيِ الْعَقُولِ فِي دُجَى الْعَمَمَاتِ  
 وَلَمْ تَذُوقِ مَرَامَةَ الْكَسَاتِ  
 وَطَبَعْتَ فَوْقَ نُغُورِ مَهْمَاتِ  
 مَسْجُوعِ الْحَايِمِينَ الصِّفَاتِ  
 فِي كُلِّ مَا اجْتَانَتْهُ مِنْ مَرَحَلَاتِ  
 لِلطَّلَاحِيْنِ قَتِيْبَةٍ وَنِسَاتِ  
 فِي كُلِّ مَا يَخْطُوْنَ مِنْ خَطِّوَاتِ  
 قَامُوسٍ مَجْدٍ مُشْرِقِ الصَّفْحَاتِ  
 وَلَا مَسْرَةَ الْبَاهِي وَأَنْسُ حَيَاةِ  
 وَعَلَى الْوَجُودِ وَمِيْضِ إِشْرَاقَاتِ  
 لَا مِيْبَا الْعَمَمَاتِ وَالْخَالَاتِ  
 لَمْفِيدَةً وَبِعَالِمَاتِهَا مَسْرَاتِ

بمزيدِ توفيقٍ وللأخواتِ  
طولَ الحَيَاةِ دونَ أيِّ شَكَاتِ  
مُسْتَقْبَلًا يَشِعُّ إشْرَاقَاتِ  
وشريكِ عَمْرٍ غيرِ ذِي وَصَّاتِ  
في موطِنِ الأَجْدَادِ والجَمْدَانِ

واللهُ أدعو للحفيدةِ آيَةَ  
ولهنَّ والأبوينَ ظِلَّ سَعَادَةِ  
وسُبْحَ النَّجْمِ الوَجِيدِ مُحَمَّدِ  
وبهيمِ الثَّلَاثِ عَشْرًا هَادِنًا  
وعبيدِ جَمْعِ الشَّمْلِ بِمَدِّ تَشْتِئِتِ

- 1- الكوص أي التراجع إلى الوراء
- 2- شكات أي شكوى من أي ألم أو حادثة
- 3- الثالوث : البنات الثلاث آية ونوار وهبة
- 4- غير ذي وصعات أي عمال من العيوب

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