

## INTERVIEW

### The Road From Damascus: An Interview with Huda Akil

by Carol Ann Paul

Department of Biological Sciences, Wellesley College, Wellesley, MA 02481



*Dr. Huda Akil is the Co-Director and Senior Research Scientist Mental Health Research Institute, Gardner C. Quarton Distinguished Professor of Neurosciences in Psychiatry and Professor, Department of Psychiatry, University of Michigan and is a past-president of the Society for Neuroscience. <http://www.med.umich.edu/psych/faculty/akil/akil.htm>*

I had the great pleasure of meeting with Huda Akil at the 2004 N.E.U.R.O.N.<sup>1</sup> meeting at Wheaton College. Of course the only question I really wanted to ask her was, "How did you become a famous neuroscientist?" Instead, I came armed with a list of questions but as we began to talk, it was clear that she didn't need prompting and was as delighted to talk about her approach to life as I was to listen about it.

CAP: Tell me about your formative years and how you got into neuroscience.

HA: I grew up in Damascus, Syria. My father was a psychologist so it was a natural path for me to become interested in the mind and to want to learn about how one thinks and feels.

My first interest was language. I wanted to understand how people expressed themselves in different languages. Using bilingual subjects, I relied on the Authoritarian Personality Scale to evaluate a psychological trait termed "authoritarianism" as a function of the language a person was speaking. My first finding was that a given statement, if socially or affectively loaded, can be more or less acceptable as a function of language, leading to a different score on the Authoritarian Personality Scale. For example, an expression that may sound reasonable in Arabic can sound too strong or even offensive when said in English. A given individual could be rated differently depending on

the language he or she was functioning in. Was this a superficial difference, or did the language itself actually affect one's feelings, beliefs or even personality? I became fascinated with how we think, by how this thinking is modulated by many variables and by the organ that mediates all of this. I never got back to answering the specific questions about language and thinking, but this experiment aroused my curiosity in how the brain functions.

As a graduate student at UCLA I worked with John Liebeskind on pain research. (*Huda noted in passing that the translation of his name is lovechild!*) Using electrical brain stimulation, we discovered that there was an endogenous pain inhibition mechanism in the brain that resembled morphine. We characterized many features of this phenomenon, termed "Stimulation-Produced Analgesia" including the fact that it could be blocked by a drug that usually only block the opiates. This work provided the first physiological evidence for the existence within the brain of opiate-like substances, also known as endorphins.

*As an aside, Huda told me about one of her most traumatic moments in academia. It was when she was giving her first public talk, and was speaking about pain inhibition that a man got up and started shouting "Only God can stop pain! You're going to burn in Hell", over and over again until he was escorted from the building. He turned out to be a homeless person who had just walked into the talk to get off the street. She told me that she was never afraid to give another talk after that terrifying experience!*

During this first public presentation, the second question I was asked was from Dr. Hans Kosterlitz. Dr. Kosterlitz was convinced, based on his pharmacological studies, that the brain had to contain a morphine-like substance. However, the evidence was lacking up to that point. He therefore asked me whether, based on my research, I believed we were releasing such a factor, and whether we were planning to isolate it biochemically. In fact, it was Professor Kosterlitz and his younger colleague, Professor John Hughes, who eventually isolated the first endorphins from brain, and termed them "enkephalins." Drs. Kosterlitz and Hughes were always most generous in giving our research credit for providing the physiological evidence they needed to continue their search.

After completing my PhD at UCLA, I joined the laboratory of Dr. Jack Barchas at Stanford. There, I began to study the biological functions of endorphins, including their involvement in stress and in pain. We discovered a phenomenon we termed "Stress-induced Analgesia" and showed that at times of stress, the body activates the endorphin system and blocks pain responses, likely because of the need for coping and survival.

<sup>1</sup>NorthEast Undergraduate Research Organization for Neuroscience. Supported by NIH grant #1R13MH60282-0 <http://www.albany.edu/neuron/conference/index.html>

In my lab now, I have integrated these experiences and focused my interests in two areas: the neurobiology of addiction and the relationship between stress, emotions, and depression. Some might call this “affective neuroscience”, but I feel this division is rather arbitrary and that cognition rarely exists without affect.

CAP: As a foreign Arab woman, what were your most significant obstacles and how did you overcome them?

HA: My first response to questions about obstacles is to say that it is important to choose where to direct your energy. It is not very productive to continually bemoan obstacles. Personally I tend not to focus on the possible presence of prejudice, but rather on building meaningful relationships with people as people. I have found it more productive in my academic career to focus on the subject matter, on the ideas and questions that interest me, and not worry too much about any misconceptions that others might have about me.

As an immigrant, I have a different view of “women’s issues.” The relationship between men and women in the Middle East is dramatically different from the relationships of men and women in America. In fact, I think American men are fantastic in comparison to men in many parts of the world! American men, especially in academia, are generally open and friendly, and I can truly say that they have never blocked my path. On the contrary, I have had some wonderful mentors at every stage, and they happened to be mostly men. I am very grateful to them.

Being an immigrant may have helped me realize that in entering academia, I was entering a special culture. The business and academic worlds were designed by men and for men; this does not mean to the exclusion of women. Women were just not part of the picture when the structure was being established. So it pays to understand the system and learn how it works and to see it as a culture that is not designed for women. The job of women is to figure out how it works, to enter it and to modify it from within, to make it congenial to them while it remains also congenial to the men. In fact both sides have much to gain from such an evolution. Here again, one can make the analogy to how ethnic groups have changed, enriched and enhanced life in the US. Typically, they have done this without anger but by understanding the roots of the country in history and changing it from within, yet maintaining the central elements of their identity.

This cultural understanding is particularly important in adapting the system in those areas where men and women are truly different. For instance, the life of a woman in her twenties and thirties is greatly impacted by having children and we need to learn how to tweak the system to make it work for women at that stage of their lives. During these years, women need to have the option to stay on track career-wise but not necessarily at full throttle. We need to be able to pick and choose what is essential for our career and what is essential for families. Then we should shape things so that the culture recognizes the conflicting demands on the career woman - to balance the needs of her career and her family.

CAP: I understand you have children.

HA: Yes – I have two children and I did approach it “full throttle”, keeping my career on track while raising the children. I was able to do this thanks to the understanding and help of my husband. We took our children everywhere but also stayed at home a lot. In terms of travel, national and international meetings, committee work and the like, we picked and chose what was critical for our science and paid less attention to what was less important. Were I to do it again, I might choose the softer pedal approach, and find a way to spend even more time with my children than I was able to. Still, I think I was lucky in that it has worked out for our family. They are both great.

CAP: What makes a good scientific mentor?

HA: Mentoring is very important, but not the artificial kind where a student is assigned to a mentor. Mentoring needs to be bidirectional, and like any other significant relationship, involves trust, respect, and affection between the professor and the student. It is not a cookie cutter experience; it must be individualized. It is essential that there is chemistry between the student and lab director; it cannot happen with random or institutional matching.

The relationship should be such that the students should never think of themselves as imposing when approaching their professor, nor should they be afraid to engage their mentor in strategizing about their research career and life plans.

There is a distinction between advice and mentoring. Advice may entail providing specific answers to specific questions on how to proceed with a particular research question or how to solve a particular career problem. Mentoring is understanding the entire needs of a student in relation to all of life’s problems. I cannot mentor someone whom I do not know. I can give them advice and send them on their way, but mentoring is much more than this. I find mentoring a blessing – it keeps me young. I am delighted when a mentee is willing to give me feedback and even criticism, and it becomes a two-way relationship.

CAP: Thank you Huda for giving me this time to see a small window on how you work. It is clear from me that you are an extremely motivated person and that you are not willing to let life’s pettiness stand in your way. You have given me a lot of insight into your outlook. I know that others will enjoy reading about you and find inspiration in your energy, enthusiasm, and sense of humor.