

**THE USAMA AL-KHALIDI SCIENTIFIC DAY
CELEBRATING THE LIFE AND SCIENTIFIC WORK
OF
PROFESSOR USAMA AL-KHALIDI**



**MIDDLE EAST MEDICAL ASSOCIATION
SATURDAY APRIL 24, 2010
BEIRUT, LEBANON**

Usama al-Khalidi Celebration Day

Welcome from the Dean's Desk



It is a real pleasure and honor to welcome Professor Usama al-Khalidi for a long overdue recognition by his alma mater and home university AUB- Thanks to the MEMA leadership, in particular Dr. Ibrahim Salti for extending this invitation and dedication of a whole day of basic science in celebration of Professor al-Khalidi's lifetime achievements at this year's Middle East Medical Assembly. Indeed Dr. al-Khalidi's legacy has deep roots in AUB's basic sciences from his own research and science pedagogy, having trained most of the AUB graduates of regional and international fame in medicine and the sciences.

I could not describe Professor Usama al-Khalidi's achievements better than outlined in the words of Dr. Julnar Usta (see below), a former student of Dr. al-Khalidi and current AUB professor of biochemistry. Julnar speaks for me and I know for all of us here at the faculty of medicine.

Welcome to AUB and the MEMA and thank you for sharing with us this special day of celebrating Professor Usama al-Khalidi, one of AUB's legendary faculty.

Mohamed H. Sayegh, M.D.

Vice President for Health Affairs and
Raja N. Khuri Dean, Faculty of Medicine
American University of Beirut

Welcome from the Usama al-Khalidi Celebration Day Committee



There's nothing like a broken ankle to put one's mind on memory lane, and it surely did for me, 4 years ago during my first winter at Boston's Children's Hospital, on a dark December Friday afternoon. What ensued was no short of a wonderful soul searching trip, somewhat of a cross section between Marcel Proust's "A la recherche du temps perdu" and Lewis Carroll's "Alice in Wonderland", from the comfort of our living room's couch. I thought about life, what made it beautiful and most worthwhile living.

There are no gloomier moments in my memory than those of the war that most of us lived through in the late 70s and 80s of the century of enlightenment, where major scientific discoveries that had significant impact on our daily lives and understanding of human biology and disease were made. It was my destiny to matriculate at AUB's school of medicine in 1979, after a productive undergraduate education and research in the USA, thinking that the "war was over". The four years that ensued offered me a wonderful intellectual experience at AUB, and more specifically at the biochemistry department where I continued my undergraduate research, under Elmon Coe's direct tutelage and the aegis of Usama al-Khalidi, one of the most original thinkers and creative scientists that I have encountered until (and since) then. What I learned under Professor al-Khalidi was not only biochemistry, but a way of thinking and scientific logic that is at the heart of the scientific discovery process, the type of thinking that led to the discovery of the bacterial operon or restriction enzymes. Usama took science very seriously, and would drill a student with unique pedagogy, keeping a most lighthearted laughter that made learning complex equations and concepts fun.

More importantly, it is in his laboratory that I met one of my good friends, Talal Chatila, and my wife, Rima Kaddurah both of whom were graduate students in his lab. Many bombardments and savageries later, we all found ourselves in Boston, and realized how lucky indeed we were to have had such a wonderful mentor, like whom we would rarely encounter throughout our careers.

Professor al-Khalidi's legacy includes several prominent scientists and physicians throughout the continent, scientific discoveries, educational methods and advocacy for the sciences in the Arab world, and I would be amiss if I did not mention, the breadth of his scope in cultural, educational, and worldly affairs, and of his beautiful calligraphy and craftsmanship.

Reviewing all this on that dreary December day, I realized that a highlight of my life had indeed been my "passage" on the 4th floor of the DTS building, and working with Usama al-Khalidi. The world gives out Nobel prizes and other awards for important discoveries. It is no less important to recognize people who influence young minds to excel in the sciences and endow them with a solid scientific discipline. Today's recognition comes in that vein. I thank my partners in crime, Drs. Raif Geha, Talal Chatila, and Rima Kaddurah for supporting me in moving this festschrift project forward; Usama's wonderful daughters, Ramla and Muna, for their infinite energy and contagious enthusiasm and thoughtful input in making the project happen on the ground; Usama's family and colleagues for their wonderful essays and comments that shape the content of this booklet despite my nagging emails and ever changing deadlines; Mr. & Mrs. Khaled Salam, Dr. Alexander Geha, Mr. and Mrs. Hani Abul-Jabine and Dr. Abdullah Al-Musa for additional financial support and for helping set up our social event; AUB, Drs. Mohammad Sayegh, Ibrahim Salti and others, for opening the MEMA gates to allow us this opportunity to celebrate Usama al-Khalidi's lifetime scientific and academic legacy. Thank you for joining us

Ghaleb Hasan Daouk, M.D., S.M.

For the Usama al-Khalidi Day celebration committee

Usama al-Khalidi Celebration Day

OPENING REMARKS

Dr. Mohamed Sayegh

*Vice President for Health Affairs
Raja Khuri Dean of the Faculty of Medicine
American University of Beirut*

WELCOME

Dr. Ghaleb Daouk

*Children's Hospital Boston
Harvard Medical School*

PRESENTATION OF AWARD TO PROFESSOR AL-KHALIDI

SPECIAL GUEST LECTURERS

Dr. Raif Geha

*James Gamble Professor of Pediatrics
Harvard Medical School*

“I am allergic to Cheese and my Skin Itches”

Dr. Rima Kaddurah-Daouk

*Associate Professor of Medicine
Duke U. School of Medicine*

“Metabolomics: How Drug Treatment in becoming Personalized”

Dr. Talal Chatila

*Professor of Pediatrics
UCLA School of Medicine*

**“Warding off Autoimmunity: Usama's Rabbits
and the Guardian FOX”**

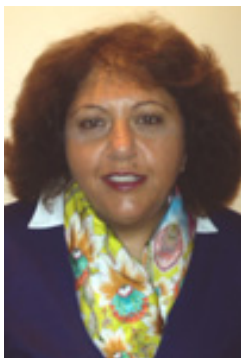
Biographies and Abstracts of Guest Faculty and Lectures



Dr. Raif Salim Geha, received his M.D. degree in 1969 from the American University of Beirut, Lebanon, and trained in Pediatrics and Immunology at Boston Children's Hospital and Harvard Medical School. He is the James Gamble Professor of Pediatrics, Harvard Medical School and the Chief of the Division of Immunology, Allergy, Rheumatology and Dermatology Division at Boston Children's Hospital. Dr. Geha's research interests are in molecular and cellular mechanisms of primary immune deficiencies and atopic dermatitis. Dr. Geha has received the Mead Johnson Award for Pediatric Research, the Kuwait Foundation for the Advancement of Sciences Prize, and the American Association of Immunologists Prize in Human Immunology Research. He is a member of the American Society of Clinical Investigation and chairs the WHO/IUIS Committee on Immunodeficiency. Dr. Geha has trained more than 120 postdoctoral fellows, many of whom are leaders in the fields of Allergy and Immunology.

ABSTRACT

Atopic Dermatitis (AD) is a pruritic inflammatory skin disease that affects 15% of infants and children. AD is characterized by itchy dry skin with lesions infiltrated by a Th2 dominated immune and skin infiltration with T cells and eosinophils. In about 20% of the cases there are mutations in the skin specific gene *filaggrin* (*FLG*), which is important for the hydration and barrier function of the skin. We developed a mouse model of allergic dermatitis by repeated epicutaneous sensitization with ovalbumin of skin mechanically injured by tape stripping, which upregulates the expression of keratinocyte-derived inflammatory cytokines in the skin. Studies in this model and in *FLG* deficient mice highlight the role of skin injury in driving dendritic cells that carry antigen from skin to draining lymph nodes to polarize naïve T cells to differentiate into Th2 cells. The role of cytokines chemokines and arachidonic acid metabolites in skin inflammation in AD will be defined. The mechanism of susceptibility of patients with AD to food allergy, asthma and eczema vaccinatum will be discussed. Novel therapies for AD suggested by these studies will be proposed.



Dr. Rima Kaddurah-Daouk received her Ph.D. in Biochemistry at the American University of Beirut, under Professor Usama al-Khalidi, and subsequently post graduate training at Johns Hopkins with Nobel Laureate Hamilton Smith, the Harvard Medical School and the Massachusetts Institute of Technology. She is currently Associate Professor at The Duke Medical Center and head of the newly established Pharmacometabolomics Center. She cofounded the Metabolomics Society and served as its founding president and over a period of four years built a metabolomics community with over 500 members. She also cofounded a leading biotechnology company devoted to metabolomics and is an inventor on a series of key early patents in the field of metabolomics that sets applications for metabolomics in the medical field. Dr. Kaddurah-Daouk has extensive experience in assembling teams of researchers to work collaboratively on large scientific projects and has lead scientific program (such as creatinekinase) from the bench to clinical trials in over fifty centers. At Duke she has built a major program to map biochemical changes in neuropsychiatric diseases and identified key pathways perturbed in schizophrenia, depression, Alzheimer’s disease and addictive disorders. With major funding from NIH (over 8 million dollars) she created the national “Metabolomics Network for Drug Response Phenotype” with the goal of using comprehensive metabolomics tools for Personalized Medicine. Over thirty scientists from across the US are involved in the network and bring a most comprehensive metabolomics capabilities under one virtual roof.

ABSTRACT

Metabolomics is the study of metabolism at the “global” level and involves studies of the “metabolome”, the entire repertoire of small molecules present in cells and/or tissues. The identities, concentrations and fluxes of these compounds represent the final product of interactions that extend from gene sequence to include gene expression, protein expression and the total cellular environment, an “environment” that in the clinical setting includes drug exposure. Metabolomics has already been identified as an important area for development under the NIH Roadmap Initiative. Sophisticated metabolomic analytical platforms and informatics tools have already been developed that have made it possible for us to define signatures for several central nervous system disorders and for response to drugs that are used to treat those disorders. The "Metabolomics Network for Drug Response Phenotype" a national network funded by NIH and lead by Dr. Kaddurah-Daouk has a mission to integrate metabolomics in clinical pharmacology and pharmacogenomics research to achieve a deeper understanding of mechanisms implicated in drug-response variation towards a more personalized approach to therapy. We will exemplify approaches we are taking and early findings from the study of statins and SSRI (antidepressant) classes of therapies.



Dr. Talal A. Chatila is the Chief of the Division of Immunology, Allergy and Rheumatology, the Department of Pediatrics, The David Geffen School of Medicine at the University of California at Los Angeles (UCLA).

Dr. Chatila received his combined MD-MSc (biochemistry) degree from AUB in 1984 where he did his graduate research under Professor al-Khalidi's supervision. His post graduate training in Immunology and Allergy took place at Harvard's Children's Hospital Boston, and subsequent academic career at Washington U. St Louis and most recently as Chair of Pediatric Immunology at UCLA. His research interests are focused elucidating the molecular basis of heritable human disorders of autoimmunity and immune dysregulation. His previous studies have identified several novel immunological disorders and their associated gene defects. These include mutations in the gene *CD16* that result in severe herpes virus infections, primary immunodeficiency resulting from mutations in the common leukocyte antigen gene *CD45*, and X-linked autoimmunity resulting from mutations in the gene *FOXP3*. His group was also the first to identify mutations in the interleukin 4 receptor as causative factors in asthma and allergic diseases. His most recent studies have identified mutations in the gene *DOCK8* in the autosomal recessive form of the hyper IgE syndrome.

ABSTRACT

In the late 1970s, Professor Usama al-Khalidi embarked on provocative studies aimed at curing experimental allergic encephalitis (EAE) in rabbits, a model of the human autoimmune disease multiple sclerosis, by means of bone marrow transplantation. Since then, major advances have taken place in our understanding of the pathogenesis of autoimmune diseases such as EAE and in their treatment. Novel Lymphocyte subpopulations involved in maintaining immunological tolerance (Regulatory T cells or T_R cells) and in mediating autoimmune injury (IL-17 producing T helper cells or Th17) have been identified and their genetic and molecular characteristics established. Our own studies have led to the identification of human autoimmune disorders that result from mutations in key genes controlling the differentiation and effector function of T_R cells. The most prominent of these genes is the transcription factor Foxp3, which orchestrates the genetic circuitries characteristic of T_R cells. Loss of Function mutations in *FOXP3* and other related genes results in T_R cell deficiency or dysfunction and syndromes of autoimmunity and immune dysregulation. Approaches that aim to boost the numbers and function of T_R cells, and reciprocally repress those of autoimmune effector T cells, including Th17 cells offer promising new therapies for autoimmunity. In select cases, hematopoietic stem cell transplantation has been employed for the treatment of human autoimmune diseases, harkening back to the original approach of Professor al-Khalidi.

Dr. Usama al-Khalidi: In Their Own Words



Dr. Abdullah M. AlMusa

*President Emeritus, University of Jordan;
Professor of Plant Virology*

Dr. Usama descends from a family whose members command a lot of respect for their contributions to education and politics not only in their home country but in many Arab countries. There were two points in time and space when I got close to Dr. Usama al Khalidi. Dr. Usama's stature as a salient and solid academic land mark instilled a sense of pride and inspiration in the contingency of Jordanian students studying at AUB. I was one of those students in early seventies who held Dr. al Khalidi's scholarly achievements as a minaret guiding me in my professional life.

I was also fortunate to have the opportunity to interact with Dr. al Khalidi intermittently in my professional life from 1999 until the present. During these years I could point out three traits that I would like to share.

Dr. al Khalidi has a sharp, critical, and analytical mind with superior reasoning power. I think this explains his ability to be lateral thinker who is skillfully able to inter-phase in diverse scientific debates with colleagues who have different scientific backgrounds.

Dr. al Khalidi has the imagination as a poet which is reflected in his sense of humor and his ability to artistically bridge the gap between science and technology. His approach in this regard was substantiated into one functional economic enterprise until now- we expect more in years to come. This approach has resonated positively among Jordanian scientists.

Dr. al Khalidi has the serenity of a hermit: a reflection of his deep appreciation and understanding of life and the people that surround him or are influenced by him.

I am one of those who are tremendously influenced by him.



Professor George Najjar

*Dean, The Suliman Olayan School of Business,
American University of Beirut*

Usama is not just a distinguished scientist, he is a distinguished human being. In his case, a “beautiful” mind is complemented by a superb personality, an unfailing sense of humor, the special streak of modesty that is the hallmark of all great men, the self-deprecating air of those who are truly accomplished, and the simplicity of those who retained vestiges of childhood throughout their later years. The greatest tribute to Usama is that his many friends and admirers will always consider him a class act that is impossible to follow”.

Julnar Usta, PhD

*Professor of Biochemistry, American University of Beirut
Speaking for the AUB Faculty of Medicine*

Of the most difficult tasks one may be asked to do is to write about someone like Dr Usama al-Khalidi. Will one write about al-Khalidi the biochemist, the scientist, the artist, the writer, the educator, the Islamic philosopher, the calligrapher, the social worker or the astronomer? He is all of those; He is simply a walking encyclopedia.

Beyond any doubt, the sincere dedication of professors like Dr. al-Khalidi has given AUB its reputation as an institution of excellence in the Middle East and the region. Likewise label that the Biochemistry Department gained as “The Jewel of the Medical School “owes a lot to the efforts of Dr. al-Khalidi and others like professors Stanley Kerr, Avedis Khacahdourian, Ibrahim El-Durr, and Elmon Coe.

Dr. Usama al-Khalidi was born in Jerusalem. His father a renowned educator (Ahmad al-Khalidi) decided not to send him to school in his early years simply because he believed that schooling at an early age would curb creativity. So up till the age of 8, Usama enjoyed the hills

around Jerusalem, explored, learned and established a link with nature which flavored his personality with different scents of flora and broadened his imagination beyond the sky. It took Usama 10 years to finish his high school and BSc in Chemistry. Later after earning his PhD degree from the University of Michigan, he Joined AUB 1960-1983, as Professor of Biochemistry. During this time he strived to establish the PhD program that was approved initially for Biochemistry; other disciplines joined later.

It would take a lifetime to speak of Dr. al-Khalidi's contributions and achievements throughout the years. I will just speak about the other aspect of Dr al-Khalidi, which many students and I encountered; awakening our awareness of how short moments can shape our lives. As a professor, Dr al-Khalidi was very passionate about Biochemistry with unbeatable and contagious enthusiasm. Many students volunteered to do research in hsi lab. Some are currently international figures in Biochemistry and /or medicine. (the late Naji Sahyoun, Yusuf Hannun, Talal Chatila, Rima Kaddurah, and many others). He used his great sense of humor to explain hard biochemical concepts. Students always attended his classes, enjoying the jolly flavor he used to spice with the dry and hard material. His teaching philosophy was simply motivating students. To him teaching is not conveying information. but instilling seeds of creativity, provoking students' minds to question and think, empowering their confidence to criticize, analyze and conclude. His lectures may not have been that organized but were the most thought provoking; very often ending up with more questions to be answered.

An amusing character that accompanied Dr. al-Khalidi during his lectures was auntie Nazira (I do not recall whether she was his grandmother or aunt). Nazira was not a biochemist, but she was the core of Biochemistry. Through her Dr. al-Khalidi taught us that Biochemistry is our daily experience. The process of glycolysis is best exemplified by Nazira's fermentation of sugar, baking, lactic acid formation ...etc. He and Nazira guided our steps over the bridge that links us in real life to biochemistry. It may sound hard to understand but was quite enjoyable experience. Class discussions were fun; he used to distribute candies and chocolate when we answer correctly. In few words Dr. al-Khalidi's teaching may be best described quoting

JubranKhalilJubran ” like weaving the cloth with threads drawn from the Heart”

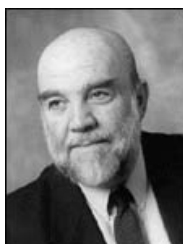
Personal aspect

Dr. al-Khalidi was not only a professor but a caring father with 2 families to care for: His immediate family and the big Biochemistry Department. Most of the time, he has sacrificed the needs of his family for the sake of the Department. As a student I do not recall him losing his temper even under the most provocative situations. He has a pleasant and serene character, calm, compassionate but firm and fair. He made sure that every single member of the department felt part of the big family. He was a good listener and was always there whenever needed. extending a helping hand that touches our heart. He had a special gift of creating a happy and cooperative environment urging all people to share the limited facilities and resources we had during the civil war period.. In two words Dr al-Khalidi was a father and a leader.

Another feather of distinction that added to his colored hat is his diversified research interests. In addition to the internationally recognized and outstanding research in biochemistry (He published many manuscripts and books), he was innovative with unlimited creativity. His activity and thirst to develop, advance and change are best reflected in his ability to handle and supervise as many as 50 projects simultaneously. He initiated and supervised many creative projects, out of nothing (Shay' min la Shay'), using simple resources that resulted in good impact on people and society. Dr Khalidi's vision and insight are unparalleled. A child's question, an unusual situation triggers his wild imaginative and creative mind. I remember one day, I was surprised to see an egg hatching setup in the Department. It was not Easter. Dr Khalidy was investigating the hypothesis that the first subject seen by newly hatched chicks will be imprinted as their mothers in their heads. I am not sure what the findings were, but one can imagine the number of chicks that Dr Khalidi mothered.

His interests were multi variant ranging (other than science) between astronomy, to growing tomatoes in sewage water/saline water, wool shearing, spinning, carpet weaving, paper recycling, which led to the establishment of Artisanat in Bahrain (between 1983 and 1993).

In 1983 Dr al-Khalidi joined the Arabian Gulf University in Bahrain as professor and Dean of the Medical school, where he promoted the McMaster program of Medical Education (problem based learning). In 1994 he moved to Jordan, as the Science Advisor to Crown Prince Hassan. He afterwards assumed several important positions: Secretary General of the Higher Council for Science and Technology and current Director of National Center for Biotechnology; a virtual center that provides financial and technical support for the development and execution of biotechnology projects ranging from thorn-less plants to human monoclonal antibodies.



Professor Tarif al-Khalidi

*Sheikh Zayed Chair of Islamic and Arabic Studies
American University of Beirut*

A Portrait of the biochemist as a Young Man

Around the age of about six Usama must have peered inquisitively into the crib where I was lying as a newborn, and decided at once that I was not worth investigating, let alone talking to. He would have concluded that the butterflies, lizards, scorpions, snakes, ants and other fauna and flora teeming outside the family house in Jerusalem were far more promising as scientific specimens. For reasons I have never been able to fathom, Usama was educated entirely at home until age ten, so by the time I and the sister sandwiched between us were ready for school, it was also Usama's first experience of schooling. He must have found that experience particularly embarrassing; I mean having to drag with him on his own first day of school a heavily plump sister of six and a drip-nose three year old brother. It is from that period that Usama developed one of his characteristic facial expressions: head tilted upwards and to one side, eyes downwards, nose and mouth in a coordinated jerk of contempt. If you have been at the receiving end of that glance, please understand and forgive. It was in my direction that he first turned it. My sister and I alone are to blame.

But worse was to come. In a family of seven--father, mother, two sisters and three brothers---Usama stood out like a lighthouse for his mathematical skills. All other members of the family were total--I mean total--washouts on the mathematical graph. From about the age of 11 or so, Usama became the official Michael Atiyah of the family, and was already helping our 18 year old brother with his high school maths. When he came round to helping my sister and me, Usama, having exhausted his patience on his elder brother's abilities, had little patience left for us.

Usama: "Right. A car travels at twenty miles an hour. How many miles does it travel in 2 hours?"

Me: "Ah...Ehm...Oh...Ahm, twenty two. No, no, no, thirty-two. Yeah, thirty-two."

Usama: "Now why in God's name is that so? Explain how you got this result."

Long pause. Dead silence.

"*Himar!*" Usama would snap, "Totally uneducable!"

Here too, if any of you have been at the receiving end of this expression, please don't harbor any resentment. I alone am to blame for Usama's very early and low opinion of human intelligence. If one wanted to paint the young Usama in a landscape, and I would suggest an artist of the school of Hieronymus Bosch, it would have Usama standing on a hill, with his characteristic facial expression (see above), and surrounded by a herd of donkeys jostling for his attention. But of course, God be thanked, Usama did discover later on in life more interesting specimens of human intelligence than my sister and me, and his joy at such discoveries was proportionately more intense. I regret to inform you, however, that the *Himar*, or *EquusasinusHumanus*, as identified by Usama, continues to do exceedingly well in the polls, especially in the United States.

Having reached the age of thirteen, and having abandoned all hope of his siblings, the lonely Usama, somewhat like HayyibnYaqzan, turned to investigating logic and nature, and the many and different, straight and crooked, downside and upside, ways of studying them. This is captured in the following conversation dating to that period between the 10-year old Usama and his mother.

Mother: “Usama, why do you always button your shirt the wrong way?”

Usama: “Because there are many ways of buttoning it wrong and only one way of buttoning it right.”

You could almost say this is an answer which captures the essence of post-modernism. If there’s any problem worth solving, it should never receive a final solution.

It was in my grandfather’s house in Beirut that I heard Usama, now about eighteen, first mention the word “biochemistry”. He had by then become the scientific whiz kid of the entire clan, including aunts, uncles, and cousins innumerable. One day, I sneaked a look inside his AUB notepad, and it was full of these fascinating octagons and hexagons and polygons, with lines running between them, and numbers and letters and molecules and things.

Said I: “Are these....what? The ants you study? Or maybe spiders?”

Not even *Himar*, from Usama. Only the famous sneer.

His final, desperate attempt at scientific education was when he took me by the hand early one morning to a *sankari*, where he ordered a basic distilling apparatus. He would then explain how one added some flowers to water, boil the mixture, and get the lovely drops of distilled rose-water, or whatever one obtains from this process. But no, I could never operate it without him, and so, in despair, he decided to buy me a kite. “Go fly a kite”, he said, abandoning me to the mercy of the breezes. As I set off to the roof with my kite, Usama would whisper the expression of his own math teacher, the legendary Jamil `Ali: *Himar, mutahaddir min mi`atalfhimar*, being too fond of his father to include him loudly in my genealogy.

By about age 16, Usama, physically speaking, looked exactly the way he looks today. The voice is slightly more gravelly, but the characteristic stoop, for instance, dates from that period. Intonation, clipped speech, body language, body weight, legs wrapped three times beneath him, sandals, jacket askew, and of course the wrongly buttoned shirt were all in place by that age. Not even Samia has been able to straighten him out or unbend and uncurl him. One day, Usama, shuffling in to pay his condolences to a family of the Beirut

haute bourgeoisie, was glimpsed by a man sitting next to the grieving family who asked in whispers: “Who’s that?” “Oh,” replied the grieving son “that’s Christian Dior’s brother.” Usama thrills to this story. And even if he knows you’ve already heard it, he will have no problem in repeating it to you. It’s a sort of self-definition: when you see me, I want you to think Picasso. But I don’t want to indulge in what Usama calls “slaterizing the issue”, killing humor by over-interpretation.

For Usama, his AUB days must have been among the happiest of his life. His hero in the Department of Biochemistry was Stanley Kerr who is said to have remarked of Usama: “He is a brilliant scientist who cannot spell ‘science’.” Usama, so the story goes, remarked: “I AM a brilliant scientist BECAUSE there are many ways of spelling cyense.” He loved Bernard Shaw’s essay on the subject of English spelling. His other heroes included Kamal Salibi, Nada Barudi and Yusuf Shirawi. There is a charming portrait of him in that period of the late forties and early fifties, in Salibi’s recent autobiography, so little need be added here. But having discovered these outstanding examples of the non-*himar* species, Usama bloomed in their company. On me would descend quotations from Bertrand Russell, *Jahili* poetry, especially the *Sa`alikh* poets, Oscar Wilde, James Thurber, Fred Hoyle, Darwin, Freud and, a little later, AJ Ayer. And God knows who else. What fascinated Usama and his buddies was contrarianism. The larger the creed, theory, accepted opinion or common dogma, the more willing they were to find holes in it, to question its assumptions, to hurl a brick through it or to unmask the *hamir* who were holding it up. Usama was the mascot of the group and though now in his early twenties was commonly chosen by the group to proclaim their latest contrarian view, delivered by someone who looked like a precocious 14 year old. One theory which I remember earned his utter scorn was that great art must always come from great pain. What’s wrong with great pleasure, Usama would ask, cocking his head, and twisting mouth and nose?

As the brothers and sisters headed off to various lands of the west for further education, to what Usama called *bilad `uluj al-Faranja*, and through repeated and direct contact with these *`uluj*, he, like Usama ibn Munqidh, must have felt that he had been a little too harsh towards his siblings. He began to mellow and was a little kinder and more

patient with our views. But this kindness was never unconditional. I suppose it could be described as a form of affectionate contempt. At any moment the exasperation with our brains might burst forth: “Why on earth can’t you SEE the point?”

And so it came to pass that it was upon his non-*hamir* students that he lavished his true affection. It was them, and only them, who really understood him. They were to become his other, less embarrassing family, for they could, upon command, manage successfully to juggle the molecules of their brains. As he sits amidst his students today, I tremble to think what he might make of these reflections on his youth by one of his siblings. But my skin is thick and I can take it. If he thinks I ought to be here, he must also think I am now a little less of a *himar* than I once was. Or so I pray.



Rami Zureik, Ph.D

*Professor and Associate Dean- School of
Agriculture, American University of Beirut*

When I first met Usama al Khalidi, in early 1982, I had long hair, rode a noisy motorbike and wore sleeveless t-shirts to show my tattoos. I was reluctantly engaged in a master’s degree in Agriculture, as a stepping stone to working in the private sector somewhere in the Saudi desert. I had little interest in research or in education, be it mine or that of others. Today, my hair is shorter, I still ride a bike and I am Professor and Associate Dean at the Faculty of Agricultural and Food Sciences at AUB. It is to him that I owe my career choices and achievements.

In my twenty plus years of working as an educator, I have come to realize that the greatest challenge is not to teach those who want to learn, but those who don’t. While this may appear as a truism, I would maintain that we give up too quickly on the uninterested. One of the main reasons for that is our reluctance to question the education system, our methods, our approaches, and even the substance of what we teach. Usama’s relentlessly critical mind never takes the trodden

path. Instead, he looks for answers in the most improbable places, and uses the most imaginative tools to catalyze the interest of his pupils, students or friends, regardless of age or culture. With his vast knowledge and his gentle demeanor, Usama can find the correct approach to addressing most of the problems of the human, biological and physical realms. He can also find the right words to captivate the most impassive listener. Usama's strength lies in his total disregard for disciplinary boundaries. A biochemist by training, Usama has an intuitive sense of systems, and an infectious curiosity. But unlike most other erudite scholars, being around him makes one feel knowledgeable rather than ignorant: he is capable of delving into history, politics, poetry from the Arab Jahiliyya, modern English literature, agriculture, astronomy, anthropology, sculpture, drawing, painting, physics and many more fields, in order to share his enthusiasm for knowledge and to find common grounds with his interlocutors. Way before people started talking about multi, trans, cross and inter disciplinarity, Usama was already there.

This is the world Usama has opened for me as he did for many others. I remember clearly the day it dawned upon me: for the first time, here was an academic who could speak my language. I immediately decided that I wanted to become like him. I am still working on it. I have been Usama's pupil for nearly 30 years and counting. I have learned about indigenous seeds and local cultivars before the Convention for Biological Diversity made them famous. I have learned about salinity tolerance and drought adaptation many years before anyone started to talk about climate change. But most importantly, I have learned from him that we live in the Arab World and that it is our first and foremost responsibility to advance the knowledge of our people, in our region. I may not be as wealthy as if I had opted for a career in contracting in Saudi Arabia, but I am certainly richer in spirit. Call it the Usama effect.



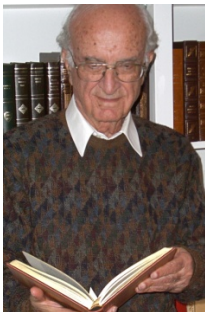
Elmon Coe, PhD

Professor Emeritus of Biochemistry

American University of Beirut

I first met Usama in 1978, when I arrived in Beirut to take a position in the AUB Biochemistry Department. I had just left a politically stormy department in a large American university and was uncertain about the new environment I was entering. After a few weeks in Usama's department I was both relieved and encouraged by the new surroundings. First, although there were political disturbances, it seemed they were mostly outside rather than inside. Usama administered the department firmly but fairly, blocking potential development of conflicts that could produce the destructive infighting often seen in academe. His attitude toward research was also liberating, since he saw it as a means of developing ideas and answering questions more than as a means of accomplishing practical goals or raising grant money. He also demanded that facilities be shared within the department and I once heard him threaten to break any locks affixed to certain cabinets that should be available to all. One of his criteria for evaluating research was that it be interesting. If it were also useful and applicable to practical problems, even better, but those were secondary. He mentioned once that one of the reasons he hired me was that I had been involved in a project to demonstrate enzyme activity in a 2000-year old Antarctic seal mummy. This, he thought, fell in the "interesting" category.

Usama is sort of a black sheep in his family, having gone into scientific research in a hard science like biochemistry, instead of becoming a political scientist and social historian like most of his relatives. Yet, he has a broad knowledge of literature, art, politics, and history, both in Arabic and European cultures, which made it possible to see relationships and analogies that others missed. He could illustrate a point with either a classical Arabic tale or a quotation from a British or American author. One of his favorite authors is James Thurber, and he would sometimes use the quote, "The unicorn is a mythical beast," from Thurber's "Unicorn in the Garden" when confronted with a perplexing lab finding. On reflection, I believe that Usama was the best chairman I ever worked under, including myself.



Dr. Avedis Khachadurian

*Professor Emeritus of Biochemistry and Medicine
American University of Beirut & Rutgers University*

In 1953 as a first year resident in internal medicine I realized that in order to pursue a career in academic medicine I needed to acquire more knowledge in one of the basic sciences. During my first year of medical school, I had enjoyed biochemistry, because of its relevance to internal medicine and the chairman of the department, Dr. Stanley Kerr, who combined a mastery of the field with excellence in teaching. I obtained the permission of the department of medicine to spend my second year of residency as an elective in Biochemistry.

That was when I met Usama, a graduate student in the department. It did not take me a long time to realize what a remarkable person he was. He had a brilliant and inquisitive mind, an excellent sense of humor, and a generous and unassuming personality. The presence of Usama contributed greatly to my enjoying the elective, and continuing my association with the department.

In 1957, after I completed my residency in medicine, I was asked to teach the biochemistry course, because the chairman was going to leave for a sabbatical. I would not have assumed this responsibility if Usama had not agreed to interrupt his PhD studies in the US to join me in Beirut.

In 1959, I returned to Beirut from my training in the US, and Usama joined me again after obtaining his Ph.D. We were later joined by Dr. Ibrahim Durr and John Reinhold as chairman.

The atmosphere in the Department was relaxed and pleasant. Our main task was to teach the medical and pharmacy students during the first semester. We all attended each other's lectures, assuring a close coordination, and providing suggestions for improvement. We knew every student by name and level of performance and were able to provide individual attention and advice. This did not escape the attention of the students, many of whom, including Khalil Abu Feisal, Fuad Jaber and Raja Khuri, spent their summer vacations in the department.

The first semester and the summer months were devoted to research. Usama continued his doctoral studies relating to the biosynthesis of riboflavin, and developed an assay for serum xanthinoxidase as a liver function test, which he labeled as SeXO. He considered research as an intellectual experience rather than a task to obtain results and publish papers. He followed my patient- related studies with amusement, but was extremely helpful when I needed his skills in basic biochemistry.

Lebanon offered an exceptional opportunity to study hereditary disorders. The rate of consanguineous marriages was very high and the stable populations in villages and towns were easily accessible for studying. The first case I had was that of a long-time hospital employee who passed black urine and had arthritis that remained undiagnosed. I had read about alkaptonuria, and Usama had recently given the lectures on amino acid metabolism. It took us a few hours of deliberations and testing to identify the urinary substance as homogentisic acid. During a day- long visit to the village we identified the condition in five successive generations. Textbooks used the pedigree to illustrate how a Mendelian recessive disorder could masquerade as a dominant trait. In 1960, I saw the first patient with homozygous familial hypercholesterolemia with extensive xanthomatosis. Dr MunibShahid brought her over to my clinic and urged me to investigate this serious disorder. Usama got interested in the disease after I demonstrated that dietary cholesterol failed to suppress hepatic cholesterol synthesis.

This was real biochemistry to him! He could now study the feedback inhibition pathways of cholesterol synthesis, as well as the role of intestinal bacterial flora in sterol metabolism.

Our active collaboration got interrupted in 1971 when I received and accepted an offer from Northwestern University in Chicago to join them as Professor of Pediatrics and Director of the Clinical Research Center. Subsequent attempts to obtain funding to continue our collaborative studies got interrupted because of the political situation in Lebanon.

I would be amiss if I did not mention a few of the numerous amusing incidents that made Usama such a delightful person. While returning from the US he brought with him a rack of test tubes containing the bacteria for his riboflavin studies. At his stopover in London the

customs officers were alarmed when he told them the tubes contained bacteria. He uncorked one and brought it up to his mouth to drink. The officers let him go. During his studies in Beirut he assumed that he had finally crystalized riboflavin, but looking at it under the microscope he realized the crystals were salt. We were around him, watching this important step and heard the word sh..t. The Pakistani graduate student asked him what he had said. He repeated s..... How do you spell it the student asked , and Usama spelled it. Two days later, the student told him “Sir, why do you use bad words.?”

I am sorry that I will miss the celebrations for Usama at the MEMA. It is a distinction that he deserves fully. He and his family know that our thoughts are with them on this joyous occasion.



Nadim Cortas, M.D.

Professor of Medicine and Pharmacology

Former VP for Medical affairs

Dean- Faculty of Medicine

American University of Beirut

Usama al-Khalidi's 25 years at AUB

Dr. Usama al-Khalidi spent as of 1960, 25 years on the faculty of the Department of Biochemistry in the School of Medicine at AUB. In 1962, I became a student at the school, then resident, and after a postdoctoral fellowship in the USA, returned back to join its faculty. Throughout both careers our paths met more often than not and I had the honor and pleasure to witness the tremendous transformation that Usama effected in the basic sciences at AUB: from one person departments, each alone, to a hub culminating with a PhD program that graduated 54 students enjoying successful careers!

From the beginning, he continued to amaze me with the depth of his creativity, vision and critical analytical thinking, coupled with a commitment and intensity in bringing about necessary positive change. He always built paths towards a better future. His accomplishments are too many, even to enumerate. I shall highlight what I now see from a dean's vantage to be some of his major marks

and accomplishments at AUB. I shall leave his research output to others to comment on.

My first encounter with Dr. al-Khalidi was in the 1st semester of 1st year Medicine. As a teacher he made sure through various illustrations that all students understand rather than have to memorize the processes. You should see his thrill, when he realizes for example that almost each one in the class understood the laws of thermodynamics! And that, at one point after the fall from the wall, “all the king’s forces and all the king’s men cannot put Humpty Dumpty together again!” during one of these moments, he fired a bullet less sound pistol in the air.

He did not treat students as teachers normally do. During a long biochemistry laboratory, and after doing the experiments, he and Dr. Durr were discussing the results with two sections from the class. By then, I had done the experiments and knew it all, particularly from friends in 2nd year. I was getting sleepy and, stealthily slipped to the back and lied down on a couch that was there. Antranig the technician spotted me and asked if there is anything wrong. I said no, I am only sleepy. He went up and whispered the matter to Dr. al-Khalidi. I was getting ready for a sermon. Dr. al-Khalidi told Antranig, “give him a blanket”! I loved biochemistry and got an excellent grade in that course. I spent that summer doing research with Dr. Durr trying to see whether the body can regenerate cysteine from cystine. I needed to isolate and purify glutathione reductase from the rat intestine. I was grumbling that it’s a lot of work to get enough enzyme from the rat, can we do it from a bigger animal, a dog I asked, during coffee hour. Dr. Khalidi responded “go for bigger, a Camel perhaps! The butcher at Burj al Barajneh slaughters one a week”. Dr. Durr and I took the buckets of ice and brought the intestines. No one had enough creativity to suggest how to elegantly empty the 24 meter intestine from its contents! But I guess we made enough of the enzyme to publish the paper in the Biochemical Journal and acknowledge Usama al-Khalidi for suggesting the experimental animal. Where it not for the cuts in electricity in Beirut, I am sure there will still be plenty of active enzyme till the next century. Usama’s creativity makes things happen!

It is said that Usama's creativity came from the fact that he was not sent to school by his father till the age of 8 years. It most probably is from inheriting the genes of such a father and of a mother who was "avant garde" in removing the veil and being part of a women's right movement back then in both Beirut and Jerusalem. When the British Commissioner in Jerusalem cornered the women's movement by asking them how do they consider themselves as women's rights advocates and tolerate polygamy, she quickly responded "polygamy is more prevalent in Europe although its illegal there while its legal here".

Rather than building his personal laboratory to continue to work on what he was doing in the USA, Usama had the vision of building the department of Biochemistry with multiple capabilities. With the absence of a critical mass of investigators and other resources, he saw that "research in the 3rd world is essential to keep the researcher up to-date and therefore maintain his quality as a teacher. The scientist must be " a listening (observation) post, aware of discussions taking place in the world and able to use the information to predict future trends, particularly those that can affect one's society" and "to allow for graduate education (MS, PhD, fellowships etc...)" He encouraged initially in his Department width rather than depth in research to build capacities and start a PhD program. It was a goal he worked for with passion. He brought the basic science departments together and opened all labs for use by those that need to use them. A critical mass was achieved and the needed laboratory facilities and resources to provide a breadth of education became available for a UNIFIED PhD program. It was launched in the latter part of the 60s, graduating its first student in 1970 and last in 1990. The program graduated 54 students, 2 became Deans (one in Agriculture at AUB and the other in Medicine at Balamand University, and one Vice Dean in Medicine at the Jordanian University. A good number are in top tier Universities in the USA or hold senior positions in industry.

Usama championed changing the grading system in the school of Medicine to a four category relative system. I was a junior faculty member on his committee then. He made me, Haifa Gebara (biochemistry), Huda Zurayk (biostatistics) and Asdghik Meghdessian Cortas (Statistics/Computer Science) to convert all grades in the previous 10 year for all students in all course to the new system to

insure that no student will suffer from the change and that historical standards will be preserved. It was years later that Victor Nassar, who was then at Emory said that they are doing the same there and his experience at AUB was put to use. Almost all medical schools in the US now employ a 2, 3 or 4 category system, supplemented by other evaluation tools. Usama took AUB there from among the earliest medical schools. The rationale in the US is that students in Medical schools are from the top of the top and hence can only be categorized as Pass/Fail or Excellent/Pass/Fail. The Fail is very exceptional and rare. Students are all above A in their undergraduate studies. I remember Usama in frustration saying at faculty meetings “our students come from the top of their schools and the University they are not randomly picked up from the Bourj” It is unfortunate that some diehards till now do not understand the system. The good news is that, thanks to Usama, AUB medicine has now a good system that needs only a little tweaking.

Although I chaired the Admission requirements committee, Usama was my mentor. We again made sure that no change will drastically alter historical standards. Correlations were made, by the same group that did the grading study, between each undergraduate course and each course given in medicine. The results revealed that a student more or less kept her/his standing in almost all courses rather than a course improved performance on another. The premed requirements were therefore cut to the minimum demanded by the state of New York (in which AUB is registered) and the laws of Lebanon (Baccalaureate and number of years after it) and students may apply from any undergraduate major.

All the above were major milestones that would not have happened were it not for Dr. Usama al-Khalidi and it is those that place AUB medicine above the 50th percentile within US medical schools.

Those of us who worked closely with Usama would understand what I mean when I say that he ignited the creative and analytic in us, both of which attenuate the fear and fuel the passion that drives us to the goal. Usama was selfless in all of this. He gave the opportunity for a large number of people to move forward, supporting them and pushing them. His joy was seeing them and the institution succeed and achieve.

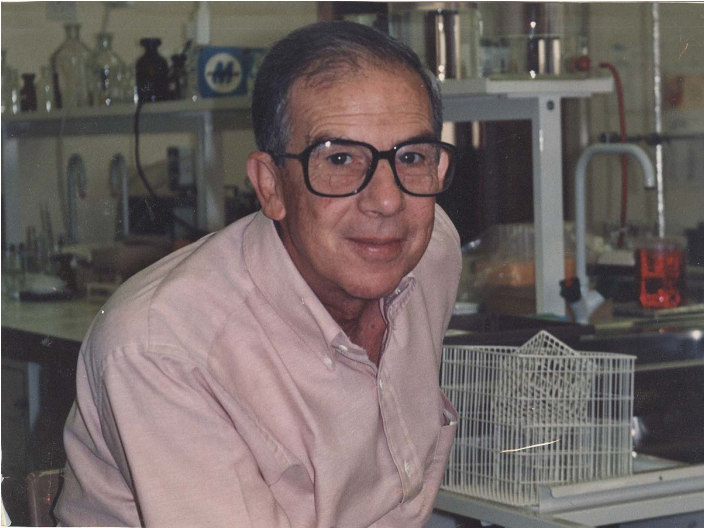
Jean-Francois (Hanna) Tomb, PhD.

Dupont et Nemours, Wilmington, DE

It is always with a sense of anticipation and longing that I approach memories of a great mentor and friend. Usama occupies a special place in heart and mind, not unlike secret places of childhood, shores of quietude, reflections, learning, and yes affection, love, camaraderie.... Reveries, maybe, but certainly the stuff that make us proud of belonging to the human tribe.

I remember him, as the endless tinkerer with physical shapes, material and ideas. Chisel in hand, cigarette between the lips and an outpour of challenging projects: How do we learn? What is memory made of? Can you develop an animal model for demyelinating disease, and how would you detect changes in protein conformations? Insightful, razor sharp and delightfully approachable! In pursuit of excellence in learning, science, entrepreneurship, social justice and uplifting the spirit of fellow citizens, Usama remains a beacon of hope and endless inspiration.

فان الله يهدي من يشاء



USAMA AL-KHALIDI CELEBRATION DAY COMMITTEE

DR. GHALEB DAOUK
DR. RAIF GEHA
DR. TALAL CHATILA
DR. RIMA KADDURAH
DR. MOHAMMAD SAYEGH
DR. IBRAHIM SALT
MS. RAMLA KHALIDI
DR. MUNA KHALIDI
MR. & MRS. KHALED SALAM