The Israel Young Academy at their Annual Winter Conference, February 2020
Dear friends and colleagues,

As I write this, Israel is cringing under a wave of the COVID-19 pandemic that is five months long and still ongoing. It has buffeted our entire society, and academia is no exception. Teaching in Israeli academia, like that in most universities worldwide, has switched entirely to remote video classes and research has largely been put on hold for two months. During the extended partial or near-complete lockdown, many faculty members turned their attention, first and foremost, to their own well-being and that of their loved ones: children, parents, families, and friends. While most contents of this newsletter present the activities of the IYA before the March 2020 outbreak, below I relate to several actions that we have taken in response to the COVID-19 crisis.

On the one hand, many activities that the IYA had planned for the second quarter of 2020 took a hit. An international conference dedicated to the promotion of gender equality in academia, slated for June and intended to be our main event of the year, was postponed to 2021. A first-of-its-kind workshop, designed to empower doctoral students from the Arab community and encourage them to take up academic careers, was delayed from April 2020. Many other projects and meetings were put on hold or delayed, including the processing and presentation of our second nationwide survey among young faculty and a reunion of IYA alumni. While these postponements and cancellations were beyond anyone’s control, they are nevertheless disappointing.

On the other hand, these past months have been a fine hour of academia in many ways. The crisis has illustrated the critical importance of science and research for decision-makers and the public alike. Many groups and individuals in academia have pledged their knowledge, energy, and resources to the war on COVID-19: from vaccination research, testing, and epidemiology to study of the broader economic, social, and ethical implications of the crisis. The IYA has also played an active role. Several members set up a series of science outreach lectures that has been highlighted daily on national radio news. It began with the objective of communicating various aspects of the pandemic from a scientific point of view but has since expanded to more general scientific topics across disciplines. IYA members collected 140 personal computers from Israeli universities and donated them to children in need so that they may pursue remote study. The IYA was also instrumental in setting up the Academia IL Collective Impact initiative, a voluntary organization of over 1,000 faculty members who rapidly produce policy papers on all aspects of the pandemic from a scientific perspective. Several IYA members and alumni serve on the executive committee of this initiative. These activities and others provide a sense of purpose in difficult times and compensate for plans cast aside.

Although the current situation affects all researchers, it is taking a disproportionate toll on the most vulnerable populations in our academic system: research students, post-doctoral scholars, and young faculty prior to tenure. The challenges are particularly dire for those caring for young children because they aggravate gender disparity. The IYA has called these concerns to the attention of the national leadership of the academic system and the leaderships of all universities. We have reached out to young researchers and invited them to share their perspectives with us. The replies we received, unfortunately, confirm our worries. It is time for our academic system to go out of its way to assist the next generations of its brightest researchers. Many institutions are already taking positive steps.
but more of them are still necessary. The IYA will continue to advocate in support and consideration of young researchers. As an example of what has been done, a special symposium in support of Israeli post-docs currently abroad was held on June 17th, with the participation of the Vice President of the National Academy, the Chair of the Planning and Budgeting Committee (PBC), the presidents of eight research universities, over thirty deans, and 450 post-doctoral scholars. The symposium gave post-doctoral scholars an opportunity to communicate directly with the academic leadership, voice their concerns, and receive support and advice.

Recent months have presented us with a challenge that no one could have foreseen. I am proud to say we did not settle for watching the events unfold from the sidelines. We stepped up and stepped in, to the best of our abilities, acting in comportment with academia’s “third role”: direct and timely involvement, relevance, and impact in the service of society at large. This role is no less important than research and teaching.

As I noted above, most contents of this newsletter describe IYA activities prior to March 2020. Before I conclude, I should briefly mention two activities that are not presented elsewhere in this newsletter. In January of this year, the IYA held the first meeting of a nation-wide forum that monitors the integration of students and faculty from the Arab community in Israel. Last but not least, in February we were hosted by the President of the State of Israel, the Honorable Reuven Rivlin. You may learn of many other projects and activities below. I hope that this newsletter finds you in simpler and easier times and that you will enjoy reading it.

Prof. Avi Zadok
Faculty of Engineering, Bar-Ilan University
Chair, Israel Young Academy
Avinoam.Zadok@biu.ac.il
Projects and Initiatives

In the past year, members of the IYA were involved in conceptualizing and organizing numerous academic think tanks, workshops, conferences, and other scientific endeavors that sought to address various crucial issues.

Academix – an interdisciplinary writing retreat

"I'm a strong believer that ignorance is important in science. If you know too much, you start seeing why things won't work. That's why it's important to change your field to collect more ignorance" (Sydney Brenner, 1927–2019, Nobel Prize co-laureate in Physiology or Medicine).

One of the characterizations of modern science is the extreme narrowness of its areas of expertise. Interdisciplinary dialogue has been acknowledged recently for its salutary contribution to the world of science. Many innovative scientific discoveries are products of collaboration among different fields. Another problem shared by researchers is the lack of time set aside for in-depth thinking and writing. In an attempt to meet this challenge, we initiated Academix, a four-day interdisciplinary writing retreat. We introduced this idea to all universities, inviting researchers in different stages of their careers to join. In all, twenty-one experts enrolled, representing various fields of research: life sciences, physics, history, anthropology, literature, economics, and psychology.

The retreat was held at Kibbutz Moran, far from distractions and surrounded by the mountain scenery of the Galilee. The first part of each day was dedicated to personal work. The time was well spent in manuscript writing, online courses, and grant preparation. The interdisciplinary sessions began in the afternoon. In each panel, five participants gave a fifteen-minute talk about their research. This was somewhat challenging because it was presented to a non-expert audience, but all participants managed to overcome this difficulty. Germs, evolution, Jewish humor, Mongol emperors, the solar system, and even ancient Greek texts were only a few of the topics discussed. An extra fifteen minutes were allotted for questions, but it was never enough, leading to vivid and stimulating conversations at dinner and on the lawns of the kibbutz.

All participants summarized Academix as an outstanding experience. They felt that it gave them an opportunity to manifest their curiosity, ask questions, and enjoy sheer science. Social connections and also a few professional links were made. The group remains in touch by e-mail and social events. We hope to make Academix a tradition so that more researchers may enjoy its benefits.
A one-day conference on the nexus of science and public policy

In January 2020, several members of the IYA held a conference titled The Perils and Potential of the Interaction of Science and Policy that reflected the challenges of the interaction of these two fields. At the colloquium, hosted by Tel Aviv University, a number of highly experienced individuals shared their experience with a group of fifty academics. Among the speakers were scholars such Professor Dan Ariely, who shared his experience as an advisor to governments around the world in matters relating to behavioral economics; Professor Karnit Flug, former Governor of the Bank of Israel, who spoke about her experience in making policymakers understand research in economics; and Ofir Paz-Pines, former Minister of the Interior and currently the Head of the Institute for Local Government at Tel Aviv University, who spoke about his experience in reading and analyzing scientific knowledge provided by academics.

Digital Humanities

Since spring 2019, as part of the activities of the IYA Humanities Committee, we have been striving to bring together scholars, archivists, librarians, museum curators, and representatives of government agencies in an effort to build bridges and collaborations in the field of Digital Humanities. As a result of this collaboration and in conjunction with the Ministry of Science and Technology, we held a one-day conference at the Israel Academy of Sciences, dedicated to the promotion of this area of activity. We have now produced a nation-wide policy paper, the first of its kind, co-signed by the Ministry of Science and Technology, containing recommendations for resource allocation in the domain. We helped create inter- and intra-institutional collaborations between and within the Humanities and Data Science through the various university Data-Science centers that are funded by the Council of Higher Education's Planning and Budgeting Committee. The multidisciplinary Digital Humanities forum that we founded convenes at the Academy building three times a year.
A workshop for PhD students in the Humanities

In February 2020, we held the second annual workshop for PhD students across humanities disciplines and across all universities, designed to introduce them to the “soft skills” of an academic career. Representatives of leading post-doctoral programs in Israel told those in attendance what a good proposal should look like (and what it should not look like!). Additional topics included building academic publication and networking skills, guidelines for composing a post-doctoral application, and post-doctoral opportunities abroad. The students’ feedbacks were enthusiastic and reflected appreciation of the IYAs initiative and the pressing need for additional soft skills workshops.

Initiatives following the COVID-19 breakout

Online talks on dealing with COVID-19: a special series for the public

Scholars all over the world are investing time and effort in fighting the COVID-19 pandemic. It is a war on many fronts: the race to develop a vaccine, devising models that will predict the course of the infection, proposing effective exit strategies, coping with the unique psychological issues that the crisis evokes, understanding how it will affect our attitudes toward the elderly, and unraveling the mechanisms behind coronavirus-related fake news. Given its commitment to disseminating scholarly knowledge to the public, the IYA launched a special series of online talks together with the Israel Defense forces radio station and “Little Big Science” online platform. Our goal here was twofold: to expose the public to in-depth, high-quality academic knowledge that is rarely found in the news media and to promote scientific thinking and academic knowledge among the public. Over the course of a month, some of the leading Israeli researchers and scholars gave fifteen live talks on Facebook, reaching thousands of viewers in the evenings. The prime-time daily radio interviews that accompanied these talks amplified the exposure of this outreach activity considerably. The topics, ranging from the history of disease carriers to nanotechnology, introduced the audience every day to a different academic perspective on COVID-19 and the latest scientific discoveries on the topic.
As Israel’s COVID-19 lockdown eased, Israeli academia began to discuss its ramifications. While the IYA played an active role in those, its members noticed that the voices of Israeli postdocs, currently conducting research abroad, are not heard. Initial mapping of the challenges showed some diversity, associated with the discipline and level of training; but common challenges included inability to relocate, suspended research due to shutdowns of labs and facilities, parenting challenges on account of closed daycares and school systems (placing a heavy burden on Israeli postdocs, who are typically older than those elsewhere, and possibly exacerbating gender inequality), limited ability to disseminate research accomplishments in the absence of conferences and seminars, and uncertainty in future hiring opportunities due to the expected global economic crisis.

In response, IYA embarked on a campaign aimed at virtually bringing together Israeli postdocs and heads of Israeli academia to reflect on the unfolding crisis. The dramatic virtual meeting, held on June 17, was attended by the presidents of all Israeli research universities, the Vice President of the Israel Academy of Sciences and Humanities, the head of the Council of Higher Education’s Planning and Budgeting Committee, members of IYA and more than 450 Israeli postdocs from all disciplines and countries. It opened with a webinar in which the postdoc crisis, as reflected in dozens of reports the IYA had collected, was portrayed, followed by a discussion among university presidents in which all clearly renounced a hiring freeze and discussed alternative hiring and evaluation models. The colloquium then broke into nine parallel sessions, led by IYA members, and parsed by research disciplines, in which the postdocs met with thirty deans for virtual roundtable discussions at which they could share the challenges particular to their field. While it is clear that the virtual meeting brought the evolving COVID-19 postdoc crisis to the attention of Israeli academia, its success will depend on the actions and remedies that will follow. The IYA has set three initial goals: Allocate funding sources for relief bridge fellowships that would compensate for lost crucial research time, establish mentoring and soft-skill support workshops for postdocs as well as peer support groups, and promote local intra-institutional discussions of alternative evaluation schemes that would take account of the broad impact of global pandemic—which far and in an unforeseeable future—on the way academic research is conducted and conveyed.
The mind-body problem in philosophy examines the relationship between the mind, a mental process, and its impact on the body, a physical entity. In the seventeenth century, René Descartes separated the notion of the mind, which holds abstract thoughts and emotions, from that of the physical body. The contrasting concept, however—that the two are not really separate and that emotions affect physical health—dates as far back as the second-century physician Galen. Plato argued that medical treatment alone is insufficient to induce recovery without a certain psychological interaction with the healer. Schools of East Asian medicine interpret the human body and its disorders, including emotional and psychosomatic disorders, using a holistic approach. Moreover, in modern medicine, the placebo effect, which has muddled clinical trials for the last fifty
years, repeatedly reminds us that one’s thoughts and emotions affect physiology. In modern clinical settings, however, such subjective factors are difficult to implement and our understanding of the underlying physiological mechanisms remains limited.

Dr. Rolls’ laboratory at the Rappaport Medical School at the Technion focus on a specific aspect of brain-body interactions, the dialogue between the brain and the immune system, the body’s main protection mechanism. They take a reductionistic approach, translating the philosophical mind-body question into a physiological one. For example, instead of asking how emotions affect immune activity, they investigate how different areas of the brain, associated with specific emotions and behavioral manifestations, affect immunity. The emergence of new tools in neuroscience is making the analysis of the causal effects of specific neuronal targets on immunity especially accessible. These new technological developments, of which genetic manipulations, optogenetics, and chemogenetics are but a few examples, allow neuronal manipulations to take place with unprecedented specificity.

Using this unique approach, the group has recently shown that the brain’s reward system, which is activated in the presence of positive expectations including the placebo response, can affect the organism’s capacity to cope with diseases. They found in mice that direct activation of dopaminergic neurons in the reward system affects immunity by amplifying the anti-bacterial immune response and, in turn, improving the capacity to fight bacterial infection (Ben Shannan et al., 2016; Nature Medicine). Moreover, reward-system activation increases an organism’s capacity to fight cancer by reducing tumor size by almost 50 percent (Ben Shannan, Schiller, et al., 2018; Nature Communications). Dr. Rolls’ group is now beginning to uncover some of the underlying mechanisms that involve sympathetic innervations, which begin in the brain and reach all immune organs. The brain, by modulating these local innervations elevates the anti-tumor immune response and, hence, reduces tumor size.

Dr. Rolls highlights that these studies are designed to begin mapping the potential of the brain in impacting an organism’s ability to cope with disease. These are basic, exploratory studies; translating their findings to human subjects will take a while. However, they are collaborating with other groups on developing new strategies to apply this knowledge in humans with the long-term hope of helping patients to harness their endogenous therapeutic potential.
When did you realize you wanted to be a researcher?

It was in tenth grade when I knew what I really liked in life. It was then that I first encountered biology, the science of life and living organisms. My biology teacher at Al-Ummah School in East Jerusalem just made it so exciting that I fell in love with genetics and cell biology. It was simple but complicated, general but specific, and, most importantly, known but unknown. To say that I thought at that time I would become a professor or investigator who studies life or its chemistry is not even close. It was only when I finished my bachelor’s degree in biological sciences at the University of Jordan that I realized that I wanted to know more about the beauty of creation and how it is orchestrated and coordinated. Only then did I realize I had to do my share to know more.

Of all things to explore in the world–why did you choose what you do?

I am a cancer biologist who studies the molecular aspects of tumorigenesis. How things start and what mechanisms operate early on to decide whether a cell should transform or not intrigued me during my PhD studies. In my post-doctoral training, I studied specific regions of the human genome, known as common fragile sites, that are recurrently altered in cancer. As their name indicates, these regions are vulnerable and may act as hot spots for rearrangements. However, I discovered that some of these genomic regions also harbor tumor-suppressor genes that are known to act against tumor development. This paradox has been keeping me and many other scientists around the world busy to this day.
If you had to choose one thing that the entire public should know in your field, what would it be?

I really want to know how to prevent cancer and how to maintain the integrity of our genome. Genome rearrangement and gene mutation are driving forces for cancer. They are altered by some known factors, such as tobacco smoke causing lung cancer, but many never-smokers develop lung cancer anyway. Why? Simply put, we have no definitive answers. Some people are pretty much “immunized” against cancer; we have no clue as to why. I am confident that knowing more of the basics of how tumor suppressor mechanisms work in our cells will help us decipher and decode this enigma.

What open-ended question is there in your field? (e.g., something that is widely considered common knowledge but is not)

The role of fragile sites in cancer has been extensively debated and challenged in the scientific community of genomic instability. Is alteration in these sites a secondary consequence, and does loss of the genes that they harbor represent “passenger” events in cancer? Or are these perturbations selected, and does the loss of the driver genes that they encompass result in cancer initiation? Several lines of evidence support this school or the other. Importantly, these sites and their gene products have been conserved from species to species, with many behaving as tumor suppressors. These are facts!

Who serves you as role model in science?

There are many scientists, from all fields, whom I admire and value. For me, scientific life represents a big project of a mosaic picture with many esteemed scientists adding their piece to the puzzle. Unfortunately, we will never see the whole picture completed because we will always be missing a piece here and there. My hope is to be able to place my little piece in the mosaic and help others to do the same.

When was the last time you got excited during your research?

In recent years, we discovered a tumor suppressor, known as WWOX, residing in a common fragile site with emerging functions in brain development and homeostasis. Germline mutations of this gene were found to cause a devastating form of early-onset epilepsy and ataxia in children. Most affected children die within the first two to four years of their lives. Having developed many tools to study this gene in cancer, we started to investigate how the loss of this gene results in neurological disorders and discovered many cool things. The most exciting is our finding that shows our ability to treat this disease by using various models that we established in the lab. Our next big step is to do a clinical trial and save the sick children. If there’s one thing that I’ll strive to do in my years to come, it is to help to offer these children and their families a solution that will alleviate their suffering.
Interview with Prof. Liat Kozma

Elected in 2017

When did you realize you wanted to be a researcher?

In high school, I wrote a couple of research papers, one in psychology and the other on folk tales. I was fascinated by the ability to ask theoretical questions and find answers in the real world. I thought I would study psychology and do psychological research.

Of all things to explore in the world—why did you choose what you do?

I am now researching the history of medicine and the medical profession in the modern Middle East. The history of medicine is an entry point to so many fascinating historical questions—from the macro level of international relations (how and why are international conventions framed the way they are?) to the micro level of interpersonal encounters. 

![Dr. Shukeir in the mobile ophthalmic clinic in Najd, Gaza. Taken by: American Colony (Jerusalem). Photo Dept. Archive: Library of Congress](image-url)
history of the human body, of racial and colonial relations, of middle-class professional identities, and much more.

If you had to choose one thing that the entire public should know in your field, what would it be?
How engaged medical doctors in the region were in global and international debates. I have seen it in my study of the history of sexology, of parasitology, of drug addiction and of venereal diseases and prostitution. My current research is tracing their participation in debates in other realms as well.

What open-ended question is there in your field? (perhaps something that is widely considered common knowledge but is not)?
What is the difference between national and colonial medicine? In what ways are post-colonial or national practices different from those implemented in the colonial period? Did anti-colonial professionals manage to produce alternative knowledge or alternative practices?

Who is a role model for you in science?
Prof. Eve M. Troutt Powell, a historian of slavery and race in the modern Middle East, a former MacArthur Foundation Fellow, a member of my doctoral committee, and a model for research excellence, mentorship, and motherhood.

When was the last time you got excited during your research?
This morning. I visited an archive for the first time since the coronavirus crisis had started, and found a file loaded with information. A new research project is beginning.
Members

Prof. Jakub Abramson Department of Immunology, The Weizmann Institute of Science
Prof. Hisham Abu-Rayya School of Social Work, University of Haifa
Prof. Rami Aqeilan Faculty of Medicine, Hebrew University of Jerusalem
Prof. Ofer Ashkenazi Department of History, Hebrew University of Jerusalem
Prof. Michal Bar-Asher Siegal Jewish Thought, Ben-Gurion University of the Negev
Dr. Haim Beidenkopf Department of Condensed Matter, Weizmann Institute of Science
Prof. Amit Bernstein Department of Psychology, University of Haifa
Prof. Ashraf Brik Faculty of Chemistry, Technion-Israel Institute of Technology
Dr. Tawfiq Da'adli Departments of Art History and Archeology, The Hebrew University of Jerusalem
Prof. Tamar Geiger Sackler Faculty of Medicine, Tel Aviv University
Dr. Natasha Gordinsky Department of Hebrew and Comparative literature, University of Haifa
Prof. Itay Halevy Department of Earth and Planetary Sciences, The Weizmann Institute of Science
Dr. Yonit Hochberg Racah Institute of Physics, The Hebrew University of Jerusalem
Prof. Beena Kalisky Department of Physics, Bar Ilan University
Prof. Nathan Keller Department of Mathematics, Bar-Ilan University
Prof. Liat Kozma Department of Islamic and Middle Eastern Studies, the Hebrew University of Jerusalem
Prof. Itzik Mizrahi Faculty of Life Sciences, Ben Gurion University of the Negev
Prof. Noam Mizrahi Department of Biblical Studies, Tel-Aviv University
Prof. Hagay Perets Department of Physics, Technion – Israel Institute of Technology
Prof. Asya Rolls Faculty of Medicine, Technion – Israel Institute of Technology
Prof. Avi Schroeder Department of Chemical Engineering, Technion – Israel Institute of Technology
Prof. Eilon Shamir Faculty of Law, Tel Aviv University
Prof. Michal Sharon Department of Biomolecular Sciences, Weizmann Institute of Science
Prof. Haim Suchowski Faculty of Exact Sciences, Tel Aviv University
Prof. Tomer Volansky Raymond and Beverly Sackler School of Physics and Astronomy, Tel Aviv University
Prof. Keren Weinshall-Margel Faculty of Law, the Hebrew University of Jerusalem
Dr. Karin Carmit Yefet Faculty of Law, University of Haifa
Prof. Yossi Yovel Faculty of Life Sciences, Tel Aviv University
Prof. Avi Zadok Electrical Engineering, Bar-Ilan University

Ms. Merav Atar
Administrative Manager