

IMPACT



AMERICAN ASSOCIATES
Ben-Gurion University
of the Negev

FALL 2011

NEW INSIGHTS INTO LIFE'S MYSTERIES

THE BEAUTY
OF CHEMISTRY

BIOTECH TAKES
OVER THE NEGEV

INNOVATIONS IN
CANCER RESEARCH

HELPING KIDS REACH
FOR THE STARS

SHARING A PASSION FOR SCIENCE

BY ALEXANDER M. GOREN
AABGU PRESIDENT



This issue takes us inside some of BGU's scientific research labs. If you have been out of school for a good while, as I have, you'll find some real surprises.

Thanks to new technologies, researchers can now check their theories against the physical evidence in a way that was unimaginable a short time ago.

You may also be struck, as I am, by the degree of passion communicated in the way all the scientists describe their work. The more the University gains international recognition as a research powerhouse, the easier it is to attract grants, publications, patents, prizes, and prestigious collaborations. While these are all welcome signs of BGU's success, we must remember the dedication, perseverance and plain hard work that produce scientific progress on the day-to-day basis.

As Rector Zvi HaCohen said in the last issue, scientists need to love their work environment because they spend more time in their labs than they do at home. When asked how they are able to accomplish so much, those featured in this issue all made note of their long workdays, often 16 or 17 hours. These are required to carry out their projects and teaching assignments, direct the work of graduate students and, in some cases, handle major leadership responsibilities.

The above is true for scientists with world-class reputations, such as Profs. Ronnie Apte and Varda Shoshan-Barmatz, pioneers in cancer research who also hold important administrative roles, as well as for the many brilliant young researchers whose work is gaining worldwide recognition. Even the teenagers, whose love of science is sparked by the Ilan Ramon Youth Physics Center, dedicate many out-of-school hours to amazingly sophisticated research.

Now meet some of BGU's scientists and enjoy this issue. Your thoughts and comments are very welcome at impact@aabgu.org. I wish to extend a special thanks to all of you who wrote to say how much you liked the 40th anniversary issue. If for any reason you did not receive a copy or you would like an extra one to share with friends, let me know!

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ON THE COVER: Immune cells (green and red) target Alzheimer's plaque (blue) after an experimental vaccine was injected into a diseased mouse, thereby removing Alzheimer's from the brain.
Photo: Courtesy of Dr. Alon Monsonego, National Institute for Biotechnology in the Negev

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THE 41ST ANNUAL BOARD OF GOVERNORS MEETING CELEBRATING INNOVATION, CREATIVITY AND THE PIONEERING SPIRIT OF THE NEGEV

THE 41ST ANNUAL Board of Governors Meeting was held this past May at Ben-Gurion University of the Negev. It was the once-a-year opportunity for members of the AABGU community to experience firsthand the innovative spirit of BGU and the Negev with supporters and friends from around the world.

"You encourage us to continue to live in the spirit of modern pioneering," said Barak Hershkowitz, the student liaison to the Board of Governors, at the opening plenary session.

Welcoming participants from around the world, Beer-Sheva Mayor Ruvik Danilovich remarked, "Israel has its problems and its challenges, but I want to talk about the opportunities that are here in the Negev."

He praised the continued cooperation between the University and the city, saying BGU President Prof. Rivka Carmi's vision is becoming a reality. "Beer-Sheva is no longer a university with a city, but a city with a university."

And he shared some of the city's latest good news—that the high-tech company EMC would open its research and development facilities in Beer-Sheva later that week. Private sector investment brings more jobs to the south of Israel, encouraging students to stay in Beer-Sheva after they graduate.

INVESTING IN HIGHER EDUCATION AND RESEARCH

Another piece of good news was that the "lost decade" of higher education in Israel, characterized by successive cutbacks, has finally come to an end. The Israeli government recently decided to increase its investment in Israeli universities by 30 percent.

"Ben-Gurion University of the Negev received the largest budget



American delegation at the cornerstone-laying ceremony for the American Associates Village.

increase of all the universities in Israel," announced Prof. Manuel Trachtenberg, chairman of Israel's Council for Higher Education Planning and Budget Committee at the opening plenary.

"...drive, daring...the Israeli Army, world-class education... and a good measure of *chutzpah* has produced a unique culture that nurtures innovation."

— SAUL SINGER

"BGU is poised to play a very important role," said Trachtenberg, noting that the University is already focused on the areas of research that Israel has deemed important for the future of the State.

"We have decided to focus our efforts in the next few years on alternative energy, water, robotics,

cybernet technology, biotechnology, regenerative medicine, cognitive brain sciences, social entrepreneurship and select topics in humanities and social services," shared Prof. Carmi.

ISRAEL AS A SUCCESSFUL START-UP NATION

The upbeat tone of the Board of Governors extended to good news about the Israeli economy and Israel's unique role in the global marketplace.

Saul Singer, co-author of the book *Start-Up Nation*, spoke at a program called "Innovation in the Marketplace." Singer talked about the factors that make Israel so successful in the world of high-tech start-ups.

He noted that drive, daring, mission fulfillment learned in the Israeli Army, the world-class education received in its universities, including BGU, and a good measure of *chutzpah* has produced a unique culture that nurtures innovation.

Prof. Stanley Fischer, governor of the Bank of Israel, who has been

Continued on next page

widely credited for Israel's economic success, delivered a fascinating lecture about "Israel and the World Economy."

Addressing a packed auditorium, he shared information and insights into how Israel reached such a strong place economically with Board of Governors delegates, guests, faculty and many students—who arrived early to save each other seats.

BREAKING THE GLASS CEILING

One of the most interesting programs was "Women in Academia Breaking the Glass Ceiling," a panel discussion featuring Prof. Rivka Carmi with Profs. France Cordova of Purdue

Boquer was attended by supporters and friends of BGU from around the world. This new student housing complex will make it possible to double the number of graduate students now studying at the Sede Boquer campus.



1

40th anniversary campaign. This dedication was part of the American delegation reception held in a sunny atrium at the Guilford Glazer Faculty of Business and Management.

• Celebrating at the Festive Student Evening

The annual student



2



3

University and Donna Shalala of the University of Miami, both of whom received honorary doctoral degrees this year from BGU. Prof. Hagit Messer-Yaron, president of Israel's Open University, also participated. The session was moderated by Israeli journalist Dana Weiss.

THE AMERICAN IMPACT

The American delegation got a chance to publicly show its support for the University at a number of Board of Governors events:

- **Laying the Cornerstone of the American Associates Village at Sede Boquer** A moving and exciting cornerstone-laying ceremony for the American Associates Village at Sede

- **Planting Seeds for the Future in the Living Legacy Garden** The Living Legacy Garden on the Marcus Family Campus was dedicated in a lovely morning ceremony. An AABGU initiative, this garden recognizes donors from around the world who have included BGU in their estate plans. Several AABGU donors were moved to tears when the stories of their involvement with the University were shared as part of the ribbon cutting ceremony.
- **Dedicating the Pioneers of the Negev Wall** The Pillars of the Negev Wall, located in the center of the Udi Garden, was dedicated in honor of the 13 donors who contributed \$1 million or more during AABGU's



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evening is an opportunity for Board of Governors delegates to meet, interact with and celebrate this amazing university with the students themselves. It was generously sponsored by AABGU supporters Ricki and Zvi Alon, Eric Benhamou, Arline and Ben Guefen, Carol and Harry Saal and Harriett Sofa.

This year's event was an outdoor fair featuring information booths about student activities and community outreach projects, including activism in areas such as recycling and public transportation, volunteering with

Holocaust survivors, a Jewish text study group, and more.

New Board of Governors member Ben Guefen spoke on behalf of AABGU in the Hebrew that he learned on a kibbutz when he was about the age of the students. ■



1. Unveiling the new Founder inscriptions
2. Prof. Rivka Carmi and Stephen Breslauer dedicate Sandy's Garden
3. American members of the Living Legacy Society at the dedication of the new recognition garden
4. Harold and Miriam Commings; Chris Foster; Prof. France A. Cordova; Judy and Charles Temel at the President's Welcome Dinner
5. Students show-off their projects at the Innovation and High-Tech Fair
6. Dedication of the Avram and Stella Goldstein-Goren Department of Biotechnology Engineering
7. Re-naming the Ma'agan Community Support Center for Cancer Patients and their Families to Edy's House

THE NEXT REVOLUTION: SCIENCE AND THE END OF DISEASE

BY DORON KRAKOW
EXECUTIVE VICE PRESIDENT

AS THIS ISSUE WAS BEING READIED to go to print, I had been working on a column reflecting upon some of the colossal achievements of the modern age and the essential part played by academic research in making it possible to change the world.

But, while changing the world for the better remains a central goal of the scientific research we do at Ben-Gurion University of the Negev, recent days have reminded us once more of how much about that part of the world remains unchanged.

For the second time in the past two years, students, faculty, staff and the residents of Beer-Sheva have been rushing to bomb shelters in response to the wail of sirens warning of the imminent arrival of inbound missiles launched from the Gaza Strip—a piece of land from which Israel withdrew as part of a strategic concession made in 2005 with the hope that it would help usher in an era of peace for Israel and the Palestinians. The result has been anything but what Israel had hoped.

In August, Beer-Sheva mourned the death of its latest victim of the missile attacks. Another victim was sent to Soroka University Medical Center in critical condition and tens of others were being treated for injuries and shock. Israel's Iron Dome Missile Defense System has been employed to blunt the impact of the attacks, and has met with some success, but has thus far proved insufficient to safeguard her citizens.

At the September session of the UN General Assembly, the Palestinian Authority brought a resolution calling

for the recognition of an independent Palestinian State. Though the General Assembly lacks the authority to impose such an outcome, it is anticipated that the passage of such a resolution, over the vigorous objections of the United States, will only intensify the pressure on Israel to make further concessions—concessions unlikely to yield results any more favorable than so many that it has made before.

The High Holiday season is a time of renewal, an annual reminder of all things possible. It is also a time to take stock of ourselves, of our nation and of our people. A safe and secure Israel will require great dedication, enormous effort and the unstinting support of her friends around the world. At AABGU we are honored to play a part in fostering a brighter future for Israel by strengthening our University, the engine that drives the development of the Negev.

May the New Year, 5772, be a year of safety and security for Israel and her citizens, her students, her teachers, and her children. May it be a year in which breakthroughs in research dominate the news coming out of Israel. And, may the next Middle East revolution be a cure for diabetes or Alzheimer's disease or cancer.

Wishing you and your family a *shanah tovah u'metukah*—a happy, healthy and sweet new year.



FOR SYLVIA BRODSKY—who describes herself as “very senior in my years”—to find meaning in life and help other people live it better are what it’s all about.

“I’ve always been a volunteer for different causes and services,” she says, “but I was never interested in just making financial contributions. I look for something that has meaning not just on a small scale, but to do something that will make a difference and bring about change, strength and growth.”

This outlook resonates with Sylvia’s own long career. A clinical psychologist, she has worked variously with schools, juvenile justice systems, mental health clinics, rehab facilities, and as a family therapist in private practice.

“For myself the satisfaction came in helping people realize they can be better, feel better about themselves and have more meaningful lives,” she says, “knowing that life’s imperfect and that’s OK. It’s so much more fun to know you don’t have to be perfect, that you can make mistakes—those can be the best memories.”

When she and her late husband Ben were drawn to AABGU’s Mid-Atlantic Region in the 1990s by an old college friend, they began supporting programs such as scholarships and dorms. “But I wanted to find a program that would do something of importance for Israel and that would personally interest me,” she recalls.

“Finally there was a program of need. I explored it and it seemed to be a perfect fit, something that would make a difference. It would provide for the health and well being of the community, aid the integration of the individual into society, and develop the kind of leadership necessary for the challenges of this tiny country.” Thus was the Sylvia A. Brodsky Walk-In Service born, endowed by Sylvia.

Troubled students with problems ranging from academic stress to depression, bereavement and familial crises can instantly get help, or in severe cases, a counseling referral. Other people are also welcome. “It provides for the whole university community—not just the students,” Sylvia is pleased to say.

Sylvia has long been active on both the regional and national boards, and remains so. She especially appreciates that AABGU works to make people aware of the University and to become involved not just through



SYLVIA A. BRODSKY
BLUE BELL, PENNSYLVANIA

LIVING TO MAKE LIFE BETTER FOR OTHERS

financial contributions.

She is devoted to Israel and BGU and is a regular visitor. In 2008, Sylvia took her three children and then three-year-old granddaughter to the Board of Governors Meeting. “I wanted my family to be more involved and have greater insight into the magnificent work the University is doing.”

Israel is not Sylvia’s only frequent destination, however. In addition to enjoying tennis, cross-country skiing, bridge, concerts and plays, Sylvia is a fly fishing enthusiast. Every year she goes to Alaska to fish, an adventure she relished with her husband Ben

until he passed away in 2003. This year, after a week’s fishing based at a favorite lodge, she spent four days exploring the interior from a small airplane.

“I enjoy the challenge of a frontier state like Alaska,” she says. “Going there always keeps me coming back more grounded than before—it lets me think about what is really important in life and how we live it on a daily basis.”

One cherished memory was a sojourn with Ben that found them tenting in an isolated area of Victoria Island with no communication. “It was gorgeous but so desolate. You know there’s no way you can survive if you’re in trouble. But I’ve never forgotten the wonderful sense of inner peace.

“Life can be so much more exciting and satisfying if you leave yourself open to life itself and are willing to experience and make something of it. And hope you can leave your family with a sense of value and appreciation of life, doing something to give back and make it better than it was.”

Sylvia has also chosen to give back and make BGU better too. She became a member of the Living Legacy Society, providing for BGU in her estate plans. “Supporting the University is important,” she feels. “It’s exciting to see how it’s grown and satisfying to see that it’s still maintaining its commitment to the students, the community and academic excellence. With its population and program diversity, it really gives people the opportunity to find something they can support.”

Though officially retired now, Sylvia has not fully withdrawn from her profession; her sense of commitment is as strong as ever. She is on call to the Red Cross as a mental health specialist in case of disaster situations. ■

RIKI DAYAN joined a women's mission to BGU six years ago because her son was thinking about going to medical school in Israel, and she thought she might as well "check it out." Her son ended up studying elsewhere, but for Riki, it was basically love at first sight.

"The University and Beer-Sheva were like the Israel I knew as a child growing up in Tel Aviv," she explains. "There's a spirit of pioneering, knowing everyone around you in the community, and helping each other. It was such a warm feeling, everybody, students as well as professors, pulling together, supporting each other and contributing to the various communities in Beer-Sheva—it felt like coming home."

"I came back to the U.S. and thought about what to do, and decided on a scholarship fund in my father's name."

Jacob—most often known by his nickname Coby—picks up the story: "Riki came back excited and so I just listened to what she had to say. My mother had passed away so we decided to donate in her name, as well, and become Founders." Coby, who was raised in Jerusalem, joined a mission the following year to see BGU firsthand. "So we both became involved. It just grew to be a big part of our lives."

Coby now serves on the national board as assistant treasurer and also on several committees, chairing the American Associates Village Committee responsible for the major project to expand housing on the Sede Boqer campus. The Dayans have generously supported this program, continue to fund scholarships, and also created a garden on the Marcus Family Campus in memory of their parents.

In addition to being Founders, the Dayans are members of the Negev Society; they chaired AABGU's 2007 Major Gifts Mission. Together, they attend the Board of Governors Meeting at BGU every year.

Riki says, "I tell my friends that a university like BGU especially deserves their help. First, because it's situated in the Negev, it will draw people there. Second, people in the area don't always have the financial capacity to educate themselves. It's important to support students who want to lift themselves out of poverty."

"I like how BGU reaches out to the area's diverse communities, such as those from Russia and Ethiopia, and supports students in their daily life, providing excellence



RIKI AND COBY DAYAN
LOS ALTOS HILLS, CALIFORNIA

HELPING TO CLOSE THE GAP

in education to many who might not have had the chance to pursue higher education."

Riki well remembers living in an Israel that was "a starting nation," grateful for the aid received from American Jews—food, boxes of clothing. "We were always on the receiving side. I'm really happy we are now in a position to help others. It gives a lot of satisfaction to see how one can shape the future of young people and help them educate and advance themselves."

Coby and Riki take it as a personal mission to promote the idea of giving back, especially among BGU alumni they encounter in the U.S. "A BGU alumni program is important," says Coby. "People who graduate should remember that they were helped, and think about doing that in return."

Coby moved to California to study electrical engineering and computer science following the Six Day War in 1967, during which he served in the Israeli Air Force. He joined the Silicon Valley semiconductor industry in its early years, participating in design and development of computer products and traveling extensively to promote the industry. He considers himself semi-retired now, but remains involved in investments and enjoys travel and pastimes that include hiking, bridge and Israeli folk dancing.

Riki is the office manager for a medical practice in San Jose, where she has worked for 21 years. Able to write her own hours, she reserves plenty of time to visit Israel once or twice per year, and with Coby enjoys her three grown children and three grandchildren.

Both Dayans are clear on their commitment to BGU and AABGU and their message to others.

To Riki it's about the capacity to help. "People should look into how they can open their hearts and pockets to help those less fortunate—paying it forward."

Coby sees the difference that supporting education can make for Israel as a nation. "Knowledge is power. Helping people is giving them that power—and also a country that is much better off. Differences in Israel are huge. Some people are educated and some are not, and some are poor. Closing that gap is the most important thing Israel can do, and we have to help with that." ■

ARLINE AND BEN GUEFEN became involved with AABGU in 1997 when their good friends Steve and Sandy (of blessed memory) Breslauer were working to establish a new regional office in Houston. The Guefens were asked to help. It didn't take long before they were hooked.

"It had a tremendous impact on us," Ben recalls. "There were so many important developments and activities and so much research going on at this young university in Israel's desert."

Israel was familiar territory to Ben. As a fervent member of the Zionist youth movement, he came from Mexico in 1949 at age 20 to study at the Institute for Young Leaders in Jerusalem. He helped found two farming *kibbutz* in the Negev "to help build the Jewish State." Later, Ben relocated to the U.S., but has maintained close connections there.

The Breslausers soon urged their recruits to visit BGU, promising, "You'll fall in love." So six months after connecting with AABGU, they visited.

"And guess what," says Arline. "I fell in love with the students, the atmosphere and the feeling there. I was a teacher of disabled children for many years. It was especially interesting and marvelous to see the Open Apartments Program. Students volunteer to live in a very poor area in exchange for a free apartment and giving time to the young children."

Ben, for his part, was extremely interested in research under way to produce new fruits and products for Israeli agriculture. "With my farming background, I was very moved by that. I felt the call to support something I believe in," Ben says.

The Guefens began supporting BGU's cutting-edge agricultural research and 15 years later continue to do so. They also delight in visiting different parts of Israel with Professor Emeritus Yossi Mizarahi to see dragon fruit and other "new" products grow.

Both find the University's development inspiring. "What's most exciting is to see the growth," Ben says. He recalls that during their first visit, then-President Avishay Braverman showed them a campus model plan. "There wasn't very much there when we first came. But every time we came back, they were initiating new buildings—an effervescence and dynamism that never stopped."

The Guefens are also supporters of Sandy's Activity Center, a new project of the University's Open Apartments Program, established in memory of their late dear friend and humanitarian Sandy Breslauer. They're also proud annual sponsors of BGU's Student Evening, a dinner and program



ARLINE AND BEN GUEFEN
HOUSTON, TEXAS

PIONEERING ZIONISTS AT HEART

of cultural events run by the BGU Student Association.

Both Guefens remain active in AABGU. Arline is involved primarily on the region level, and has chaired and continues to help with the annual kosher extravaganza, a community hallmark event. Ben serves on the national board and is a former vice president. He was a recipient of AABGU's David Ben-Gurion Award in 2004. This past May, Ben was elected to the University's international Board of Governors.

"When you have a project you can really believe in, you give time,"

Arline says. "We are members of other boards, but the one that is part of our lives is Ben-Gurion.

Almost on a daily basis we do something related to the University or AABGU, and we cherish that.

It's a pleasure to feel part of one big family, and wonderful to do it together as a couple."

During the past two years, the Guefens, already members of BGU's Negev Society, contributed in another significant way. Ben helped spearhead development of the Living Legacy Society. He notes that in the case of other major universities, about 30 percent of annual revenue comes from estate giving.

"But that was missing for BGU." He takes great satisfaction in the fact that once begun, the legacy program is growing rapidly. "Ensuring the future of revenues via AABGU is extremely important—and all we have to do is ask."

Ben and Arline, who were both married previously and have grown children with families, feel it is critical to nurture the younger generations' charitable outlook. "It's important to bring children up with the idea of giving," Arline believes. "We've tried to involve our children. And our grandchildren know of our commitment and involvement with BGU and the Jewish community."

Ben's oldest son Uri has been instrumental in building an AABGU chapter in San Diego, and has twice visited BGU.

The Guefens are both retired now and spend a substantial part of the year traveling. "We'll keep going while we're still young and active," Arline says. "Once we settle down I'll do volunteer work with children."

Volunteering their time and financial resources are equally important to the Guefens.

"The mission of *tzedakah* is to give," Ben says, "and it's easy to sign the check if you have the money. But it's more difficult to give of yourself—your time, your intellect. You benefit more by giving than receiving. By giving to BGU, you're rewarded by seeing something grow in front of your eyes." ■



CHEMISTRY AND THE MEANING OF LIFE

IF YOU REMEMBER CHEMISTRY as dull work memorizing periodic tables and mixing substances for the same timeless experiments done by countless generations, think again.

Today, chemistry is about redesigning molecules and making new ones. Synthesizing new proteins. Creating a new generation of antibiotics. Crafting safe delivery systems for killing cancer cells and building drugs that cause them to starve, not to mention creating greener and cheaper energy, and more efficient materials for building.

"There was a time when people didn't know where chemistry could go," acknowledges Prof. Gonen Ashkenasy, a bio-organic chemist. "Now chemistry is an exciting field because it's made itself relevant to the big questions."

Prof. Gabriel Lemcoff, an organic chemist, has his own slant. "Most

people assume chemistry is boring, hard and useless. They involuntarily wrinkle their noses when you mention it. But they don't understand. Everything around us is chemistry. Chemists can see beautiful things in

"Chemists can see beautiful things in the world around them, and can also see the possibility of understanding the beauty so much more."

— PROF. N. GABRIEL LEMCOFF

the world around them, and can also see the possibility of understanding the beauty so much more."

Ashkenasy and Lemcoff are among the young chemists drawn to BGU within the past six years and help constitute the youngest chemistry department in Israel. During the same decade that the field was transforming itself, a diverse cohort of young

chemists was assembled at the University and together and individually, they are producing groundbreaking and award-winning research.

Today's vibrant department did not happen by accident. Prof. Avraham Parola, a biophysical chemist (see sidebar on page 11) who served as dean of the Faculty of Natural Sciences from 2002 until 2008, led an aggressive action plan for the whole Faculty and chemistry in particular. "As the dean, I approached the president and said clearly that it was time to elevate the Faculty of Natural Sciences. Once the interaction began, I explained that we needed infrastructure and seed money so we could offer the type of package acceptable to the people we wanted."

Uniquely, the existing faculty members had all been hired when the department was founded and were now retiring, so it was an opportune time to forge new directions. Parola was guided by the advice he'd once gotten from his Ph.D. advisor at Brandeis University. "He told me to always look for people better than you are. And it helped

Continued on next page

Top photo: Created by Prof. Lemcoff, this catalyst has two reactive centers that can work together to produce a new reaction. The products obtained may prove to be superconductors, compounds that can absorb heat exceptionally, or have unique electro-optical properties.

that I'm very multidisciplinary in my interests and was able to overlap between people we added. We hired people of excellence, the best and brightest at the edge of the scientific frontier."

In some cases Parola also advocated for major equipment purchases to give desirable recruits what they needed for their work. He also made good use of the "couples" tactic, hiring spouses for the same or another department even at different Faculties, so BGU would be an even more attractive choice.

It all paid off. In a remarkably short time, Parola created a chemistry department replete with carefully chosen people supplemented by additional chemists and other new hires among the rest of the faculty.

"The result was a quantum leap in the quality of faculty members. And this means that the students coming to us are much better. It began a whole cycle of enormous improvement."

In a major boost to the resources and the prestige of these excellent researchers, the Edmond J. Safra Center for the Design and Engineering of Functional Biopolymers was created through a major grant from the Edmond J. Safra Philanthropic Foundation in 2008, serving as a catalyst to facilitate cooperation and interaction with impressive results.

Publication in top rated journals, invitations to the most prestigious conferences to present findings and grant monies are accumulating. Already, three recent hires have won coveted European Research Council grants, which bring each of them almost 1.5 million euros in funding for five years (plus a fourth grant was won by one of the spouses working in another field). International recognition has materialized. In fact, maintaining the hard-won faculty is now a challenge because other universities try to lure them away. "This is a global village and we have to fight not only to get the best people, but to keep them," Parola sums up.

MICHAEL MEIJLER: HOW BACTERIA TALK AND WHY WE CARE

Prof. Michael Meijler, who focuses on organic chemistry and chemical biology, grew up in Amsterdam and came to BGU from California's Scripps Research Institute in October 2006.



Prof. Michael Meijler and his wife Dr. Lital Alfonta, both European Research Council grant-winners in their respective fields, have good chemistry.

He was recently awarded BGU's prestigious Toronto Prize for excellence in research, presented by the Toronto Chapter of BGU Canadian Associates.

Meijler, also a member of the National Institute for Biotechnology in the Negev, is interested in chemistry "as a tool to understand the basic and most beautiful questions of life." A central research area: how bacteria communicate with each other.

Years ago, bacteria were seen as antisocial organisms that functioned on their own. But it is now understood that "they are very social beings—something that's true pretty much across life's various kingdoms," Meijler says.

Bacteria can live in single cell mode, finding food and multiplying,

but to compete against larger organisms, defend themselves or fight for scarce food, they must coordinate their behavior—and communicate.

"They need to exchange the right kind of signals to tell them there are 'enough of us,'" Meijler explains. "If an army is too small it can't go

to war or defend itself. So they need to know the size of their population. Without eyes or ears, they can only find out by sensing the signals each bacterium sends out, similar to the way humans and other higher beings send out pheromones, chemicals that reach our sense of smell. The bacteria are synthesizing a small chemical signal, sending it and acting accordingly."

This might sound like abstract science, but pathogenic bacteria that create problems in people act in just that way. "Almost always they turn on their toxic behavior by sensing there are enough bacteria to fight our immune system, or compete for a nutrient that's in short supply, like iron. If they know they can't inflict damage or compete they won't even

try. So as chemistry researchers with an interest in biology, we work to change these signals, feed them to the bacteria and confuse them in order to convert them into being harmless.”

The basic problem to solve, he notes, is how to avoid affecting the behavior of our bodies’ beneficial bacteria. “We are super-organisms that consist of 500 to 1,000 species of bacteria plus other small species and it’s amazing how well we function with all those organisms doing well together and collaborating. This can only happen if there’s a lot of communication that informs each species of the others’ condition. So we ask, how does this actually work, how do we manage to live together and evolve—some of the basic questions of biology.”

In Meijler’s lab, inhibitors of bacterial communication are synthesized based on a hypothesis, then scrutinized with tools ranging from analytic chemistry, microscopy, spectroscopy, fluorescence, and nanoscale instruments. “We try to listen to the bacteria by measuring what is happening. It’s very rewarding and a lot of fun for the students.”

GONEN ASHKENASY: REDESIGNING MOLECULES, UNDERSTANDING LIFE

Proteins drive life, Prof. Gonen Ashkenasy says, and every cell in our bodies has a lot of them. “What we



Prof. Gonen Ashkenasy, director of the Edmond J. Safra Center for the Design and Engineering of Functional Biopolymers in the Negev

do in my lab is prepare new proteins with a functionality different or impossible to find in nature.”

One medicinal chemistry direction is to develop the carriers that can deliver drugs to cancer cells without affecting healthy ones. Another area, in the nano province, is to use proteins as semiconductors or switches in

molecular electronics. But Ashkenasy’s prime interest, and the most ambitious goal, he says, is to build artificial cells from artificial proteins.

“The vision is to engineer advantages. If we make a molecule from scratch

“We’re trying to make molecules more and more complex and make large assemblies of proteins to mimic natural cells. The question is whether we can one day make them as complex as life.”

— PROF. GONEN ASHKENASY

we can incorporate new properties—make it more stable, for example.” Recent technology, such as robotics and atomic force microscopy, an extremely high-resolution system, make it possible to analyze the nanoscale structures obtained.

The European Research Council grant-winner reports that one of the most satisfying moments he’s experienced was when his lab was able to correlate what had been measured chemically with what could be seen with the microscope. “We predicted that some new molecules could replicate themselves and had in mind how that worked. But half a year ago we could really see it very accurately and confirm our measurements.”

Collaboration between lab experimentalists and theoreticians, and with other specialists, is critical. Ashkenasy works with physicists to build computer programs to predict and explain what will, hopefully, be seen.

“We’re trying to make molecules more and more complex and make large assemblies of proteins to mimic natural cells. The question is whether we can one day make them as complex as life. If we can make even a form of life, it can be useful, because even very small bacteria can process much more complex things than

Continued on page 31

CANCER RESEARCH

PROF. PAROLA’S own work includes determining fetal lung maturity by noninvasive techniques; diagnosing drugs in body fluids without reagents; bioelectromagnetics—investigating whether high power electric lines cause cancer; studying bacteria cell cycles and how they are controlled; developing anti-angiogenic drugs to prevent the growth of blood vessels and thus starve cancers; and designing a new generation of antibiotics through the prevention of the enzymatic synthesis of bacterial quorum sensing molecules. Lately, Parola got involved with the study of cell death (apoptosis, necrosis and autophagy) and its relation to cancer and neurodegenerative disease.

How does he accomplish so much? “Sixteen hours a day, and you collaborate.” Parola is spending this year at Memorial Sloan-Kettering Cancer Center in New York as a visiting investigator at the Structural Biology Unit, studying the quaternary structure of proteins and protein-protein interaction.



Prof. Avraham Parola, Biophysicist, Carole and Barry Kaye Chair in Applied Science and former Dean of the Faculty of Natural Sciences

THE NATIONAL INSTITUTE FOR BIOTECHNOLOGY IN THE NEGEV: WHERE RESEARCH AND APPLICATION MEET

BASIC RESEARCH fueled by human curiosity can lead to breakthroughs of enormous benefit. But the process is often painfully slow. A decade ago, two leaders imagined a new kind of institution. Former BGU President Avishay Braverman and Ariel Sharon, Israel's prime minister at the time, envisioned an interdisciplinary research center where promising scientific discoveries would receive full support, and could be fast-tracked through to application.

At its initial phase in 2005, BGU's current president, Prof. Rivka Carmi, was the acting director of the nascent National Institute for Biotechnology in the Negev (NIBN). Today, only six years after establishment, NIBN is an impressive research center where new advances in applied biology are pursued across academic barriers.

"Our mission is twofold," explains Prof. Varda Shoshan-Barmatz, NIBN's director and an eminent researcher who holds the Hyman Kreitman Chair in Bioenergetics at BGU. "First, to evolve into a world-class center of

excellence in biotechnology research, focusing on discoveries and their development to address essential human needs, such as health; second, to create a strong academic platform for a successful biotechnology industry in Israel, linking basic and

"The establishment of a national biotechnology institute alongside Ben-Gurion University is key to the transformation of the Negev."

— ARIEL SHARON
FORMER PRIME MINISTER OF ISRAEL

applied research and bridging connections to industry."

Additionally, NIBN aims to act as a driving force to attract life-sciences-based industries to the Negev region. The hope is to transform the Negev economically by making it a magnet for the biotech industry, drawing the best scientists and technologists,

as well as biotech companies and research funding to the region. Because of biotechnology's potential to affect human life and become a central pillar of Israel's future, the Israeli government has become a partner in the project.

In 2009, NIBN incorporated and secured an eight-year budget of \$90 million, jointly provided by the University, the Israeli government and an anonymous donor. Establishing an autonomous research institute within a university is unique in Israel.

NIBN functions as a not-for-profit private company under the auspices of a separate and distinct Institute. It has its own board of directors and an international scientific advisory board (SAB), which includes Nobel prize laureates Prof. Sir Aaron Klug, FRS and Prof. Aaron Ciechanover, and distinguished scientists Prof. Raymond Dwek, FRS, Prof. Philip Needleman,

Top photo: Prof. Varda Shoshan-Barmatz sits outside the National Institute for Biotechnology in the Negev.

Prof. Richard Ulevitch and Prof. Max Herzberg. The SAB sets NIBN's standards of excellence, long-term scientific goals and research directions.

A SELECTIVE CADRE OF RESEARCHERS

Joining NIBN is highly competitive. Outstanding scientists are recruited from leading universities and institutions in the USA, Canada and Europe and are drawn from the different BGU faculties and departments. "We select members based on criteria of excellent research in a promising direction, publications and grants," Shoshan-Barmatz says.

"NIBN is very attractive in its combination of basic and applied research, especially to the many scientists who want to help the world." Out of 100-plus applications each year, two or three are selected. Currently 24 scientists, supplemented by research associates, Ph.D. and M.Sc. students and technicians, are NIBN members. All are also academic staff, holding positions within BGU departments.

In addition to an unusually collaborative atmosphere and a group of excellent scientists, many of them young, NIBN offers cutting-edge facilities. It provides access to equipment and services in many cases not found elsewhere in the country, such as the Polara 300 kV electron microscope for cryo-electronic tomography (an instrument that operates at very low temperatures to study biological nanostructures).

Research at NIBN focuses on five major areas:

- **Human genetics and functional genomics:** the hunt for disease-related genes and new technologies like gene therapy; disease diagnosis
- **Immune system biotechnology:** developing new weapons to fight cancer and autoimmune diseases
- **Structural biotechnology:** research to unravel the structure-function relationships of proteins and molecular complexes, enabling a better understanding of cellular

processes so novel cancer drugs and antibiotics can be developed

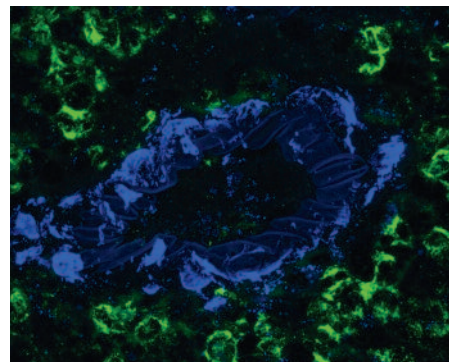
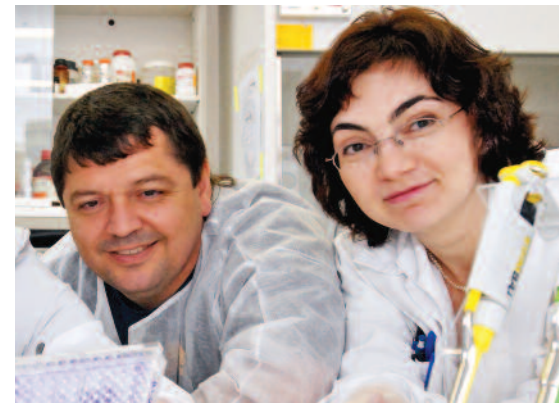
- **Computational biotechnology:** developing new tools for processing the huge amount of information that many large-scale experiments generate
- **Nanomedicine:** work on the nanometric scale to create new health-related techniques and tools, regenerate injured tissue, and develop novel medical monitoring systems and biosensors to diagnose disease

STUDYING "NATURAL KILLER" CELLS

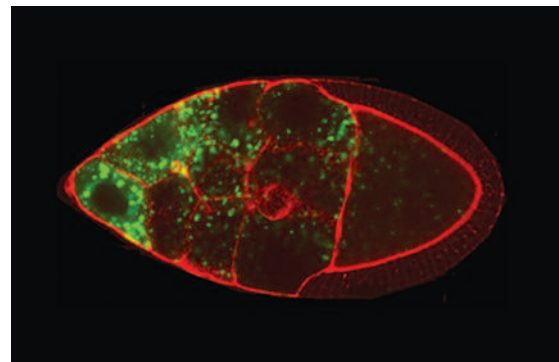
"The emphasis on application-based research rather than paper presentations of basic science is quite unique," says Prof. Angel Porgador, an NIBN member who teaches in the Faculty of Health Sciences' Shraga Segal Department of Microbiology and Immunology. He did his postdoctoral work at Duke University and the National Institute of Health, and appreciates the support he gets for his immunology research at NIBN. "They help members move the

identify the signals on cancer cells that the natural killers recognize, and apply this knowledge to finding cancer cures."

In the case of autoimmune diseases like diabetes, where the pancreas kills the beta cells needed to produce insulin, Porgador is investigating whether patients can be treated with antibodies against the receptors expressed by the NK cells. "Here it's the other way around," Porgador comments. "If we can significantly reduce the function of NK cells that



Top: Prof. Angel Porgador (left) with student **Bottom left:** The blue represents plaque causing Alzheimer's in a mouse's brain/Dr. Alon Monsonego, NIBN **Bottom right:** An egg chamber in the ovary of a fruit fly shows the overall organization of the cell skeleton (red) and intracellular organelles (green)/Dr. Uri Abdu, NIBN



research more swiftly, translating it to commercialization. As researchers we're not trained to do that."

His own investigations concentrate on "natural killer" or NK cells of the immune system. These cells are able to identify and quickly destroy a wide range of virus-infected cells and tumors, relying on a set of activating receptors. "Basically we are trying to

are involved in the pathogenesis, we may be able to delay the development of type 1 diabetes and the need for a large amount of insulin."

Porgador is working collaboratively on this direction of diabetes research with his long-time collaborator Prof. Ofer Mandelboim of The Hebrew University, and with the drug company

Continued on next page

Bioline. But asked if this work is satisfying, Porgador says, “No. I will be satisfied when I save the life of one person. We’re not there yet.”

DIRECTED EVOLUTION OF PROTEINS TO TREAT DISEASE

Dr. Amir Aharoni works in structural biotechnology and is a member of BGU’s Department of Life Sciences, as well as NIBN. His focus is on the



Dr. Amir Aharoni

emerging discipline of protein engineering—generating proteins with new or novel functions not found in nature. “I’m on the border of scientific and applicative science,” he says. “I want to understand how proteins function in the biological environment, and to develop improved proteins for more practical applications.”

Proteins are versatile molecules of various kinds in our cells and are fundamental to every living organism. The protein engineering field has many interesting applications for generating new drugs, as well as in agriculture and numerous other fields, Aharoni says.

“We may want to take a protein that does not function optimally and improve it. For example, proteins are not very stable, which is a major problem for therapeutic uses. Improving their stability can improve a treatment’s efficiency in storage and in vivo, after administration, so treatment is more efficient.”

Or it might be desirable to increase a protein’s solubility, or alter an

enzyme to catalyze unnatural chemical reactions.

Aharoni’s lab generates proteins by “directed evolution.” Using a variety of techniques, mutations are randomly introduced on the DNA level of the gene to produce large numbers of mutated proteins. The proteins are then tested to determine which, if any, meet the desired criteria. For example, if the goal is to create a protein that can still function at 90 degrees Fahrenheit, only those with mutations that stabilize the protein structure will remain functional after being heated to that temperature, a process that resembles the natural selection of Darwinian evolution.

Aharoni, who secured a highly competitive one million euro grant from the European Research Council, seeks to better understand the scientific basics of how proteins function in the biological environment and the relationship between their structure and function. As a biochemist who likes collaborative projects with industry, he keeps a close eye on applications. He currently collaborates with Israel’s largest drug company, Teva, to generate a new biological drug—

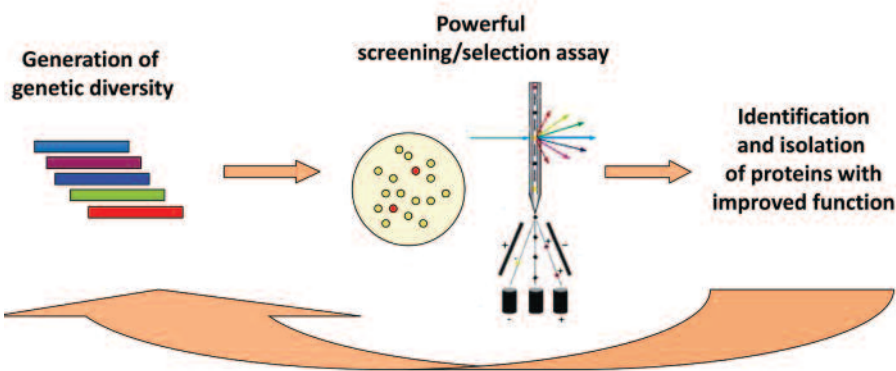
a new drug during my lifetime to help people.”

CANCER RESEARCH ON THE MOLECULAR LEVEL

Prof. Varda Shoshan-Barmatz’s own work concentrates on novel approaches to cancer therapy. “I found that VDAC—one of the proteins that function in the mitochondria—is a convergence point for a variety of cell survival and cell death signals. It’s responsible for energy production, regulating the level of energy in the cell.” Cancer cells, which are highly divided, undergo significant metabolic adaptation for their energy needs. “So if we affect the cell energy level, we can interfere with cancer development.”

This has led to VDAC-based research on arresting cancer cell growth, interfering with the self-defense mechanisms of cancer cells, and activating cell death in all cancer types. Shoshan-Barmatz holds three patents, one of which is a peptide (short chain of amino acids) that zeros in on specific cancer cells while leaving healthy cells alone, which can sidestep the negative effects of chemotherapy.

DIRECTED EVOLUTION OF PROTEINS



a protein therapeutic for the treatment of inflammatory diseases. It is now being tested in a mice model. “There’s a very long way to go—but it looks very promising,” he says.

His ultimate hope is “to develop

Working initially on the molecular level and subsequently with animals, Shoshan-Barmatz found evidence that inhibiting energy production in the cancer cells can in fact prevent tumor growth. This work was published in

2010. She is now working on how to deliver the drug to the cancer cell without affecting other cells.

In a recent study carried out with 36 chronic lymphocytic leukemia (CLL) patients, she demonstrated that the peptide induced dramatic and selective cancer cell death. This success helped bring Shoshan-Barmatz a \$600,000 grant from the Leukemia and Lymphoma Society, rarely awarded outside the U.S. The funding will be used to develop target-specific drugs for B-CLL (B-cell chronic lymphocytic leukemia), one of the most common and incurable blood malignancies.

“Conventional chemotherapy is limited by its lack of specificity, multidrug resistance of tumor cells, and toxicity to normal cells,” Shoshan-Barmatz says. “These therapeutic peptides have great potential as anti-cancer agents due to their target specificity and reduced side-effects.”

Her lab also investigates how cancer cells are able to resist death and overcome even the cancer-killing drugs of chemotherapy. And, work with Soroka University Medical Center is under way to study how cells become converted to cancer cells. “Cells have a life-time. But dividing uncontrolled, they accumulate as a tumor, and in this case don’t die. We want to make these death-resistant cells sensitive to death.”

Describing her own work and that of other researchers at NIBN from various University departments, Shoshan-Barmatz explains why so many channels are being pursued: “Cancer is a very complicated disease and we must have many ways to be ready—exploring new pathways, new targets, systems that were not really covered up to now. So at the same time, we’re doing basic research and trying to apply new strategies.” ■



WHAT A WORM TELLS US ABOUT AGING

DR. ANAT BEN-ZVI says, “I deal with garbage.” The “garbage” she means is protein damage, which is a key factor in cell malfunction, aging and neurodegenerative diseases associated with it.

“There can be mistakes in the DNA, in translating it to mRNA [messenger RNA], where the protein is located in the cell, how the jigsaw puzzle is oriented. Stress can also damage protein. So cells must detect damaged proteins and take care of them—either by removing the damaged protein or by correcting the damage to make it functional.”

Over the years, our bodies collect protein damage. Age-related Parkinson’s disease is one example. “What’s surprising is that the system can take care of damaged proteins when young but doesn’t take care of them later in life,” Ben-Zvi says. “So I ask, what happens over time?”

To find out, Ben-Zvi spends her lab time with *Caenorhabditis elegans*: a microscopic worm, or nematode, that she considers very attractive in its suitability for her experiments. Her focus is on protein folding—the process by which proteins, which are long necklaces of amino acid molecules, assemble themselves into three-dimensional structures so they can carry out their various life functions.

“*C. elegans* is a multi-cellular organism that undergoes aging in two or three weeks,” Ben-Zvi says, “so we can view protein folding in a living organism that has all the different cell types over time, and gives us a lot of information about protein folding during development and aging that holds true for humans. We can tag the proteins and follow what happens to them as they lose function and stability.”

Among the questions this condensed timeline enables Ben-Zvi’s lab to explore:

- Can we influence protein folding in one cell, and in that way regulate all the cells that take orders from it?

- If we introduce proteins with mutations, grow the organism, and then change the environment, what can we learn about the mutation’s effects and how to treat them?
- When we know which genes impact *C. elegans*’ lifespan and also influence protein folding, can we slow down aging and disease?

“The huge question is why does a system that can do all the repair work stop working at a certain point? It’s like a switch is turned off. If we can find a way to turn it on—perhaps find the master genes that regulate that decision—maybe we can find a drug to reverse age-related diseases or delay their progression. And maybe we can also increase lifespan.”

Ben-Zvi found an interesting clue in studying *C. elegans*. “We thought it would be a long wait between reaching adulthood and the turning off of the protein folding. But we were shocked to find that within hours of going into adulthood, the protein folding and repair machinery stops working. Maybe more energy is needed for reproduction, so you dampen the ability to fix cells.”

Ben-Zvi hopes that some of the research will soon interest companies in developing drugs and appreciates how NIBN accelerates the process. “Our progress is monitored. Once we find something substantial that can be applicable, NIBN helps you get it out faster. That’s important in finding a way to get a biotech company to develop it—hopefully for a cure or treatment. Especially because currently there is no effective treatment for protein folding diseases.”



Dr. Anat Ben-Zvi

RONNIE APTE: NEW FRONTIERS IN CANCER TREATMENT

“WE’RE IN AN ERA where research in one discipline doesn’t suffice,” says Prof. Ron N. Apte, “Ronnie” to friends and colleagues. “Everybody is an expert in a small field, but to compete for large grants and attack a problem from different angles, we need different disciplines to collaborate.”

Part of his job as head of the Division of Basic Sciences in BGU’s Faculty of Health Sciences (FOHS) is to encourage such collaborations. Apte illustrates this with one aspect of his own work, inflammation and cancer.

“We sent an invitation to all 70 members of the division to join an inflammation group, and a coalition of people from different disciplines came, including cancer, Alzheimer’s and diabetes, which were recently shown to be diseases in which inflammation is involved. Other researchers with an interest in the related pharmacology, signaling in inflammation, also joined.

“We meet and hear presentations on each other’s results and reports

from any interesting conferences we’ve attended. From these meetings, collaborations arise and ultimately we hope to create a ‘center of excellence’ where people can achieve more together than separately.” Joint grant applications can materialize. Such consortia are also being established in the FOHS in other research areas of interest, for example, stem cells, drug delivery, neuroscience, and more.

“The goal is to bring the patient to a minimal cancer situation and give him anti-inflammatory treatments for the rest of his life.”

—PROF. RONNIE APTE

“This is the way to do science in the 21st century,” Apte observes. It is an approach well suited to Israel, which is a small and remote country, unlike the U.S. with its large research institutes. “Here we want to enrich our work through collaboration, by hearing critiques from colleagues who listen to our results and ideas and share what they’re doing.”

Nonetheless it can be challenging to entice researchers to sit together. What persuades them? “Success! There’s no exact recipe for this yet, but we are so far succeeding.”

PIONEERING CANCER RESEARCH

Apte, the incumbent of the Irving Isaac Sklar Chair in Endocrinology and Cancer and a member of the National Institute for Biotechnology in the Negev, is an internationally known expert in tumor biology. He has been studying the association of cancer and inflammation for the past two decades. The connection was assumed as far back as the late 19th century, but only recently have the cellular and molecular tools evolved so that the research can be performed at very high levels of accuracy, and the mechanisms better understood.

Until 20 years ago, Apte says, it was thought that the main entities of tumors are malignant cells that proliferate without control independently of the organ in which they reside. Accordingly, therapy modes dealt solely with the malignant cells through chemotherapy, radiation and surgery.

But scientists learned that the normal tissue in which tumors reside—

Top photo: A fibrosarcoma tumor, which originates in the fibrous tissue of the bone. The blue cells are malignant; inflammatory cells (red) are drawn to the tumor.

the tumor microenvironment—plays a major role in the outcome of the malignancy process. Apte is a pioneer of this work, and spearheaded with a group of colleagues from Israel a series of conferences that evolved into the International Cancer Microenvironment Society, which publishes its own journal.

Normal tissue can affect cancer at various phases, Apte explains. In development of pre-malignant cells, their transformation to malignancy and metastasis (the spread of malignancy to other parts of the body), inflammation has a central role. When tissue is damaged by a tumor it creates inflammation. Bone marrow cells—which belong to the white blood cell system and defend the body against infections and foreign materials—are drawn to the site. They may then suppress the immune system and support the tumor's growth and ability to migrate to other sites. In effect, they prepare the way for malignant cells to thrive in new places.

Apte's lab concentrates on a specific inflammation-inducing molecule called Interleukin 1, which belongs to the family of molecules secreted by cells termed cytokines, and investigates the way it participates in different phases of malignancy. In 2003, he demonstrated that if this molecule is neutralized, inflammation is inhibited and the tumor's invasiveness is limited.

"We were the first to show that you can intervene in the malignancy process and actually reduce it by neutralizing one of the major inflammatory cytokines," Apte says.

The group experiments with IL-1Ra—a medication whose generic name is Anakinra, widely used in the U.S. to treat chronic inflammatory diseases such as rheumatoid arthritis. Apte thinks the application of Anakinra to cancer treatment is not far off.

However, he stresses, cancer is a complex disease and this intervention is not likely to replace other therapies. "We understand today that the probable treatment scenario of the future will be to get rid of the primary

tumor as best you can through surgery, chemo, radiation or a combination, and then come in with treatments to keep inflammation low and prevent the malignant cells from reappearing and growing.

"Our concept now is that it's almost impossible to eradicate all the malignant cells of a large tumor. So the goal is to bring the patient to a minimal cancer situation, termed minimal residual disease (MRD), and give him anti-inflammatory treatments for the rest of his life—which means treating cancer as a chronic disease."



Prof. Ronnie L. Apte

One complication is that conventional anti-inflammatory drugs have toxic effects in themselves. Much more research is needed before biological therapies can be effectively used as a cancer treatment. Apte continues to study the basic mechanisms involved and test the clinical efficiency of possible therapies.

REACHING INTERNATIONAL LEVELS

"I see much more international collaboration than there used to be," Apte observes. He works collaboratively with a number of scientists in different parts of the world. His international reputation makes him an integral part of major conferences.

Projects originating with the European community offer excellent new opportunities for Israeli scientists, Apte says, and their participation reflects Israel's success. Three years ago, he was invited to participate in a competitive grant application to the European Commission's CORDIS program with 20 other researchers,

coordinated by a scientist in Crete. The group's proposal for a program on tumor and inflammation called INFLA-CARE won the grant, and the four-year initiative to "develop anti-inflammatory strategies and novel treatments for cancer" is being funded with 12 million euros.

Apte welcomes the access this gives him and his students to 20 labs all over Europe and the exchange of knowhow, reagents and experimental systems. His own research, published in some 80 scientific papers, has also earned him a signal honor in Israel: the 2010 Samuel and Paula Elkeles Prize for Outstanding Scientist in the Field of Medicine. The prestigious award is given annually to one scientist by the Keren Kayemet LeYisrael-Jewish National Fund (KKL-JNF), which administers an endowment created to promote medicine in Israel.

Apte credits BGU for its strong support since he arrived in 1981 following his postdoctoral work. "Coming here was the most important scientific decision I ever made. When the directors realized I was promising, they gave me all possible opportunities to develop myself and my environment. I am fortunate to be doing what I wanted to do since I was seven years old. I was always fascinated with biology.

"Another aspect I am very happy with is the combination of teaching and research. Though it may look like doing research in a white lab coat is attractive, the everyday life can be tedious, and often frustrating, with many failures we don't yet know the reasons for. However, a success in an experiment drives you to heaven. So if you have research aspirations, you can be happy even on grey days because of the teaching, the students, the interaction with the environment.

"And BGU's informal atmosphere is appealing. My students have immediate access to me. And in turn if I want to speak with the president, or another University leader, I can call their cell phones. That's nice." ■

THE ILAN RAMON YOUTH PHYSICS CENTER: REACHING FOR THE STARS

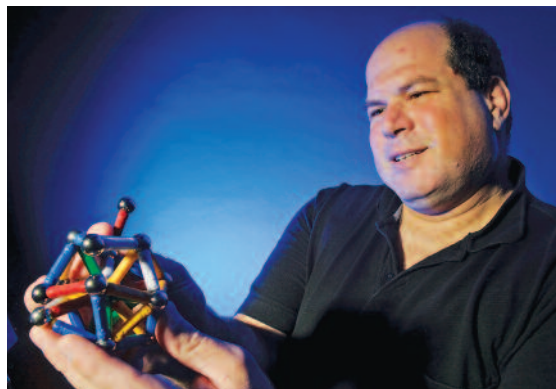


NOWHERE IS THE BELIEF that the future will be secured by science more cherished than in Israel. And perhaps no university but BGU could build a program that attracts children to a subject many find terrifying, and achieve a distinct impact within a scant four years.

In 2007, the Rashi Foundation—a French philanthropy that promotes education, health and social affairs in Israel’s periphery areas—decided that the best way to advance the Negev is to kindle interest in science and technology and provide innovative ways to acquire knowledge and skills. As part of this ambitious goal, Rashi specialists worked with BGU and its Department of Physics to create a physics program for young people.

The centerpiece was an advanced new facility, the Sacta-Rashi Physics Building, with a section specifically designated for the Ilan

Ramon Youth Physics Center. “Rashi understood that it was important to have the kids come to the University,” says Dr. Moshe Schechter, a BGU physicist and the Center’s scientific director. “Being in the building



Dr. Moshe Schechter, the Ramon Center’s scientific director and a BGU physicist who works at the nano level to understand amorphous and disordered solids and quantum magnetism

physically breaks down barriers so more and more of them can see themselves as students of the future.”

At most universities the faculty is naturally focused on research and teaching, Schechter points out.

“But here there is a very unusual spirit, because BGU sees itself as having a third purpose as well, community engagement. For us, too, it’s a way of contributing to scientific education in Israel beyond our own teaching and research.”

The Ramon Center incorporates a computerized physics lab, a planetarium, a state-of-the-art rooftop observatory and various advanced labs. Named for Israel’s sole astronaut, an air force colonel from Beer-Sheva who died in the space shuttle Columbia disaster, the Ramon Center today operates programs that begin with kindergarten and continue through high school. The mission is clear, says Prof. Victor Malamud, the program’s director of physics and a Beer-Sheva high school physics teacher.

“Our most important work is to increase the number of high school students who major in physics, which will result in increasing numbers and quality of future engineering and natural science students. For a very

Top photo: Local high school children learn to love science at the Ramon Center’s planetarium at BGU.

long time physics in Israel was seen as one of the hardest disciplines for high school students.”

The statistics reflect this: The number choosing to take five credits of physics toward high school graduation in Israel overall has dropped in the last four years. In contrast, in the Negev towns that work with the Ramon Center, there has been a 35 percent increase in the same period.

NURTURING INTEREST, STEP BY STEP

A program called “*Madadudes*, Science for Kids” introduces the very youngest students to astronomy through a series of sessions at the schools. “We mainly show them how to do things, give them a lot of experiences,” says Netzach Farbiash, head of astronomy programs for the Center. He also serves as deputy director of the Madarom Science Park that Rashi

way and children who benefit from the program are asked back.

Eighth graders are brought to the Center for a five-day program that puts them in the labs, learning astronomy and physics. Those with ability for the exact sciences—about 25 percent—are invited to come on a weekly basis for four hours a week, and receive a full year course of physics-based teaching.

When the Madarom Science Park opens next year, a continuum of programs for all age groups will operate, so students from first to ninth grade learn science progressively. The Ramon Center will focus on its programs for older students, but the two facilities will work closely together to give children the ideal coordinated experience.

At high school age, those who can benefit from sophisticated training are eligible for the Center’s advanced program and are able to earn graduation

All projects are done in BGU’s physics labs under the guidance of University instructors. Successful participants also receive “bonus points” toward admission as BGU undergraduates.

“We choose an area that a young person can understand and where he can produce something practical,” explains Prof. Nathan Kleorin, the Center’s project coordinator and an astrophysicist from the Department of Mechanical Engineering. “Sometimes these results become part of our scientific discussions. And sometimes there are real discoveries.”

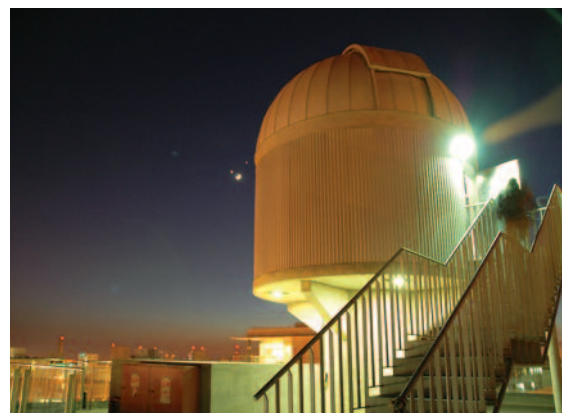
Equally important to many young people is the chance to be part of a Science Leadership Program. This trains the most motivated 10th to 12th graders to act as counselors to younger children and promote science learning in the schools and communities. The leaders-in-training attend



The recent eclipse brought hundreds of children to BGU



Hadas and Mor Tzaban, international competition winners



Rooftop observatory

is building in Beer-Sheva. “In addition, we train the kindergarten teachers to help them use the program and talk about the subject on their own.”

An initial pilot proved so successful that the program now operates throughout Beer-Sheva and other communities in the region, bringing science to 200 kindergarten classrooms.

Children who show the most interest are invited to participate in a summer camp, with two full weeks of study and outdoor activities. About 150 children are accommodated this

credits. Students can fulfill five units, and choose to work on a physics project as part of the requirement. The best are then invited to engage in a senior project for an additional five-unit credit.

“This is a chance to do something real, fun and interesting,” Schechter says. “There are not many places in the country that provide this kind of opportunity—we have more than 400 kids per year, more than half the total number doing such projects in the whole of Israel.”

summer camps and meet throughout the school year, and when ready, begin to teach and guide children.

“They are important role models for the children,” says Farbiash, “and so are those we train from the University, a number of Ph.D. and master’s students.”

INSTILLING A LOVE OF RESEARCH

Many of the teenagers who have conducted major projects at the Ramon Center achieve at impressive levels.

Continued on next page



THE FACE OF SUCCESS

- Ramon Center students in 2010 took first, second and fourth place in the First Step to Nobel Prize in Physics, a worldwide competition held in Poland.
- In 2011, Ramon Center student Oren Halevy earned a first prize for “Direct Measurement of Hairpin Dynamics Using Forster Resonance Energy Transfer,” and seven students won honorable mentions.
- Half of the 150 senior science projects

produced in Israel last year were accomplished by Ramon Center pupils.

- Among 50 student projects prepared for an Israeli physics competition, 20 percent were from the Negev.
- While the number of students choosing to take five credits of physics toward high school graduation in Israel overall has dropped 9 percent in the last four years, the number increased by 35 percent in the Negev towns that work with the Ramon Center.

Two years ago, 18-year-old Hadas Tzaban conducted research on “Turbulent Convection in Sciences and Nature.” The results earned her first place in the 2009 international First Step to Nobel Prize research project competition held in Warsaw. Coming from the development town of Netivot, and from a well-known Orthodox rabbinical family, Hadas had followed her older sister into the program—Mor, who took second place in the same competition a year earlier. Her younger sister Chen is now studying at the Ramon Center.

“Physics just does it for me,” Hadas commented after winning the gold medal. “To me, it’s just amazing to see the theories of nature’s wonders come to life. The Ramon Center really makes you want to study. It lets the kids get involved. If it wasn’t for the Center, I wouldn’t have done any research, and I never would have believed I could get this far.”

In 2010, top prize in the same competition went to Ramon Center student Eli Gudinezki. He had studied physics at his high school with Victor Malamud, who “started pulling students into the Ramon Center when I was in ninth grade,” Eli recalls. “Then when I was in 11th grade, he offered me a wide choice of projects. I chose a theoretical one about the generation of turbulence.

“There were no lab experiments,

everything was calculated and simulated on the computer,” says Eli, now 19. “I had no background for that and was surprised to find myself doing it. I had to study a lot of new math—that was very hard. It was quite a journey. I’m proud of the outcome.” His project mentor, Prof. Kleorin, later checked Eli’s results with colleagues in Europe. They were confirmed.



Prof. Victor Malamud, the Ramon Center’s director of physics, with NASA astronaut Joe Tanner

Part of Eli’s prize was a month of research in Poland. “I got to experiment with different fields, like quantum optics, and it was very interesting,” Eli says. “Not only academically. I had the chance to be around physicists and see what they talk about when they eat lunch and what they do in their spare time.”

What did they talk about? “Practically everything, but you can see how physics influences their lives,

how they think.”

Eli aims to join their ranks and credits the Ramon Center for the decision. This fall he began physics studies at BGU, helped by an Army tuition program to train officers, which he will be part of for six years. He expects to later work for a Ph.D. and become a researcher.

“I guess I got lucky with my teachers,” Eli says. “I don’t know what other people think about physics, but people who love science won’t go far away from it—it’s at the center of all science. If you don’t like it, you don’t like science in general.”

Beyond drawing the region’s young people to science and a university education they may not have imagined for themselves, the Ramon Center reaches out in true BGU spirit to the larger community. Last year the Center sponsored a lecture series to bring in the best speakers from Israel and abroad to talk about high-level physics. The public was invited. To the surprise of some, the 10 lectures attracted so many people of all ages that the University’s largest auditorium was needed.

“What we found was an eagerness of the general public to know more about physics and to better understand current research in Israel and the world,” Schechter observes.

“The Ramon Center is a real success story.” ■

A WEST VIRGINIAN'S VERY PERSONAL TOUR OF BGU AND THE NEGEV

Elisse Jo Goldstein-Clark and her husband “Chef” Dan founded and operate the Elkhorn Inn & Theatre, a historic “Coal Heritage Trail” inn in Landgraaff, West Virginia. Elisse is also a FEMA community relations field specialist and a veteran of the Israel Defense Forces. This past spring the couple visited BGU after winning two tickets to Israel by participating in AABGU’s online contest. IMPACT is pleased to present excerpts from Elisse’s “We Live in the Country!” blog (www.southernwestvirginia.blogspot.com) about her first time back in Israel since 1996 and Dan’s first trip ever.

By Elisse Jo Goldstein-Clark

BEER-SHEVA OR BUST! I fell in love with the Negev Desert many years ago. I find it extremely beautiful, as the light constantly changes the colors of the earth and the mountains, making it a landscape-painter’s dream. The Negev’s wide-open spaces and pitch-dark night skies peppered with a thousand stars always felt like a place of a million opportunities and romantic adventures to me.

Because of my love for and interest in the Negev, Dan’s winning us tickets to Israel was especially wonderful, as AABGU set up a fascinating day for us at two of BGU’s campuses, and we got to meet with professors and students, and learn about this amazing institution.

It also gave us the opportunity to spend a week exploring more of the Negev than I ever had before, and for me to share with Dan some of the magic of this amazing desert that houses world-class wineries, gourmet farms, ancient sites, unique geological wonders, healing spas, and state-of-the-art scientific research!

Much as I love the Negev, Beer-Sheva was still a poky little desert town when I lived in Jerusalem and was in the Israeli Army in the 1980s. But it’s now truly a boomtown, thanks, in large measure, to BGU, with its five faculties and a student body of 20,000 deeply involved with the communities in which they live; quite a bit different from its first graduating class of 23!

Dan and I took the super-modern Israel Railways train from Tel Aviv to Beer-Sheva (SUCH a difference from the

trains I knew “back in the day” ca. 1985, when the Tel Aviv-Jerusalem-Haifa-only train was famous solely for being so slow you could get out and pick flowers and jump back on!), and were in the “The Big B” in 90 minutes flat!

We picked up our rental car and drove to Ben-Gurion University’s Sede Boqer campus. It is truly an oasis in the desert. We had the honor of meeting Prof. Pedro Berliner, Ph.D., director of the Jacob Blaustein Institutes for Desert Research, and saw some of the amazing research and developments that BGU does to make the world’s deserts bloom—not just Israel’s.

We saw one of BGU’s solar projects; a working solution to reuse “grey water”; their totally “green” buildings; and the fabulous \$40,000 algae strain that is taking the pharmaceutical industry by storm!

BGU and a Thailand company have signed a research and development agreement to harvest the algae’s valuable bio-chemicals for biofuels and pharmaceuticals (as it’s a



Clockwise from top: Dan Clark and Elisse Jo Goldstein-Clark in the Negev; Noat Goat Farm gourmet breakfast; Elisse learns about the photobioreactors that produce the special algae

powerful antioxidant), for such illnesses as eczema, psoriasis, asthma, arthritis, high blood pressure and cholesterol, chronic inflammation, Alzheimer’s, macular degeneration, and heart attacks. Amazing stuff! Being 52 (and thus seriously into anti-aging products!), as well as suffering from psoriasis, the potential of this algae fascinates the dickens out of me and I’m determined to learn more!

Community outreach and true integration with the people of the Negev is a cornerstone of BGU’s *raison d’etre*, and

Continued on page 31

AABGU's nine regional offices around the country play a vital role in helping BGU develop the bold vision for the Negev, the focus of the future of Israel and the world. Regional events include symposia, luncheons, dessert receptions, gala evenings and missions to Israel. The following pages provide a glimpse of the regions' recent and upcoming activities. We invite you to get involved and become infused with the spirit of discovery.

GREAT LAKES

Ernie Simon, *Chair*
Larry Goodman, *Honorary Chair*
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DAZZLED BY HIGH-TECH GIZMOS

President Prof. Rivka Carmi was in Cleveland this past March to visit BGU supporters and meet new friends for the University.

She attended a dinner party hosted by Joyce and Fred Tavill, spoke at a breakfast meeting sponsored by Joseph Shafran, and met with Barbara Snyder, president of Case Western Reserve University. She was also interviewed by the *Cleveland Jewish News*.

Dr. Amir Shapiro brought the "Amazing Robots of Israel" to Chicago in February for two great programs. The first, at Moriah Congregation, brought together robot lovers of all ages who were dazzled by the high-tech gizmos. The second program, co-hosted by the America-Israel Chamber of Commerce Chicago, drew a large crowd that showed enthusiasm for the robots' potential applications in agriculture, security and other areas.

BGU lecturer, Israeli author and filmmaker Etgar Keret headlined a stimulating lunch program in August. Keret did a reading of one of his new short stories and then participated in a Q&A session moderated by local media personality Jan Lisa Huttner. He also graciously signed books for attendees.

BGU's Open Apartments Program gives talented students the opportunity to live rent-free in disadvantaged neighborhoods in Beer-Sheva in exchange for volunteering with the local community. Through mentoring, community programs, classes, and field trips, these students empower their neighbors to thrive in a creative and nurturing environment.

Students Shir and Shmulik shared their passion for Open Apartments at programs hosted by Jody and David Schmidt, Tal Izraeli, Ernie Simon, and Eteri Zaslavsky. They also met with students from Northwestern University, DePaul University and Northeastern Illinois University.



Top: National Board Members Stewart Flink and Ernie Simon with Dr. Amir Shapiro. **Center:** BGU President Prof. Rivka Carmi and Joseph Shafran. **Bottom:** David Schmidt; Open Apartments Students Shir Mnuchin and Shmulik Boanish; Regional Board Member Jody Schmidt.

JUDY ROSEN, director of the Great Lakes Region, ended her six-year tenure with AABGU on September 30. Judy has been a passionate and committed advocate for, and representative of, Ben-Gurion University, AABGU and Israel. She has worked with a host of donors and leaders who have made considerable commitments to the University and who, as a result of her work with them, are more closely tied to AABGU than ever before. We thank Judy for her dedicated efforts and wish her great luck and success as she begins a new chapter in her life.

GREATER FLORIDA

Rich Bernstein, Alan Hurst, Billy Joel, Joel Reinstein, Lyon Roth, Dr. Rubin Salant, *Greater Florida Advisory Committee*
Elise Dolgow, *Director*
Joy Felton, *Associate Director*
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UNIVERSITY OF MIAMI AND BGU SIGN COLLABORATION AGREEMENT

At the 41st Annual BGU Board of Governors Meeting in Israel this past May, regional delegates Harold and Miriam Commings, Joel Reinstein, and Lyon Roth attended the historic signing of a formal cooperation agreement between BGU and the University of Miami. UM's President Donna E. Shalala was later recognized with an honorary doctoral degree.

The Greater Florida region looks forward to realizing the many opportunities and positive impact that could result from this collaboration.

"We are very honored and pleased to be signing this agreement," BGU President Prof. Rivka Carmi said to Shalala. "You were a role model of mine and to other women when women weren't so prevalent in positions of power."

Prof. Carmi also accepted Shalala's personal invitation to present the Donna E. Shalala lecture at UM on February 7, 2012. Stay tuned for more information.

The Greater Florida Region held several exciting local events in Aventura, Boca Raton and Jupiter. Supporters were pleased to welcome BGU Prof. Emeritus Fred Lazin, former chair of the Department of Politics and Government, who captivated audiences with the timely topic "Major Conflicts in the Middle East: Implications for America, Israel and the Region."



Top: President Rivka Carmi and UM President Donna E. Shalala shake on signed agreement of collaboration. **Bottom, left:** Florida Advisory Committee members Joel Reinstein, Billy Joel, Lyon Roth, Dr. Rubin Salant. **Bottom, right:** Dorothy Kravetz, Harold and Miriam Commings, Prof. Fred Lazin, Lenore Simmons, Hanna Posniak, Geraldine Reiter, Dr. Bernard Simmons receive 40th anniversary recognition awards.

"Professor Lazin has brought in many longtime supporters as well as newcomers who couldn't seem to get enough of his knowledge and insight. He is just one example of the high quality of the academic and research staff at Ben-Gurion University who we are proud to showcase," said the Honorable Billy Joel, vice president on the AABGU national board and Aventura commissioner.

GREATER NEW YORK

Lite Sabin and Jessica Sillins, *Chairs*
 Kevin M. Leopold, *Director*
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PLANNING FOR THE FUTURE

Israeli robots recently made a visit to the metropolitan New York area. Their “leader” Dr. Amir Shapiro spoke at the United Jewish Appeal in Manhattan; Temple Israel in Great Neck, Long Island; and the United Jewish Communities in Danbury, Connecticut.

Dr. Shapiro demonstrated robots that perform jobs that are very dangerous for people, such as checking a ship’s hull for illegal devices or searching for victims among rubble. The potential for these robots is limitless, but the children who were present just had fun playing with them!

In July, female Bedouin weavers from the village of Lakiya presented some of their incredible work at Bob Arnow’s Manhattan office. The guests learned how the women bring steady work and education to areas of the Negev that have high levels of poverty and illiteracy. Their educational successes are due in large part to the Robert H. Arnow Center for Bedouin Studies and Development at BGU.

The Greater New York Region offers events like these throughout the year. All are welcome to attend and witness the diverse and amazing advances being made at BGU. Come and learn how they impact Israel and all of us here, as well.

You can actively, and easily, help BGU ensure that Israel’s future leaders receive the education and expertise they require to secure the country’s future, as well as their own. There are many ways you can support this invaluable mission.

Planned gifts are a great way to contribute to BGU while becoming part of our Living Legacy Society. If you would like consultation regarding creating a charitable lead trust; a bequest or revocable living trust; a gift of life insurance; establishing a charitable gift annuity; or contributing from your IRA, please call Kevin Leopold at 212-687-7721 ext. 186. The Living Legacy Society is a special group of supporters who are recognized prominently on BGU’s Marcus Family Campus in Beer-Sheva in the beautiful Living Legacy Garden.

Top: The Amazing Robots of Israel at Temple Israel in Great Neck (Left to Right) Neda Melamed, Micky Putterman, Dr. Amir Shapiro, Eileen Putterman, Regional Director Kevin Leopold. **Center:** (Left to Right) Betty Lukinsky, Chicky Rauch, Evi Blaikie, and others, shopping for handmade woven products from Lakiya Negev Weaving. **Bottom:** Bedouin woman from Lakiya Negev Weaving spinning wool into thread.



GREATER TEXAS

Sandra and Steven Finkleman, *Chairs*
Deborah K. Bergeron, *Director*
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KOSHER DINING EXTRAVAGANZA CELEBRATING THE LIFE OF SANDY BRESLAUER AND BGU'S 40TH

More than 350 guests attended the Greater Texas Region's 10th Annual Gourmet Kosher Dining Extravaganza at the Intercontinental Houston Hotel on Tuesday, March 29, 2011.

Celebrating the life of Sandy Breslauer and the 40th anniversary of Ben-Gurion University, the event was both moving and impressive as the Houston community and many from all over the country and Israel rallied around the Breslauer family.

The 2011 Extravaganza co-chairs were Jean Goldberg and Stephen Friedman, and the honorary chairs were Cathy and Bob Binstock; Dee Dee Dochen; Sandra and Steven Finkelman; Arline and Ben Guefen; Jill and Nat Levy; Cheryl and Michael Rubenstein; Lisa and Michael Sachs; Marsha Sachs; Ambassador Arthur and Joyce Schechter; Jerry Tanenbaum; Ellen and Dan Trachtenberg; and Dolores Wilkenfeld.

"The excitement and exhilaration in the room were contagious and made for a huge success," says Shira Yoshor, regional board member.

As guests arrived and entered the silent auction area, they were greeted by AABGU regional board members and BGU President Prof. Rivka Carmi and AABGU Executive Vice President Doron Krakow.

Prof. Carmi introduced Sandy's Activity Center, a special community center currently under construction in the impoverished Daled section of Beer-Sheva, the largest neighborhood served by BGU's Open Apartments Program. Proceeds from the event benefitted the Center.



Top: Jim Breslauer, Ben Breslauer, Prof. Rivka Carmi, Stephen Breslauer, David Breslauer. **Bottom:** Greater Texas delegates celebrate at BGU's 41st Annual Board of Governors Meeting. (Left to Right, Front Row) Uri, Arline and Ben Guefen (Back Row) Stephen Breslauer; Dean of BGU's Eilat Campus Prof. Miri Amit; Regional Director Deborah Bergeron; David Bergeron.

The highlight of the evening was the screening of a video celebrating the life of Sandy Breslauer, produced by Legacy Multi-Media. Sandy's love for life, unlimited kindness and heartfelt generosity were fully captured in this inspiring video tribute.

MID-ATLANTIC

Jack R Bershad, *Regional Chair*
Connie & Sam Katz, *Philadelphia Chapter Chairs*
Marla & Dr. Robert Zipkin, *Philadelphia Chapter Vice Chairs*
Claire Winick, *Director*
Andrew L. Demchick, *Associate Director*
(215) 884-4510 midatlantic@aabgu.org

IT'S BEEN A BUSY YEAR: COME JOIN US

The Philadelphia Chapter's Negev Forum and Tomorrow's Leadership Committees are attracting younger donors:

- Michele and Rob Levin hosted "Start-Up Negev" featuring Prof. Avigad Vonshak and "An Evening of Fine Wine and Food for Thought" with Prof. Iris Shai.



An Evening of Fine Wine and Food for Thought brought together Rob Levin, Prof. Iris Shai, AABGU Executive Vice President Doron Krakow, and Michele Levin.

REGIONAL NEWS

- Cindy and Alan Balick hosted Prof. Vonshak.
- Rebecca Peikes hosted Prof. Julie Cwikel of the Center for Women's Health and Promotion.
- A good time was enjoyed by all at Bowling, Bids and Brews.

As part of a year-long project with Congregation Keneseth Israel, Prof. Vonshak spoke about Negev development, and Prof. Ze'ev Silverman discussed stem cell research.

Events were held at Temple Sinai, one featuring Prof. Mayer Gruber and another with Dr. Amir Shapiro. Shapiro also shared his amazing robots with students at Kohelet Yeshiva High School, with America-Israel Chamber of Commerce leaders and with members of Congregation Tifereth Israel. Prof. Fred Lazin gave an update on the peace process at Temple Beth Hillel-Beth El and in the home of Aimee Katz.

Other important BGU visitors included Profs. Rivka Carmi and Zvi HaCohen, who spoke at the kickoff reception for the 2010 annual community event. Held in November, 250 guests honored the memory of David Zeehandelaar.

Other events included:

- "Collaborating Across Cultures," with BGU and Fox Chase Cancer Center scientists
- A luncheon featuring Prof. Iris Shai sponsored by Estelle and David Steinberg
- "Israeli Musicians Play Paris" co-sponsored by Drexel University



Installation of Officers Reception (left to right): Past Philadelphia Chapter Chair Samuel J. Greenblatt; incoming Vice Chairs Dr. Robert and Marla Zipkin; incoming Chapter Chairs Connie and Sam Katz

- Installation of Officers Reception hosted by Connie and Sam Katz
- Lunch and Learn with Prof. Cwikel sponsored by the Health Sciences and Academic Affiliations Committee, hosted by Marla and Dr. Robert Zipkin
- A well attended 12th Annual Snowbird Event in Boca Raton, Florida
- Philadelphia Chapter board meetings, hosted by Regional Chair Jack R Bershad, where members of the Living Legacy and Negev Societies were recognized

The region's annual tribute event will take place on November 20, 2011 at the National Museum for American Jewish History.

NORTHWEST

Sonny Hurst, *President*
Daphna Noily, *Director*
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WOMEN, BUSINESS AND ISRAEL STUDIES

Following up on a very successful Women's Retreat in 2010, the Northwest Region partnered with the Oshman Family Jewish Community Center of Palo Alto to present "Breathe: A Women's Wellness Symposium" in March 2011.

Some 125 women from the South Bay area heard BGU Prof. Ayala Malach-Pines, dean of the Guilford Glazer Faculty of Business and Management, deliver a keynote address on "Re-Charge, Renew, Re-Engage: Creating a Life in Balance" followed by a choice of breakout sessions on topics such as, "Planning for the Unexpected" and "Why We Choose the Lovers We Choose."

The event's steering committee included Stephanie Oshman, Riki Dayan, Sonny Hurst, Nancy Rossen



Attorney Ellen Kahn, leading one of the symposium's breakout sessions.

Barbara Oshman, Orli Rinat, Carol Saal, and Eta Somekh.

The night before the symposium, new Founders Varda and Irv Rabin of Tiburon hosted Prof. Malach-Pines in their beautiful home, along with 15 others for Havdalah and an elegant dessert reception. Malach-Pines talked about burn-out, leadership style differences between men and women, and Ben-Gurion University, of course. Everyone present, including some local Israelis and a BGU alumna,

BGU Prof. Ayala Malach-Pines was the keynote speaker at "Breathe."

enjoyed the Rabins' gracious hospitality and beautiful home, in addition to being captivated by the conversation.

Regional Board Member George Frankenstein hosted a business lunch in his downtown office boardroom for Prof. Avigad Vonshak. Prof. Vonshak spoke about BGU's newly launched Israel Studies International Program, which will be held at BGU's Sede Boqer campus.

With its direct access to the David Ben-Gurion Archives, which are now available for research on the Internet, the University is positioned to become the world's expert on the teaching of modern day Israel and Zionism.



Wendy Tanz, Regional Director Daphna Noily, Regional President Sonny Hurst

SOUTHWEST

Ruth Flinkman, *Campaign Chair*
Philip Gomperts, *Director*
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L.A. GALA HONORS ESTEEMED MEMBERS OF THE COMMUNITY

Nahid and Mansour Parsi and Judge Leon S. Kaplan were honored at the Southwest Region's Gala Dinner on September 11 at the Beverly Hilton Hotel. The featured guest speakers were Lt. General Dani Haloutz, former Israeli chief of staff and head of the Israeli Air Force, and BGU President Prof. Rivka Carmi.

The Parsis were presented with the David Ben-Gurion Award for their generous support of BGU and their involvement in AABGU since 1998. They recently set up the Nahid and Mansour Parsi Endowment Foundation to support priority research projects at BGU. This foundation will not only support research at the University in perpetuity, but will also involve future generations of the Parsi family in the project-support decision process.



Judge Leon S. Kaplan (ret.) was honored with the Negev Award. His personal values and professional experience working with juveniles in the legal system has led to the founding of the Parental Education and Training Center for parents of at-risk children in Beer-Sheva and the Negev region. He has also fostered academic and clinical collaborations in Los Angeles and Beer-Sheva.

Look for photos of this special event in the Spring 2012 issue of *Impact*.



NEW CHAPTER OPENS IN SAN DIEGO

We welcome Rabbi Arnold (Aharon) Kopikis, who assumed duties as associate director to head the new San Diego Chapter. His many years of community involvement in the area bring a unique dimension and hundreds of new prospects to Ben-Gurion University.

BGU's Dr. Eli Lewis presented his latest research on a possible cure for type 1 diabetes at Ner Tamid Synagogue in Poway and in Ohr Shalom Synagogue in San Diego. These presentations, as well as several small events, were held in the San Diego area as part of the chapter's launch.

Photos clockwise from top: Mansour and Nahid Parsi; Dr. Eli Lewis (center) with new friends in San Diego; Judge Leon Kaplan



The Honorable Esther Coopersmith hosted a dinner honoring the AABGU national board and local donors. (l to r): AABGU Executive Vice President Doron Krakow, Frank Dye, Mickey Rahav and Philip Birnbaum

WASHINGTON/BALTIMORE

Edie and Art Hessel, *Washington D.C. Chapter Chairs*
Keren M. Waranch, *Director*
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HOSTING THE MID-WINTER NATIONAL BOARD MEETING AND MORE

The Washington/Baltimore Region had an exciting and busy winter and spring. It began with hosting the Mid-Winter National Board Meetings for AABGU in February.

Local tours and lectures were offered in the D.C. area, featuring the expertise of three visiting professors from

They also had the opportunity to participate in special tours at the World Bank with Dr. Dov Chernichovsky of BGU's Department of Health Systems Management; the National Institutes of Health with Dr. Asher Mosher of the Department of Pediatric Hemato-Oncology; and Sixth and I Historic Synagogue with regional board member Esther Foer.

The national board was also honored with a dinner hosted by Board of Governors member Esther Coopersmith at her home in Dupont Circle.

In March, the region hosted an event in Baltimore featuring Dr. Eli Lewis of the Department of Clinical Biochemistry, co-sponsored for the second time with the Juvenile Diabetes Research Foundation. Dr. Lewis' research to find a cure for type 1 diabetes, now in clinical trials, continues to touch those personally connected to the disease. Prof. Emeritus Fred Lazin, former chair of BGU's Department of Politics and Government, lectured at several Baltimore and Washington synagogues and organizations throughout the year.

He is currently the Seymour and Lillian Abensohn Visiting Professor at American University.

Prof. Lazin will remain at American University for another year, so look forward to more events featuring his lectures and expertise.

For information about upcoming events, please visit:
www.aabgu.org/regions-events/washington-baltimore



Left: Dr. Eli Lewis with BGU Medical School for International Health grad Olga Charnaya in Silver Spring, MD **Right:** Prof. Fred Lazin speaking at an event in Baltimore, sponsored by AABGU, the Baltimore Jewish Council and the American Jewish Committee on March 22, 2011



Ben-Gurion University. Local donors and national board members visited the Hebraic Collection at the Library of Congress for a rare private viewing of *The Washington Haggadah* with Prof. Katrin Kogman-Appel of BGU's Department of the Arts.

IN MEMORIAM

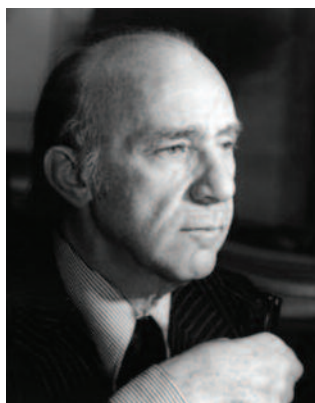
The Jewish year 5711 witnessed the loss of a number of extraordinary members of the AABGU family. We pay tribute to them here as we celebrate their remarkable lives. Their memories are most certainly a blessing.



Joan Arnow



Sandy Breslauer



Arnold Forster



Edy Freedman

JOAN ARNOW

Joan Arnow's elegance and grace were exceeded only by her dedication to her family, to her community and to Israel. Together with her husband Bob, chairman emeritus of BGU's board of governors, she envisioned a brighter future for Israel's Bedouin population. While Bob established the Robert H. Arnow Center for Bedouin Studies and Development in 1997, it was Joan who

encouraged him to support and empower the women of the Negev. Over time, the education of Bedouin women became a special mission of the Center. Joan leaves a legacy of love, commitment and compassion.

SANDY BRESLAUER

Sandy Breslauer was an extraordinary woman whose passion for life was celebrated in March at the Greater Texas Region's 10th Annual Gourmet Kosher Dining Extravaganza. Sandy and her husband Steve were the founding chairs of AABGU's Greater Texas Region, and she was an active member of the regional board. A compassionate humanitarian devoted to children, Sandy's Activity Center, a special community center established in her memory, is under construction in the impoverished Daled neighborhood of Beer-Sheva. In addition, the Sandy Breslauer Garden was dedicated at BGU in May at the 41st Annual Board of Governors Meeting.

ARNOLD FORSTER

Arnold Forster, a prominent attorney in New York and a leading voice in the American Jewish community, was among the earliest

supporters of AABGU. Through his remarkable passion and unique ability to rally others around him, he drew some of the most prominent supporters of his time to the University, and ultimately rose to the position of president of the AABGU national board. His devotion to the Jewish community, to Israel and BGU, and to civil rights and fighting anti-Semitism was the impetus for an honorary doctorate from BGU in 1984.

EDY FREEDMAN

Edy Freedman's hallmark was her extraordinary generosity of spirit, which found expression in her passion for the Jewish people and the State of Israel. She served on the University's board of governors and was a former AABGU national board member. She was the inspiration and benefactor for the Ma'agan Community Support Center for Cancer Patients and their Families in Beer-Sheva. Edy once described the Center's purpose, "If you meet inside a hospital, you're sick. If you meet in the community, you're learning to live with an illness." In May, Ma'agan was renamed Edy's House in her memory.

IN MEMORIAM

SEYMOUR POWERS

Seymour Powers was an entrepreneur whose accomplishments made him a legend in commercial real estate development. His prominence in business was equaled only by his philanthropic endeavors. Seymour was a true friend and longtime supporter of AABGU. He played an integral role in the organization's Florida region, lending his business and marketing acumen to help raise the profile of both AABGU and the University. Seymour's generosity of spirit and experience was recognized with an honorary doctorate from BGU in 2004. This award recognized his commitment to fulfilling the Zionist vision of developing the Negev and building an Oxford in the desert.

ERIC ROSS

Eric Ross fled Germany in the 1930s. When the U.S. went to war, he joined the military in the fight against the Nazis and was decorated for bravery. He later became a pioneer in the plastics industry. His skills as an entrepreneur were matched by his dedication and generosity as a philanthropist, and together with his late wife Lore, he devoted the last decades of his life to preserving the memory of those lost in the Holocaust and to the education of the

next generation. He was awarded an honorary doctorate from BGU in June of 2010. Eric remains among the largest supporters to both the U.S. Holocaust Memorial Museum and BGU.

FELIX ZANDMAN

Felix Zandman's life combined an extraordinary tale of survival with incredible business acumen and a dedication to the advancement of humanity through science and technology. His memoir, *Never the Last Journey*, chronicles the remarkable story of how he survived the Holocaust. Felix earned a Ph.D. in physics from the University of Paris, Sorbonne before emigrating to the U.S. in 1956. He founded Vishay Intertechnology Inc., named after the Lithuanian village where his family perished. At BGU, he established the Zandman Center for Thick Film Microelectronics and became a vice chair on the board of governors. He received an honorary doctorate from the University in 1996.

DAVID ZEEHANDELAAR

David Zeehandelaar's was a life cut short. A highly successful attorney at Blank Rome LLP, he was part of a new generation of leaders. Becoming involved with AABGU and the University in 2000, David and his wife Mona chaired the



Seymour Powers



Eric Ross



Felix Zandman



David Zeehandelaar

Philadelphia Chapter and became magnets for a growing circle of young people who followed their lead. They generously contributed to BGU's Center for Women's Health and Promotion and to scholarships for students in need. The David Zeehandelaar Memorial Fund was established to give students from his alma mater, the University of Pennsylvania, the opportunity to participate in the Ginsburg-Ingerman Overseas Student Program at BGU. ■

CHEMISTRY & LIFE

Continued from page 11

machines can. But what matters is that it's looking for what humanity always wants to know, how life came about."

This effort worries some people, Ashkenasy admits. "But there's not much to be afraid of yet. No weird species on the horizon."

Yet, he adds, there can be unexpected breakthroughs that could benefit humanity greatly.

GABRIEL LEMCOFF: TO GO WHERE NONE HAVE GONE BEFORE

Prof. N. Gabriel Lemcoff was born in Argentina and joined an Israeli kibbutz at 22. After his studies, he accepted BGU's offer and found an extraordinarily energizing atmosphere. "From eating lunch together, the discussions, seeing some of the great chemistry being done here—it inspires you! Even subconsciously! This is very important when you're trying to do science."

Lemcoff collaborates with industry, or targets a purpose on some projects, but what he likes best is the creative challenge "to do new things that no one else has done before and are unconventional. At first sight it won't be used for anything but in the end it will make revolutions and will be the most important thing."

He works in a broad range of organic chemistry activity. One major pursuit is creating a new type of

catalyst that is bimetallic, possessing two reactive centers. One molecule attaches to the catalyst, he explains, and a second molecule attaches to form a double ring shape. This produces a new type of reaction and represents a first step toward creating new polymers (see image on page 9). The research was recently published in a top international chemistry journal.

"In a sense we're doing the same thing as alchemists. Get a flask, mix the molecules, heat them up. But today...we have catalysts that make special bonds between atoms that we could only dream about 10 years ago."

—PROF. N. GABRIEL LEMCOFF

The potential new compound could have properties of elasticity, but more important, heat dissipation. Ordinarily, polymers move and break up when heated, or soften, but if the new structure dissipates the heat, the polymer can remain strong, a significant accomplishment should it prove out.

A second research track that excites Lemcoff involves dendrimers. These are molecules with a tree-like structure of branches that constantly move,

folding in and out. "We are trying to use the movement to do selective catalysis, something that's never been done. We can put in some chemical functions that can recognize specific substrates and in the center have catalytic groups that will catalyze several reactions."

This research could ultimately lead to the injection of "smart molecules" into the body, "where they will react in different ways depending on what they see."

Ironically, this sophisticated work often starts the old-fashioned way. "In a sense we're doing the same thing as alchemists. Get a flask, mix the molecules, heat them up. But today you can do extremely amazing things that way. We have catalysts that make special bonds between atoms that we could only dream about 10 years ago."

And, the ways to examine the results are new: X-ray crystallography, magnetic resonance spectroscopy, mass spectrometry.

Lemcoff especially values the teaching part of his work. In addition to his BGU classes and lab work, he lectures at local high schools and talks about molecules to children in community settings. "They love it!" He hopes to start a high school where university professors would teach.

"If we can pass on to students the beauty of it—that everything around us is chemistry—we'd have many more scientists and I believe a better world to live in." ■

FIRST PERSON

Continued from page 21

through dozens of different programs, BGU's students and faculty give back to the communities around them, serving a variety of peoples, including immigrants from Ethiopia, the Negev Bedouin and the elderly. Dan and I had lunch in the University's Marcus Family Campus cafeteria with Dana Malka and several BGU students, all of whom were working with residents

of disadvantaged communities, and they truly impressed us with their intelligence, idealism and passion.

Our last meeting was with Prof. Steve Rosen, of the Department of Bible, Archeology and Ancient Near East Studies. It was a true treat to sit and chat with someone who has excavated some of the most historic archeological sites in the world.

I asked him which site he'd recommend to tourists like us who had limited time with which to explore

the Negev. His answer was immediate: Avdat, a Nabatean city in the Negev highlands founded in the 1st century B.C.E. as a road station for caravans; there are Roman and Byzantine ruins there as well.

Our day at BGU made me want to live in the Negev more than ever, and to be a part of the amazing things that are being created in this glorious place... **Must. Win. Lotto...** ■



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