

WORDS FROM NEW YORK



Nancy Falchuk



Annette Sondock

TECHNOLOGY AND HUMANITY

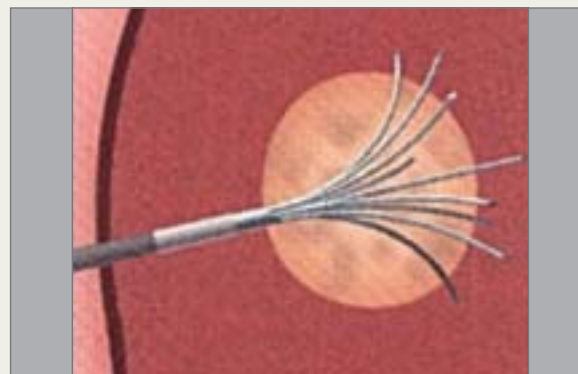
The faster technology advances, the more flexible a pacesetter medical center has to be. The Hadassah University Medical Center has maintained its pioneering status not only because of the machinery it uses but also because of its agility, its adaptability and its ability to plan. Over the past generation we have seen our hospitals keep up with the rapid pace of technological change, from lithotripters to imaging systems, from sophisticated vascular coils to the latest in robots. The only areas in which we haven't been on the proverbial cutting edge are those in which we have been way out in front.

This issue of *Windows* focuses on our enviable record in putting high technology in the service of healing various parts of the body, from the

eyes to the liver to the immune system. In diagnosis, treatment and research, Hadassah has a world-class reputation, and our successful application of the best technology science has to offer is a major reason for the leadership role our medical professionals have achieved.

But even as we take pride in our medical technology, it is important to remember that the most advanced technological devices are tools of medicine, rather than medicine itself. To paraphrase Einstein, we need to make sure that our humanity keeps pace with our technology.

The most highly developed computers can never replace the human element. For all of our 21st century hardware and software, we take even more pride in the personal relationship our medical staff has with our patients. In 97 years, we have not only pioneered in ways to treat illness and heal wounds, but also in ways to relate



Expandable ablation electrode in mass

personally to people and, when necessary, to families. In addition to introducing new equipment, we have also introduced new environments, new interpersonal approaches and new understanding of patient needs.

When the Sarah Wetsman Davidson Tower opens on our Ein Kerem campus in 2012, it will reflect our philosophy of holistic patient care. It will be a home that comfortably accommodates the best of medical technology and it will also have a staff of doctors, nurses and technicians dedicated to maintaining a healing environment.

A robot can replace a hip, but only a human caregiver can assure that the treatment reaches mind and soul as well as body. A minimally invasive surgical technique has to be matched by an optimum human touch.

Modern medicine depends on a combination of humanity and technology. At Hadassah, we appreciate both. And we will never lose sight of which is the master of which.

There's one final element to Hadassah's medical equation. Our profound thanks to all of the generous donors who enable the Hadassah Medical Center to heal, to excel and to build the future.

*Nancy Falchuk
National President*

*Annette Sondock, Chair
Hadassah Medical Organization*

A WORD FROM JERUSALEM



At Hadassah, as at every major medical center around the world, the quality of our staff and the quality of the equipment we provide them, is the key to maintaining our standard of excellence – and even breaking new ground. The marriage of fine minds

with sophisticated machines enables us to ensure that our patients receive outstanding care and treatment and propels our research into uncharted fields.

For many years technology and medicine have marched forward hand in hand. Each new technological triumph – even those seemingly unrelated – has found an application in medicine. And more often than not, these applications, these advances, have found a home in Hadassah.

Sometimes we have been the first in the world to adapt a technology, making our mark in the medical world. Often, very often, we were the first to introduce the new technology, the new device, the new protocol to Israel.

Israel is an acknowledged world center of technology. Many of our now everyday tools – like our cell phones – originated here or were improved upon here. Many of the concepts and technologies created by or for the military have been adapted for medical use. The simulation labs we have at Ein Kerem and Mt. Scopus

are just one of many examples. Originally developed by the Israel Air Force for their own purposes, now the labs are being used to teach medical students to identify problems, anticipate problems – to be better doctors.

Hadassah doctors are working on a super model thermography machine to detect breast cancer, using technology created by Rafael Israel Armaments Development Authority and the robotic surgery we have begun is based on a system initially developed by NASA.

By themselves, machines and devices are just machines and devices. It is our doctors and scientists who develop the applications and figure out how they best serve our patients. And it is our patients who benefit from this advanced technology – with better care, enhanced treatment and greater efficacy of their medications.

The challenges are not only scientific and technical – the challenge is financial. Developing a new device, creating a new technology, testing a new drug – takes a lot of time and a lot of money. Yet we continue to move forward, despite financial constraints, despite hours of laboratory work that sometimes fails, despite the many other challenges we face.

And we continue to move forward in many other areas as well. The most significant, of course, is the Sarah Wetsman Davidson Tower. As we watch it take shape, we can see the outline of the future. For Hadassah it is a future filled with new discoveries and new accomplishments in an outstanding new facility. Firmly rooted in an outstanding tradition, as it rises before us, it embodies all we believe in, all we hope to accomplish.

Our doctors, scientists and researchers continue to

search – and sometimes find – new solutions to old problems. Much of what they accomplish – or seek to accomplish – could not be done without the faith you, the Hadassah family, invest in them and the support you give them. You contribute to their research, but equally important, you follow their progress and establish personal relationships; you share their setbacks and when a research project comes to fruition, you share their pride.

The Jerusalem BioPark that just opened on our Ein Kerem campus will house start-up companies and laboratories pursuing new technologies, new medications and new medical devices. Hadasit, our technology transfer arm, was its first tenant. Among its other activities, Hadasit is developing medical devices from ideas generated by Hadassah's doctors and scientists.

Hadasit has come a long way in the last ten years under the leadership of Dr. Rafi Hofstein, who is leaving us to become head of a Canadian national endeavor. We will miss his special combination of scientific knowledge, business acumen and dry wit, but are proud to welcome Dr. Einat Zisman. She is a worthy successor to his monumental accomplishments and will continue to carry Hadasit forward.

As we enter another New Year we look back on what we have achieved so far – with our superb staff and our good Hadassah friends – and we look forward to accomplishing even more in the coming year.

*Shlomo Mor-Yosef
Director General*



HERE AT HA

WE'RE NOT WAITING FOR THE FUTURE. WE'RE BUILDING IT. AROUND THE CLOCK.

Somewhat like a space shuttle soaring high into the air from far underground, although not jet-propelled, the Sarah Wetsman Davidson Tower is rising on Hadassah's Ein Kerem campus – beginning five floors below ground, to culminate 14 stories above.

Since the giant leap from blueprints to bulldozers was made in 2007, the Hadassah-Ein Kerem campus has undergone dramatic changes – the infrastructure for the Tower was created far below ground, temporary roads and walkways built, trees moved and replanted and traffic rerouted.

Currently the largest building project in the State of Israel, the building site is a hub of activity day and night, with 150 people working in two shifts around the clock.

The steel girders have emerged from 67 feet below ground and now reach the hospital roadway. The walls, rooms and elevator shaft of the lower floors are easy to discern. The ceiling of the Surgical Center on Level -4 has almost been completed, serving as the floor for the Anesthesiology Department above. Work has also begun on

Level -3, which contains the infrastructure to service the Surgical Center underneath. About half this floor has been completed and already over 9,800 feet of concrete have been poured.

Being prepared for war – conventional or unconventional – is simply a fact of life in Israel. As the Judy and Sidney Swartz Center for Emergency Medicine was constructed with that necessity in mind, so is the Sarah Wetsman Davidson Tower.

To safeguard against the results of biological or chemical attack, the third and fourth floors below ground are being constructed as a bomb shelter, with 16-inch thick external walls and space for 260 beds. Combined with those in the Center for Emergency Medicine, Hadassah will have 382 protected beds to serve the public and army in the event of war. Israel's Home Front Command has already approved these plans, which reflect the crucial need to assure prompt and appropriate assistance if necessary.

Hadassah has always been committed to enhancing the environment and these issues were very much in the forefront of Hadassah's thinking when the building was planned. To ensure that the building would more than exceed today's

HADASSAH

standards, Hadassah's team of Israeli and American architects incorporated many energy-saving devices and innovations into their design.

The Sarah Wetsman Davidson Tower features the use of natural light wherever possible using a computerized lighting system that responds to external changes, as well as many other environmental-friendly innovations.

The same rigorous standards are being applied to the interior of the building as well. After a long and thorough process, detailed plans were completed and all those who will work in the new building – such as department heads, head nurses and maintenance staff – had a chance to express their opinion. They examined the mock-ups of single and double patient rooms, an intensive care room, an intensive care isolation room and an operating room and provided their professional input. In the course of the planning, Hadassah sent a team to the United States to visit several hospitals. Their pictures and suggestions were then analyzed in Israel and changes incorporated into the plans.

While the Sarah Wetsman Davidson Tower will never achieve the heights of a space shuttle, it is more than just a building. It is a symbol of our Hadassah mission and vision – to bring health and hope to the people of Israel and all the people of the region.

A live feed from the construction site can be viewed through the link on the Hadassah website:
<http://www.hadassah.org.il/Eng>

ANOTHER NEW BEGINNING

Soon after the first tenants moved in, Prof. Shlomo Mor-Yosef, HMO Director General and Hadasit Chairman of the Board, welcomed Jerusalem Mayor Nir Barkat, to the new Jerusalem BioPark on Hadassah's Ein Kerem campus.

Dedicated to providing a supportive and encouraging environment and outstanding incubator facilities for startup companies in the life sciences, the Jerusalem BioPark is Israel's first technology park devoted to medical devices and biomed companies located in a teaching hospital.

"It is a great source of pride that all the scientific creativity and commercial progress at the Hadassah Ein Kerem campus is attracting global interest," Mayor Barkat said. His visit coincided with his recent announcement of a NIS 100 million investment in the development of the capital's biomedical industry over the next five years to create jobs and attract local and foreign businesses to establish a presence in the city. The Jerusalem BioPark is a cornerstone of this plan.

Hadasit, HMO's technology transfer company, the Hadassah Clinical Research Center and companies of Hadasit Bio Holdings Ltd. (HBL) occupy considerable space in the five-story building. Hadassah and the

Hebrew University, already partners in five schools of allied medical professions, established a joint foundation – UNIHAD – to build the park. They were joined by Minrav Holdings Ltd, one of Israel's leading real estate developers.



Pictured during the tour of the new Jerusalem BioPark on Hadassah's Ein Kerem campus are, from left: Dr. Rafi Hofstein, HBL Chairman of the Board; Elchanan HaCohen, Hebrew University Vice President and Director General; Jerusalem Mayor Nir Barkat; and Prof. Shlomo Mor-Yosef, Hadasit Chairman of the Board.



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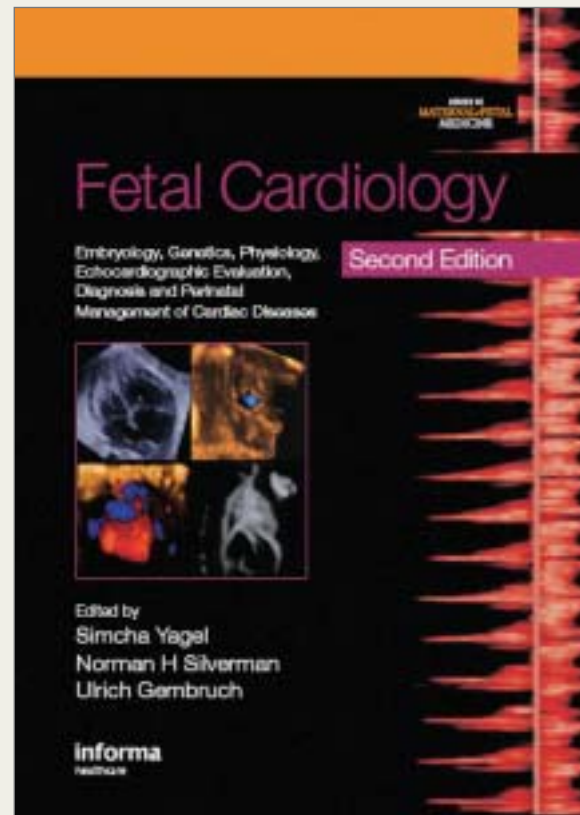
PROF. ODED ABRAMSKY

Prof. Oded Abramsky, former Head of Hadassah's Department of Neurology, has been named a member of the Israel National Academy of Science, Israel's most prestigious scientific body.

Prof. Abramsky heads the Israel National Council For Research and Development and continues to serve as a senior physician and researcher in the department. He is the only active physician among the 70 members of the Academy and the five physicians invited to serve in the last 50 years – three of whom were from Hadassah.

PROF. SIMCHA YAGEL

The prestigious journal *Nature Medicine* named the research article by Prof. Simcha Yagel and Prof. Ofer Mandelboim that appeared in their September 2006 edition as the best in "The Top Papers on Reproduction Research." A panel of 40 experts evaluated all articles on reproductive medicine printed in all medical journals in the last four years and concluded that the Hadassah research opened up a new era in investigating the fetal-maternal interface. Prof. Yagel heads the Ultrasound Center at Hadassah-Mt. Scopus'



Department of Obstetrics and Gynecology; Prof. Mandelboim is the Dr. Edward Crown Professor of General and Tumor Immunology at the Hebrew University-Hadassah Medical School's Lautenberg Center for General and Tumor Immunology.

Prof. Yagel is the lead editor of *Fetal Cardiology*, one of the world's foremost textbooks on the subject. Originally published in 2005, the second edition that was released this year is essentially a new book – all chapters were updated and expanded and new chapters were added. The book is considered so outstanding and the number of orders so large, that the publisher immediately raised the book's price.

PROF. ALLON MOSES

Prof. Allon Moses, Chairman of the department of Clinical Microbiology and Infectious Diseases, has been elected Chairman, Israeli Society for Infectious Diseases, a professional association of his peers from throughout the country.

DR. EINAT ZISMAN

Dr. Einat Zisman has been named CEO of Hadasit, Hadassah's technology transfer company, succeeding Dr. Rafi Hofstein who managed Hadasit for the last 10 years. Dr. Zisman, a magna cum laude graduate of the Hebrew University-Hadassah School of Pharmacy, holds a PhD in Immunology from the Weizmann Institute of Science, an MBA from the University of Southern California's Marshall School of Business and a Master's degree magna cum laude in Medical Science from the Ben-Gurion University of the Negev.

HADASSAH

PROF. ORLY ELPELEG

Prof. Orly Elpeleg, Director of the Center for Pediatric Metabolic Diseases, has been named Head of the Department of Human Genetics. After graduation from the Hebrew University-Hadassah School of Medicine, Prof. Elpeleg underwent extensive training abroad and returned to Hadassah to share her expertise.

PROF. HADAR MERCHAV

Prof. Hadar Merchav has been appointed Director of the Liver Transplantation Unit in the Department of General Surgery. A graduate of the Hebrew University-Hadassah School of Medicine, he served as a clinical fellow in transplantation and a research fellow in transplant surgery at the University of Pittsburgh in Pittsburgh PA and completed a specialty at the Ethicon Laparoscopic Education Center in Cincinnati OH.

PROF. FELIX UMANSKY

The World Federation of Neurosurgical Societies asked Prof. Felix Umansky, Chairman of the Department of Neurosurgery, to continue as Chair of the Ethics and Medico-Legal Affairs Committee because of his "excellent work in the last four years." Prof. Umansky is also the only Israeli contributor to the 2009 *Practical Handbook of Neurosurgery*.

PROF. DANIEL SHOUVAL

At its 44th annual conference in Copenhagen, the European Association for the Study of the Liver presented Prof. Daniel Shouval, Director of Hadassah's Liver Unit, with its annual award in recognition of his "outstanding scientific contribution and continuous action in the field of liver diseases," in the presence of more than 7,000 of his colleagues from around the world. Prof. Shouval is the first Israeli to receive this highly prestigious award.



Prof. Daniel Shouval with Roselyne "Cissie" Swig, the hostess of the San Francisco event for Major Donors, who graciously opened her home to host the doctors from HMO's Liver Unit who were in San Francisco for the annual meeting of the American Association for the Study of Liver Diseases. We apologize for misspelling her name in the last edition of Windows.



JUST IN CASE ...

In coordination with the Home Front Command of the Israel Defense Forces and the Ministry of Health, Hadassah personnel and students from the Hebrew University-Hadassah Medical School participated in several emergency drills. For the first time in Jerusalem, one of them simulated an incident involving radioactive materials. Above, a "casualty" is being treated by doctors and nurses in special suits to protect them from radioactive residue.



"Your generosity will give them a chance to live," says the brochure describing Hadassah's Bone Marrow Registry for Arabs.

HELPING HADASSAH HEAL

Bone marrow registries are a well-known concept throughout the world, matching patients in need of transplants with people who have some or all of the same genetic makeup. Family relations are the most common source of matching donors;

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people from similar ethnic backgrounds rank next. Locating appropriate donors has become easier with the advent of bone marrow banks.

In the abstract presented at the 2008 conference of the World Marrow Donor Association, Dr. Shoshana Israel, Head of Hadassah's Tissue Typing and Immunogenetics Unit, and her colleagues Prof. Chaim Brautbar, former head of the department, and Dr. Amal Bishara, PhD, reported the lack of an international registry for Arabs and cited the need for donor registries for Arab communities in Israel and around the world.

Until the project was launched in October 2008, only 200 of the more than 60,000 people on Hadassah's database were from the Arab community – and 20 Arab patients were looking for a match that could save their lives, Dr. Bishara said.

Hadassah set out to change the situation with Dr. Bishara heading the project. Armed with an Arab language brochure explaining the situation and what is involved, she is hard at work encouraging people to register and deposit a blood sample that will be analyzed, recorded and available when needed.

Several workshops and lectures have already

been presented to different communities and drives to recruit potential donors are being carried out continuously in three hospitals in Nazareth, at the Hebrew University-Hadassah Medical School, in Arab communities around Israel and even in the Palestinian Authority. "We now have 2,920 Arab donors on the registry – and some of them were found to be good matches for patients," she says, "but that's not enough. There are 12 million potential donors in the world."

TRULY NOTEWORTHY

For hundreds of years, abdominal surgery involved making a large incision in the abdomen, which had major drawbacks – a major risk of infection, significant trauma to the body, ugly scars, long hospitalization and recovery. A couple of decades ago, laparoscopy, minimally invasive surgery, became the standard of surgery all over the world – and at Hadassah as well.

A few months ago, Dr. Yoav Mintz of Hadassah's Department of Surgery introduced what is possibly the ultimate minimally invasive surgery: Natural Orifices Transluminal Endoscopic Surgery or NOTES, as it is known. Unlike the other

HADASSAH

procedures, the surgeon enters the abdomen through the body's natural orifices – either the mouth, the vagina or the rectum.

Currently the operation is performed under general anesthesia, with just one small incision – about 2 to 5 millimeters in length – in the belly button so the surgeon can insert a camera and decide how to enter the abdomen safely. While these operations take longer than laparoscopic surgery, recovery is almost immediate. Recovery from laparoscopic surgery takes seven to ten days.

Dr. Mintz, who learned this new technique while on sabbatical at the University of California-San Diego, is the only surgeon in Israel authorized to operate using NOTES. He trained a special team of doctors and nurses to work alongside him and together they have already performed five operations on women with abdominal problems – and he has more operations scheduled.

“One of them was suffering terribly from gallstones,” he said. “We operated, everything went well and she was back at work three days later. Another, a student, went back to school two days later.

“This is very innovative surgery, which is why it took a long time to get the Ministry of Health’s approval,” Dr. Mintz said. By next year, he hopes to perform NOTES operations using robotic surgery, another technique he recently introduced at Hadassah.

NEW CENTER FOR VICTIMS OF SEXUAL ABUSE AND DOMESTIC VIOLENCE

Hadassah has been working with victims of sexual abuse and domestic violence for many years, but until recently the Ministry of Health only authorized official centers in the center and north of the country. Now, for the first time, Jerusalem has an official center for victims of sexual abuse and domestic violence – at Hadassah.

The Ministry’s endorsement formalizes HMO’s practice of educating medical students, doctors, nurses and social workers to be proactive; to ask their patients “what happened?” instead of waiting for them to provide information. The most significant difference between then and now is that the evidence Hadassah obtains is legally recognized.

HMO’s team includes a gynecologist, a nurse and a social worker who coordinates multidisciplinary physical and emotional treatment. “The initial contact deeply influences the victim’s ability to cope with this horrible event,” said Dr. Sagit Arbel-Alon of Hadassah’s Department of Obstetrics and Gynecology, director of the new center. “Besides providing medical care and collecting evidence, we are there to give immediate emotional support and to ensure that victims receive the help and hope they need until they are healed.”



VIVE LA FRANCE!

Prof. Thomas Tursz, Director General of Institut de Cancérologie Gustave Roussy near Paris (center), Prof. Shlomo Mor-Yosef, Hadassah Director General and Prof. Tamar Peretz, Head of Hadassah’s Sharett Institute of Oncology at the signing ceremony establishing a collaborative relationship between the two institutions.

Dr. Marlène Meimoun-Saffar, President and Founder of the Collège Interculturel de Dialogue des Civilisations and Raymond Ortman, President and Founder of the Association Micheline Ortman contre le Cancer initiated the affiliation. Bea Birnbaum, who served as Hadassah International’s Director of Development for Europe, was instrumental in bringing it to fruition.



Prof. Yaron Ilan demonstrates the breathing test with the Breath ID device.

JUST A BREATH AWAY

Hadassah researchers have developed an effective, noninvasive tool for assessing the prognosis of patients with chronic liver disease that could have important implications in determining which patients are most appropriate candidates for liver transplantation.

The new test can predict risk of complications and clinical deterioration up to two years. The new technology may also assist physicians in their pre-surgical assessment of patients with progressive cirrhosis to evaluate the risk of post-surgery deterioration.

After the patient drinks a cup of water containing a dissolved substance, the device – Breath ID –

measures the appearance of the substance in the patient's exhaled breath. All the patient does is sit, swallow and breathe normally.

Until now patients' prognoses have been determined through a combination of blood tests, liver biopsies and imaging. However, that method can only predict what might happen for up to three months and may only change after a life-threatening complication has occurred.

Breath ID was originally developed for the diagnosis of ulcers, but Prof. Yaron Ilan, Head Hadassah's Department of Internal Medicine A, found that it was also applicable for the diagnosis of liver diseases.

Exalenz Bioscience Ltd., a start-up company of Hadasit, Hadassah's technology transfer company, is directing the development of Breath ID.

REWARD

TOLAREX

FOOLING THE BODY'S IMMUNE SYSTEM

Phase I/IIa trial of a Treatment for GVHD

Graft-versus-host-disease (GVHD) is an acute and often fatal disease caused by a patient's body rejecting the implantation of a foreign body. It has the potential to occur after bone marrow transplantation, a standard treatment for various types of blood cancer. Depending on the disease and type of transplantation, between 30 and 80 percent of bone marrow transplant patients die from GVHD.

Israel's Ministry of Health recently approved a phase I/IIa clinical trial for a unique treatment based on inducing immune tolerance by injecting patients with their own cells. Developed by Tolarex, a Hadasit Bio Holdings Ltd. portfolio company, the technology is based on encouraging the immune system to refrain from attacking the body. Hadasit Bio Holdings Ltd. is the publicly traded arm of Hadasit, Hadassah's technology transfer company.

Simultaneously, Tolarex is developing additional medications based on proteins and the concept of inducing immunological tolerability instead of immunological suppression.

Assuming positive results of the trial, Tolarex has

WORDS OF RESEARCH

plans to explore other potential applications of its treatment, including solid organ transplant and stent implantations.



PRECURSOR VACCINE FOR RHEUMATOID ARTHRITIS

Hope is on the horizon for sufferers of rheumatoid arthritis, a debilitating autoimmune disease that causes chronic inflammation of the joints. It can also cause inflammation of the tissue around the joints, and other organs as well. Like all autoimmune diseases it occurs when the body's own immune system attacks itself.

Rather than targeting the molecules that cause inflammation and swelling in the joints, ProtAb, a Hadasit start-up company, has developed the precursor to a vaccine that targets the molecules in the body that prevent pro-inflammation agents from doing their job. Hadasit is Hadassah's technology transfer arm.

Although it appears that the treatment will take at least five years to be ready for patients, pre-clinical studies on animal models are definitely promising. In preliminary trials, it was found to immunize and ease the symptoms associated with rheumatoid arthritis, holding out the hope of a vaccine against the disease.

ProtAb plans to initiate Phase I-IIa clinical trials within the next two years.

In the future, the ProtAb team based at the Jerusalem BioPark on Hadassah's Ein Kerem campus hopes to address other autoimmune such as Type-1 diabetes, psoriasis and inflammatory bowel disease.

EYE DISEASE AND ETHNICITY

"Over the last six years we have mounted a major effort to better characterize patients in Israel with hereditary retinal degenerations, with emphasis on identifying the causative genes," said Dr. Eyal Banin, Head of Hadassah's Center for Retinal and Macular Degenerations.

"Our understanding of these incurable, blinding diseases has progressed in recent years, and we felt it was important to bring this progress to our patients. Our efforts are producing very exciting results and are already preventing future transmission of disease in some of the families we are treating."

He and Dr. Dror Sharon, PhD, who heads Hadassah's Ocular Molecular Genetics Lab, were part of the team that identified the genetic cause of a retinal disease that had plagued certain families for generations. Their research results, printed in the March edition of the *Archives of Ophthalmology* described specific mutations in a gene that causes a wide range of retinal phenotypes in certain Israeli and Palestinian families.

"We recruited patients from Israel and the Palestinian Authority with inherited retinal diseases," Dr. Sharon said. "There are 30 to 40 types of retinal diseases – and there are 180 to 200 different genes with thousands of mutations – which makes analysis immensely complicated. In another study, using specific genetic methodology, we found six families from the same village that had a history of marrying among themselves with a unique and unknown retinal phenotype that characterized their disease. And we identified a single mutation – found only in that village – that caused it."

Now he and Dr. Banin are looking at yet another disease that occurs in a larger population. Identifying the problem – the gene and the mutation – they explain, can help prevent the disease from spreading.

"We are examining diseases common to different ethnic groups," Dr. Sharon explained, "and offering our patients the opportunity to participate in a genetic study that involves isolating the DNA from their blood samples and looking for the aberrant gene. Since we began, we have built a database of over 800 families and thousands of patients – and we are beginning to recognize patterns."

"Many of these patients suffer from diseases about which little was known, and consequently, they were somewhat neglected." Dr. Banin added. "Identifying the causative genes is a significant step forward, and perhaps even more importantly, these patients and families now have a home and an address to which to turn. That address is Hadassah."