

# ISRAEL HIGH-TECH & INVESTMENT REPORT

A MONTHLY REPORT COVERING NEWS AND INVESTMENT OPPORTUNITIES  
July 2008 Vol. XXIII Issue No.7

JOSEPH MORGENSTERN, PUBLISHER  
You are invited to visit us at our website: <http://ishitech.co.il>

## A 2000 year old date seed



Israeli scientists grow palm from 2,000-year-old seed at Masada

Israeli scientists have succeeded in getting a 2,000-year-old date seed to sprout and grow into a palm of a native type that had been extinct for hundreds of years.

The seed - nicknamed Methusaleh after the oldest person in the Bible - was found in the ancient fortress of Masada, on a hilltop in the Judean desert by the Dead Sea where Jewish zealots committed mass suicide to avoid surrender to the Romans in the first century CE.

Project manager Sarah Sallon hopes the palm will prove to be a fruit-bearing female, but that she will only know that in a few years time, when the now more than 1.20-metre-tall sprout grows into a palm tree.

If another of the seeds found at Masada can be cultivated and proves to be male, the two trees will be able to reproduce.

Israel, which now grows only imported date species originating from countries like Morocco, Egypt and Iraq, would be able to cultivate its own native kind: the Judean date palm, or *Phoenix dactylifera* in Latin, hundreds of years after it died out.

It is no surprise therefore that Sallon sounds excited. According to the first-century Roman author, zoologist and botanist Pliny the Elder, "huge" forests of date palms stretched in his time from the Sea of Galilee in what is now northern Israel to the Dead Sea in the south, she explains.

Pliny, she adds, described the Judean dates as delicious and especially large. They were also said to have medicinal properties, used against "spitting blood" - probably meaning tuberculosis - and stomach problems, including diarrhea. Sallon, who runs a natural medicine research center at Jerusalem's Hadassah hospital, wants to study those medicinal properties.

<http://ishitech.co.il>

### A two thousand year old date seed

Eli Lilly buys rights to Transpharma osteoporosis product  
Israeli company develops system that sees through walls  
Synthetic molecules hold promise for new family of anti-cancer drugs  
Deere buys Plastro Irrigation  
An ecosystem of support  
Orbotech buys Photon Dynamics for \$290m.  
Weizmann scientists reveal the invasion strategy of the world's largest virus  
Stem cell company Cognate to open Israel facility  
Israeli start-up partners with YAHOO  
HP Israel to open start-up incubation program  
Wind River Systems opens design center  
GE Healthcare acquires Versamed  
Phoenix will continue its operations  
Biotechnology  
Outstanding economic performance  
Exports lead the way  
An ecosystem of support  
Challenge Funds becomes Coca Cola tech scout  
New method for successful bone tissue engineering  
Teva reports positive results for its Azilect Parkinson treatment  
New Intel plant opens in Kiryat Gat  
Elbit Systems and Technion to develop vision systems

But after the Romans conquered the region in the first century CE and as a result of other invasions, the date palm forests, which she explains need careful and continuous cultivation, gradually died out.

By the Crusader period, or the late Middle Ages, "almost nothing was left of those plantations," Sallon explains.

"Date trees are like children. You have to look after them," she says, explaining that the Babylonians discovered 5,000 years ago how to spur pollination by manually bringing the male pollen to the female, by physically climbing the trees.

The British-born Israeli and her co-worker, plant specialist Elaine Solowey, planted Methuselah and two other date seeds found at the same location in January 2005. Only Methuselah began sprouting.

The seeds were found at Masada during the 1963-65 excavations of the fortress which was built in the first century BC by Jewish Roman King Herod the Great.

They were stored at room temperature for four decades by the keepers of the artifacts collection of world-renowned Israeli archeologist - and former army chief of staff - Yigael Yadin, who had led the excavations at Masada.

"In 2005 I went, and begged them to give me some seeds," says Sallon.

She believes the high summer temperatures and low precipitation at Masada may have contributed to the seeds' exceptional longevity, by minimizing the creation of free radicals.

Sallon and her co-workers sent two other date seeds found at Masada as well as fragments of the seed to the University of Zurich for radiocarbon dating, which found that they were 2,000 years old. The carbon dating also matched the historic dating of when Masada functioned as a pleasure palace for King Herod.

"To date, the oldest seed to grow into a plant was 1,300 years old and that of a lotus - found in a dried-up lake in China and cultivated at the University of California," says Sallon.

### **Eli Lilly buys rights to TransPharma osteoporosis product**

Pharmaceutical company Eli Lilly (NYSE: LLY) and TransPharma Medical Ltd. have signed an agreement to develop and market TransPharma's osteoporosis



treatment.

Lilly will obtain exclusive worldwide rights to TransPharma's ViaDerm-hPTH (1-34) product and will also gain non-exclusive access to TransPharma's ViaDerm drug delivery system. Lilly will pay TransPharma a \$35 million upfront payment, and TransPharma may also receive development and sales milestone payments, as well as royalties on sales, if a transdermal PTH product is successfully commercialized.

The companies did not disclose the total value of the deal, but to judge from on recent similar deals, payments may reach \$500 million, if the product gains regulatory approval, gets to market, and sales reach anticipated levels.

ViaDerm-hPTH, which is administered transdermally using TransPharma's proprietary technology, is currently in Phase II clinical testing.

TransPharma and Lilly will both fund and participate in Phase II clinical development activities. Lilly will then be responsible for



#### **Israel High-Tech & Investment Report**

Published monthly since January 1985

#### **Publisher and Editor in Chief**

Joseph Morgenstern, B.A. Chem.

#### **Technology Review Board**

Prof. S.J. Joel-Cohen, MD, FRCS. FRCOG (1996-2002)

Prof. Hylton Miller, M.B. Ch.B.

Dr. Clive L. Carpel, M.B. Ch.B.

#### **Copy Chief**

Debbie Mor

#### **Web Master**

Marty vonBokel

#### **Graphics Consultant**

Daniel Morgenstern

#### **Subscription Inquiries**

Tel-. +972-3-5235279 Fax. +972 3-5227799

E-mail: htir\_1@netvision.net.il

Annual subscription \$95.- per year, for 11 issues,

Israeli residents add 17% VAT

#### **Web Edition and Archives**

<http://ishitech.co.il>

further development activities and the potential commercialization of any transdermal PTH products.

TransPharma, founded in 2000 by serial entrepreneur Dr. Yossi Gross, has developed a method to deliver drugs through the skin, directly into the bloodstream. Currently, these drugs require an injection.

TransPharma's osteoporosis product administers a drug which is biosimilar to Eli Lilly's osteoporosis drug, which has already been authorized to market, and which is currently administered via daily injection. The TransPharma treatment does not infringe on Lilly's patent because it is produced differently.

Lilly Research labs vice president Dr. Gwen Krivi, who is also global brand development platform leader for Lilly's musculoskeletal and Cialis platform, said, "This agreement expands the scope of our osteoporosis program with a novel, patient-centered approach that builds upon our success with Evista and Forteo."

TransPharma's ViaDerm drug delivery system incorporates a handheld electronic control unit, which creates microscopic passageways through the outer layer of the skin allowing for transdermal delivery of a wide variety of drugs from a patch.

Osteoporosis affects an estimated 75 million people in Europe, the U.S. and Japan.

TransPharma has raised \$34 million to date, from VC funds including Pitango, Argonaut, Evergreen, Canada's T2C2, Vitalife, Biomedical Investments, and Singapore's TIF.

The firm also has a joint development deal with Teva Pharmaceutical Industries Ltd. (Nasdaq: TEVA; TASE: TEVA), which is another investor in TransPharma. Teva will invest \$10 million in a collaboration to develop five molecules to deliver through TransPharma's technology. Activity has not yet begun under the collaboration.

### **Israeli company develops system that allows users to see through walls**

Camero has developed a system that allows users to see through walls.

Camero's product is designed for use primarily in military and search and rescue operations. Such tech-

nology could be beneficial for special unit soldiers, for instance, or for locating people trapped in burning buildings.

"The idea of seeing through walls has been around since the 1960s, but modern technology is now ripe enough to enable it to happen," explains Camero's technology director, Amir Beeri. "When we established the company in 2004, we intended to develop sufficiently high vision resolution to allow an untrained user to see through a wall."

Camero's unique radar utilizes Ultra Wide Band (UWB), a technology that has only come of age in recent years, and with the use of special algorithms can process data picked up by the detector to give a reasonable image of anything behind that wall. Lacking imaging algorithms, the system made by its competitor, Time Domain is able to reveal only whether there is someone on the other side of the wall.

Although the first version developed by Camero, the Xaver 800, which includes a 82cm by 82cm screen on a tripod and weighs about 10 kg, making the system too clumsy for use in battle conditions, the Xaver 400 and Xaver 300 are both lighter weight and smaller sized, meant for use as a quick-to-use tactical tool.

The systems are capable of penetrating various types of walls, but not solid metal ones, like the walls of shipping containers.

Camero CEO Aharon Aharon says that the company has already sold the system to various armies and police forces around the world, and is optimistic about the future of the technology.

"Like the Israeli army's night vision system, which was once an expensive product and eventually came into broad, general use, we hope that our radar too will become standard issue for all military units," Aharon said.

### **Synthetic molecules hold promise for new family of anti-cancer drugs**

Synthetic molecules designed by two Hebrew University of Jerusalem researchers have succeeded in reducing and even eliminating the growth of human malignant tissues in mice, while having no toxic effects on normal tissue.

For their work in developing these harbingers of a possible new generation of anti-cancer drugs, Dr. Arie Dagan and Prof. Shimon Gatt of the Department of Biochemistry of the Hebrew University-Hadassah Medical School were among those receiving the Kaye Award for Innovation during the 71st meeting of the Hebrew University of Jerusalem Board of Governors.

The molecules developed by Dagan and Gatt affected the metabolism of various sphingolipids and consequently those of cancer cells. Sphingolipids are a family of complex lipid molecules that are involved in signaling pathways that mediate cell growth, differentiation and death.

Several of the most active molecules developed by Dagan and Gatt are derivatives of ceramide (a member of the sphingolipid family). Ceramide induces programmed cell death (apoptosis) in a variety of cancer cells.

The natural levels of ceramide in cancer cells are generally too low to induce a therapeutic effect. In preclinical studies to date, various treatments with the synthetic molecules resulted in an elevation of ceramide levels in cancer cells, thereby leading to their death by apoptosis. In addition, these synthetic molecules appear to be synergistic with chemotherapeutic drugs.

Dagan and Gatt state that their studies demonstrated that their synthetic compounds reduced considerably the sizes of pancreatic, prostate and breast tumors with little or no effects on normal cells and tissues. The researchers see this as a precursor to the development of a new generation of anti-cancer drugs that induce, selectively, apoptosis only to tumorous cells. These drugs are expected to be highly effective while inducing fewer side effects than current anti-cancer drugs.

Prof. Shimon Gatt and Dr. Arie Dagan's development of synthetic sphingolipid analogs as anti-cancer drugs is patented by Yisum, the technology transfer company of the Hebrew University of Jerusalem.

Yisum licensed the technology to BioLineRx, a clinical stage drug development company traded on the Tel Aviv Stock Exchange,, for the development of these synthetic molecules as anti-cancer drugs.

### **Deere & Company has completed the acquisition of Plastro Irrigation Systems,**

Plastro headquartered in Israel, to add significant momentum to the growth of John Deere Water Technologies. Terms of the transaction were not disclosed. Deere will combine Plastro with its current John Deere Water Technologies operations and T-Systems International, which Deere announced it had acquired in late May. The joint operations establish John Deere as the third largest agricultural irrigation company in the world.

"This sale demonstrates that we have been on the right course in our continuing effort to create value as a company," said Yonatan Bassi, chairman of Plastro Irrigation.

Michael McGrady, president of John Deere Water Technologies, said, "Precision irrigation will help the world meet its demand for increased productivity from agriculture. The world's population growth, demand for improved nutrition globally, and increased interest in renewable fuels all require much more precision in the management of the world's fresh water and arable land."

John Deere Water Technologies, San Marcos, California, is a manufacturer of high performance plastic micro and drip irrigation products for the agricultural, nursery, landscape, and greenhouse markets and was formed in June of 2006 when Deere & Company purchased Roberts Irrigation Products, Inc.

Plastro Irrigation was established in Israel in 1966 and is a leading provider of irrigation system components including peripheral equipment; agro-technical consultation; design and planning; installation assistance; and training.

IAI delivers for Gulfstream Israel Aerospace Industries Ltd. (IAI) (TASE: ARSP. B1) recently held a ceremony at Ben Gurion Airport after the delivery of the 200th G200 executive jet to Gulfstream Aerospace. IAI executives and Gulfstream CEO Joe Lombardo and senior VP finance and planning Dan Clare will attend.

IAI and Gulfstream, a wholly owned subsidiary of General Dynamics (NYSE:GD), have been collaborating for seven years, ever since IAI sold the manufacturing licenses for its Astra SPX Galaxy executive jet



to the company. These formed the basis for the Gulfstream G100 and G150 executive jets and later for the larger G200 jet.

IAI manufactures the planes and delivers them in unfinished, or "green", condition. The planes are flown to Gulfstream's factory in Nebraska for interior outfitting as specified by the customers.

Gulfstream spokesman Robert Baugnier said in Savannah, Georgia, that the sale of the 200 executive jets for \$4 billion over the past seven years was "a significant achievement in the competitive executive jet market. "The G150 and G200 models create a lot of jobs in both Israel and the US," he said.

### **Weizmann scientists reveal the invasion strategy of the world's largest virus**

A Weizmann Institute study provides important new insights into the process of viral infection. The study, reported in the on-line journal PLoS Biology, reveals certain mechanisms by which mimivirus – a virus so called because it was originally thought to mimic bacteria in various aspects of their behavior – invades amoeba cells. Living cells become infected by viruses in two steps. First, the virus penetrates the cell. Next, in the second and crucial step, the cell starts producing new viruses, which spread around, infecting additional cells. At the beginning of this production process, the cell makes the outer wall of the virus, a container of sorts composed of proteins and known as the capsid. The cell then makes copies of viral DNA and inserts it into the capsid. The result is a new, functioning virus that is ready to leave the host cell and infect more cells.

Understanding how viruses infect cells and how new viruses are produced in the course of the infection allows scientists to interrupt the infection cycle, blocking viral diseases. One of the difficulties, however, is that the invasion strategies of different viruses vastly differ from one another. The mimivirus, known, among other things, for its exceptional size – it is five to 10 times larger than any other known virus – poses an interesting challenge in this respect. This virus was discovered only in the late 20th century, as its extraordinary size made it impossible to identify it by regular means. In addition, it contains much more genetic material than regular viruses, a feature that forces the mimivirus to develop particularly efficient methods for introducing its viral DNA into the host cell

and for inserting the genetic "parcel" into the protein container during the production of new viruses in the host cell. Prof. Abraham Minsky and graduate students Nathan Zauberman and Yael Mutsafi of the Weizmann Institute's Organic Chemistry Department, together with Drs. Eugenia Klein and Eyal Shimoni of Chemical Research Support, have now revealed the details of some of the methods used by this virus. In their new study, the scientists have obtained, for the first time, three-dimensional pictures of the openings through which the viral genetic material is injected into the infected cell, and of the process in which this genetic material is inserted into the protein capsid.

In all previously studied viruses, viral genetic material was shown to be injected into the cell (during the cell's infection) and to enter the newly formed protein container (during the production of new viruses inside the cell) through the same channel, created in the viral container. In contrast, Institute scientists have now found that the giant mimivirus uses a different channel – located in a different part of its capsid – for each of these two goals. The scientists also discovered that the DNA helix in both these processes does not form a long thread, as in other viruses, but rather is organized into a densely packed block.

The researchers believe that these unique traits serve to specifically facilitate both the injection into the host cell and the insertion of the large quantity of genetic material in the mimivirus. In the study, electron microscope images of the mimivirus invading an amoeba cell showed that just after invasion, the walls of the protein capsid – a polygon composed of 20 triangles – separate from one another and open up like flower petals to create a large, star-shaped gate nicknamed the "stargate." The viral membrane underneath the gate fuses with the amoeba cell membrane, creating a broad channel leading inside the amoeba. The pressure released with the sudden opening of the walls – which is 20 times greater than the pressure pushing out the cork of a champagne bottle – pushes the viral DNA into the channel, whose large dimensions allow the genetic material to pass quickly into the amoeba cell.

Additional images show how the viral genetic material is inserted into the newly formed protein container when new viruses are produced in the host cell. In this process, the viral genetic material is delivered to its destination through an opening in the new

container's wall opposite the "stargate." The insertion must overcome the pressure inside the container and is probably driven by an "engine" located within the wall that harbors the opening. The scientists believe that the study of the mimivirus's life cycle, from cellular infection to the production of new viruses, may yield valuable insights into the mechanisms of action of numerous other viruses, including those that cause human diseases.

### **Stem cell company Cognate to open Israel facility**

US biotech company Cognate BioServices Inc. will open a production facility in Israel. The company currently produces stem cells for US companies developing treatments in the field.

"In Israel there's a wide range of companies in the field which could be customers of ours," says Linda Powers, co-founder and managing director of venture capital fund Toucan Capital Corp., Cognate's lead investor, and chairperson of the Maryland Stem Cell Research Commission. "We'll also move part of the production of our US customers to Israel and distribute the products from here across Europe."

Powers was in Israel and attended the Israel Life Sciences Industry (ILSI) Biomed 2008 conference.

Both the government and officials in the biomed industry have been working intensively to get life science companies worldwide to move their production to Israel but only a few companies presently operate here, most of them from the medical device sector. The Israeli customers to which Powers refers are Gamida Cell Ltd., Pluristem Therapeutics Ltd. (Nasdaq:PSTI; DAX: PJT), and Brainstorm Cell Therapeutics Ltd. (Bulletin Board:BCLI). "Geographically, Israel could serve as a supply chain to Europe. There's also a lot of people here with clinical and technical training in advanced stem cell production. The facility will be cheaper to set up here than it would in other locations," says Powers.

Israel is considered highly advanced in stem cell research with two world-class laboratories specializing in stem cell production at the Technion Israel Institute of Technology and the Hebrew University-Hadassah Medical School. Once the cells are produced at laboratories like these, they can be reproduced commercially at companies like Cognate. The production process is

extremely complicated and the production rooms and containers must be US Food and Drug Administration (FDA)-approved.

### **Israeli start-up Jajah partners with Yahoo**

Internet giant, Yahoo!, has chosen Israeli startup, Jajah, to power its Messenger Internet telephony service. Under the agreement, Jajah will start providing the technology and service for Yahoo's "Phone In" and "Phone Out" features in the 3rd quarter of 2008. Since Yahoo's telephony option is a paid service, Jajah will be responsible for processing calls payments, and providing customer support and the network infrastructure. Jajah, established in 2005, provides web-activated telephony, using VoIP to connect traditional landline or mobile phones. The company has amassed over 10 million users within two years. Sabrina Ellis, VP of Messenger Yahoo! said the partnership would help Yahoo "continue to provide an even greater communication experience" to its users. Yahoo! has been expanding its activities in Israel of late, with the opening of its R&D center in Haifa and its acquisitions of Israeli internet portal, Walla! and the Israeli internet browser, Foxytunes.

### **HP Israel to open start-up incubation program**

Hewlett Packard, one of the largest technology companies in the world with revenues of over \$104 billion in 2007, will open a new International Technology District (ITD) in Israel which will collaborate with between 300-400 selected Israeli high tech startup companies. The program will focus on small and mid sized firms and will offer labs, consultants and all other necessary resources. In return, the startups will be expected to integrate HP technology, effectively becoming an HP partner. Last year, HP paid out \$4.5 billion in when it acquired Israel-based Mercury Interactive and three Israeli printer manufacturers—Scitex Digital Printing, Indigo and Nur Macroprinters. To date, the company has invested \$6 billion in high tech companies in Israel and employs 4,000 people.

### **Wind River Systems opens design center**

Wind River Systems, Inc. a leading Device Software Optimization (DSO) company headquartered in California, is opening a new design center in its Ra'anana facility to drive the development of its Device Management technology. The technology enables companies to reduce effort, cost and risk and optimize quality and

reliability at all phases of the device software development process, from concept to deployed product. "Israel has a vast technological landscape and is leading the way in development," explains Wind River Vice President and General Manager of Device Management. "...We are delighted to be growing Wind River's presence in Israel." Wind River's technology is currently deployed in more than 300 million devices worldwide by Apple, Hewlett-Packard, Boeing, Motorola, NASA and Mitsubishi.

### **GE Healthcare buys Versamed**

VersaMed Corporation, an Israeli provider of portable critical care ventilators for respiratory care, has been acquired by GE Healthcare. Financial terms were not disclosed. VersaMed makes software-based smart mechanical life-support ventilators for a range of treatments. The company's flagship product, the iVent 201, is designed for use in the field and emergency care and has been approved by the US Food and Drug Administration (FDA) for use in hospitals, patients' homes, ambulances, and emergency treatment in the field. GE Healthcare Israel, a unit of General Electric Company, employing over 350 people, is world renowned for introducing the world's first miniaturized, portable cardiac ultrasound system. Versamed, with \$30 million in revenue, was founded in Israel in 1994 and consists of 100 employees.

### **Phoenix will continue to maintain its operations out of its Tel Aviv facility**

"We were very impressed with BelnSync's people and their technology and we're excited to work with them," said Woody Hobbs, President and CEO of Phoenix Technologies. BelnSync is an innovative company in web file access, P2P synchronization and online data sharing. Phoenix Technologies, with revenues of \$47 million in 2007, has acquired Israeli start-up BelnSync Ltd, at an estimated price of \$25 million. Phoenix is known for its software enabling controls of PC boot up. It has 155 technology patents and 139 pending applications.

### **Biotechnology**

Fourth in the world in biotechnology patents per capita, Israel not only has the talent to innovate, but the skills to transform technology into successful enterprise. A generous government incentives program is a major factor for pushing progress forward.

### **Israel: A Resilient Global Economy**

Though it's a small country with limited resources, Israel stands out as one of the world's most competitive economies. In fact, The World Economic Forum (WEF) ranked Israel as the 17th (out of 131) most competitive economy in its 2007 Global Competitive Index

The country's market economy can be characterized as resilient, global-oriented, and advanced technology-based. Over the last two decades, Israel has become famous for its high-tech capacity, particularly in telecommunications, information technology, electronics and life sciences. Its capacity for innovation and highly-educated, skilled workforce have played a key role in its rating as a high-tech center next to Silicon Valley in California and the belt along Route 128 in the Boston area.

### **Outstanding Economic Performance**

Despite security events that sometimes make world headlines, Israel's economy has been growing steadily. Its 2007 GDP was \$155.9 billion at current prices, representing a continuation of the sustainable growth over the last few years: 4.3% in 2004, 5.2% in 2005, 5.1% in 2006 and 5.3% in 2007. Furthermore in Purchasing-power-parity (PPP) terms, Israel's GDP per capita is on par with developed countries such as Germany and Japan. In fact, over the past 20 years, the country – with a population of only 7 million – has ranked as one of the world's five fastest-growing emerging markets.

The growth has been fueled by a steady increase in exports and foreign investment. Exports have risen by an average of 13% over each of the past three years. Foreigners show their recognition of Israel's economic potential by increasing their investments in the country. Foreign Direct investment in 2006 was a record \$14.3 billion, a 197% increase over 2005. The estimated Foreign Direct Investment in 2007 is \$10 billion.

Sound and coherent economic strategies also play a role in the success.

Israel's economic leadership has included some of the world's top professionals, including current Bank of Israel Governor Prof. Stanley Fischer and his predecessor, Prof. Jacob Frenkel, the former chairman of Merrill Lynch. Responsible fiscal and monetary policies have accompanied reforms that have liberalized

the economy, accelerated the process of privatization and made the economy more competitive. In recognition of these accomplishments, Israel was recently invited to participate in talks with the Organization for Economic Cooperation and Development (OECD) towards membership in that grouping of the world's 30 top industrialized nations.

The effectiveness of fiscal and monetary policy is reflected in performance. Government expenditure decreased from 51.5% in 2003 to 44.9% in 2007; over the same period, Gross Public Debt contracted from 102% to 81.5%, while unemployment declined and price stability was maintained.

### **Exports Lead the Way**

Exports (\$70.65 billion in 2007) are the engine that drives the Israeli economy. First and foremost is the high-tech sector, which accounts for 75% of all industrial exports, the highest percentage in the world.

The increase in exports is supported and enabled by an extensive network of international trade and economic agreements, including investment-protection agreements and treaties for the avoidance of double taxation. Israel is integrated into the global economy, through free trade area agreements with the NAFTA countries (the U.S., Canada and Mexico), the European Union, EFTA, Jordan and Turkey. It also cooperates with neighboring Egypt and Jordan through Qualified Industrial Zone (QIZ) agreements with the United States, giving co-produced goods preferential access to U.S. markets; a similar arrangement of cumulation of origin exists also with the EU is already operational with Jordan.

Constantly seeking to expand its network of trade cooperation through bilateral agreements, Israel recently signed a free trade agreement with the Mercosur countries (Argentina, Brazil, Paraguay and Uruguay). In addition, Israel has developed an extensive network of technical cooperation, through R&D accords with many countries.

### **An Ecosystem of Support**

Through government agencies like the Ministry of Industry, Trade and Labor's Office of the Chief Scientist and Investment Center, a network of technology incubators for very-early-stage technologies and an active and alert private venture capital system, Israel provides extensive support for new ideas and tech-

nologies, as well as the refinement and further development of more traditional industries. Israel invests strongly in its educational system, the source of many of the new technologies for which it is famous, and in R&D, where the investment of 4.8% of GDP is the highest in the world. The investor-friendly environment is enhanced by government policies including tax rates and investment benefits.

It's hard to minimize the role of the Israeli venture capital industry, ranked second in the world (only to the U.S.) by the World Economic Forum. Venture capital continues to pump a steady stream of essential financial resources into the technology sector, channeling its funds and knowledge into early-stage companies, especially in the technology sector.

### **Challenge Fund becomes Coca Cola tech scout**

The Challenge Fund - Etgar has signed an agreement with Coca-Cola Co. (NYSE: KO) under which it will locate technologies and knowledge opportunities on the firm's behalf and manage its investments in Israel. Challenge will also be able to join any investment that Coca Cola makes locally.

The latest agreement follows the framework agreement Coca Cola signed in February with the Chief Scientist on collaboration in locating know-how and innovative technologies in Israel.

Challenge Fund managing partner Tamar Ciehanover said, "We will look for technologies at every stage from initial R&D to commercialization. We're looking for ideas that can contribute to Coca Cola's technological leadership in the non-alcoholic beverages industry. Coca Cola's goal is to assess innovative technologies and move forward swiftly with the ones that are the most suitable, through its substantial presence on the global market. The team at Challenge will support these technologies in Israel, parallel to Coca Cola's support worldwide."

Ciehanover added that the activity with Coca Cola will be carried out alongside Challenge's traditional investment activity. The fund is currently making several new investments. The agreement with Coca Cola is exceptional in the Israeli venture capital industry. Corporate entities have invested and continue to invest either in companies directly or in venture capital funds themselves, but this agreement is unlike any of these



models.

While acting under its agreement with Coca Cola, Challenge intends to continue its regular investment activity, with investments likely to be made in both public and privately-held companies. Challenge has not raised a new fund since 2000, and the latest agreement with Coca Cola may well provide it with the impetus it needs to do so.

### **New method for successful bone tissue engineering**

A new and better method for accelerating bone formation in cases of orthopedic injuries and conditions, such as osteoporosis, fractures and disc disorders, has been developed by Nadav Kimelman at the Hebrew University of Jerusalem's Faculty of Dental Medicine.

The method involves increasing oxygen availability in scaffolds in order to accelerate bone formation. The lack of such oxygen supply constitutes a serious impairment to successful tissue engineering.

For his work, Kimelman, who is a doctoral student under Prof. Dan Gazit, was chosen as one of the winners of a Kaye Innovation Award, which was presented on June 4 during the Hebrew University's 71st meeting of the Board of Governors.

The term 'tissue engineering' describes the development of biological replacements for damaged tissues or organs. Biological replacements could act as a solution for the shortage in organ donations and also serve as efficient substitutes for synthetic implants that usually fail in the long run.

For successful engineering of an organ or tissue, the appropriate cells, biological cues and a three-dimensional scaffold should be combined. This is also the case for bone tissue engineering in which cells, genes and scaffolds are combined to heal complex fractures that cannot be repaired otherwise.

One of the major hurdles in successful tissue engineering, however, is the lack of oxygen supply to the newly forming tissue – resulting in cell death and less efficient tissue formation.

Kimelman decided to overcome this fundamental hurdle by utilizing synthetic oxygen carriers as a way

to increase oxygen availability in scaffolds. To validate their approach, they combined adult stem cells, programmed to generate bone tissue formation, with injectable scaffolds (hydrogels) containing synthetic oxygen carriers. They then tested the survival of the cells and the amount of bone that was generated.

The results demonstrated significant elevated bone formation and cell survival in the hydrogels supplemented with synthetic oxygen carriers compared to the control groups. They even found that the addition of oxygen carriers also led to more rapid bone formation than the controls.

His results show, for the first time, that synthetic oxygen carriers supplementation enhances and accelerates engineered bone formation, which he believes is achieved by elevating cell survival.

According to Kimelman, however, the results could pave the way for novel therapeutic strategies not only in orthopedics, but also in other medical applications such as cardiology and neurosurgery.

### **Teva reports positive results for its Azilect Parkinson's treatment**

Teva, the world's biggest maker of generic drugs, said it intends to submit the results to the regulatory authorities in the United States and Europe.

It said the 1 mg tablets of its Azilect drug slowed the progression of Parkinson's disease in a Phase III trial. It promotes the drug with Lundbeck in the three major European markets: Britain, Germany and France.

Teva and Lundbeck said 1 mg tablets of Azilect met all three primary end points in the trial, as well as the secondary and additional end points, all with statistical significance.

The study also confirmed the safety and tolerability of Azilect and based on these results, Azilect could become the first Parkinson's treatment to receive an indication for slowing the progress of the disease, the companies said.

"Azilect, an innovative drug that was not very significant, becomes a drug with the potential to be a blockbuster," said Gal Reiter, an analyst at Israeli brokerage Clal Finance.

Until now Azilect has been indicated to treat the symptoms of Parkinson's.

"We will submit the FDA application in 2008 and hopefully within 12 months after that we will get approval (for the new indication)," Teva's chief R&D officer Ben-Zion Weiner told Reuters, adding it will seek European approval at the same time.

Weiner said Teva believes this will increase market share and sales of the product.

"These positive results could dramatically increase the market potential for Azilect, allowing Azilect to join Copaxone as another major Teva drug for neurological disorders," Shlomo Yanai, president and chief executive of Teva, said in a statement.

Global sales of Azilect rose 50 percent in the first quarter from a year earlier to \$37.5 million. Its sales were \$120 million in 2007.

"If in the past we estimated the potential sales of the drug at \$300 million, now we estimate that the potential has at least doubled," Clal Finance's Reiter said. "However, it will take time until Azilect's impact becomes substantial."

The analyst noted that while Azilect's patent runs until 2012, this clinical trial could enable an extension until 2017 in the United States.

Estimates point to Azilect's potential sales at \$1 billion.

The study protocol was based on the recommendations and guidance of the U.S. Food and Drug Administration. The 18-month study, the first of its kind, is one of the largest conducted in Parkinson's disease, involving 1,176 patients with early Parkinson's disease in 14 countries and 129 medical centers.

Teva also said the 2 mg dose in the study met two of the three primary end points as well as the secondary end point. It was also found to be safe and well tolerated. Trial shows Teva's Azilect retards Parkinson's  
This Teva Pharmaceutical Industries Ltd. (Nasdaq: TEVA; TASE: TEVA) announced the successful completion of ADAGIO, the phase III study designed to demonstrate that Azilect 1 mg tablets can slow down the progression of Parkinson's disease.

Teva said that, in the trial, the currently marketed Azilect 1 mg tablets met all three primary end points, as well as the secondary and additional end points, all with statistical significance. The company said that the study also confirmed the safety and tolerability of Azilect.

Teva intends to submit these results to the regulatory authorities in the US and Europe. According to the company, the results mean that Azilect could become the first Parkinson's disease treatment to receive a label for disease modification.

Teva's Chief R&D Officer, Dr. Ben-Zion Weiner said, "This scientific breakthrough addresses one of the most critical unmet needs in the treatment of patients with Parkinson's disease."

Teva president and CEO Shlomo Yanai said, "This achievement demonstrates the strength of Teva's innovative R&D capabilities and highlights our continued commitment to the development of treatments for the more challenging areas of neurological diseases. These positive results could dramatically increase the market potential for Azilect, allowing Azilect to join Copaxone as another major Teva drug for neurological disorders."

The study protocol was based on the recommendations and guidance of the US Food and Drug Administration. The 18-month study, the first of its kind, is one of the largest conducted in Parkinson's disease, involving 1,176 patients with early Parkinson's disease in 14 countries and 129 medical centers.

In addition, the 2 mg dose in the study met two of the three primary end points as well as the secondary end point. The 2 mg dose was also found to be safe and well tolerated.

Teva says that more detailed data analysis will take place over the coming weeks and will be presented to the medical community at a later date.

Parkinson's Disease is an age-related degenerative disorder of the brain. Symptoms can include: tremor, stiffness, slowness of movement, and impaired balance. An estimated four million people worldwide suffer from the disease, which usually affects people over the age of 60.

Global sales of Azilect totaled \$37.5 million in the first quarter, 50% more than in the corresponding quarter.

Teva said that the timing of the Azilect announcement was coincidental and was directly based on the trial results. Nevertheless, it should be noted that just last week, Mylan Laboratories Inc. (NYSE: MYL) and India's Natco Pharma Ltd. (BSE: 524816) announced plans to distribute a generic version of Copaxone, Teva's ethical treatment for multiple sclerosis.

They noted that at least three years would pass before a generic version of Copaxone could hit the market, if then, and there was no reason to doubt Teva's strength.

Teva also has treatments for cancer and neurological diseases in the pipeline, and the company believes that they have the potential to generate significant long-term growth.

### **New Intel plant opens in Kiryat Gat**

Intel's has inaugurated its new \$3.5 billion microprocessor plant.

"The facility, known as Fab 28, is the third Intel plant to make chips using what is known as 45-nanometer technology," said Maxine Fassberg, vice president and general manager of Intel Israel, after dancers and a song troupe kicked off the ceremony. "It will produce its first chips in about seven weeks."

"[The plant] is going to be a key producer in the Intel manufacturing network," said Intel CEO Paul Otellini in a taped address broadcast over a huge screen to the audience.

Intel, whose chips are used in about 75 percent of the world's personal computers, is counting on the technology to widen its lead over one of its main competitors, Advanced Micro Devices Inc. Last November, Intel began selling 45-nanometer chips for servers, computers that handle corporate networks, and in January introduced them for notebook and desk computers.

The Kiryat Gat facility will add about 200 people to its workforce by the end of the year, to a total of about 2,000 jobs, Intel Israel spokesman Koby Bahar said. The Santa Clara, California-based Intel currently employs 6,100 people at its five Israeli facilities.

Speaking of the impact Intel has had on the Israeli

workforce, Prime Minister Ehud Olmert told the crowd that he saw only a growing relationship between the Israeli government and the hi-tech giant.

"I promise that you are going to see tens of thousands of Israelis in the area, working in hi-tech," he said. "It will only make the region blossom."

Funding for the project included a \$525 million government grant, as the plant hopes to produce about \$3 billion worth of chips annually - equal to nearly 2% of Israel's gross domestic product.

Citing great cooperation between the government and the corporation, Intel Government Relations Manager Joseph Shoval told The Jerusalem Post that the rate at which his company has progressed in Israel would have been impossible without key teamwork from both sides.

"Intel has been in Israel for 34 years," Shoval said after the ceremony. "It's been a huge boost for the country and for Intel. But two things have made this growth possible - an excellent workforce, which is well-educated and innovative, and wonderful cooperation with the Israeli government."

The plant is adaptable and could even begin producing 32-nanometer chips that Intel plans to start making next year, said Oren Reiss, the facility's general manager.

By narrowing the width of circuits on computer chips, measured in nanometers, or billionths of a meter, chipmakers can pack more of the devices on to discs of silicon from which they are made. That allows companies to get more components out of a single production run.

Intel built its first Israeli factory in Jerusalem in 1985. That plant is being revamped and will reopen next year for final-stage chip production. Intel also operates a development center based in Haifa that was established in 1974, the company's first outside the US, and also has design and development centers in Petah Tikva and Yakum.

The company's Centrino product and next-generation chips, including the Core 2 Duo processor, were developed in Israel.

Patients undergoing routine surgical procedures and represent a major source of post-operative complications and deaths.

The generation of adhesions following heart surgery is of special concern, since they may affect cardiac function. Furthermore, in the frequent cases where repeat operations are required, adhesions obscure cardiac landmarks, making the procedure potentially life-threatening to the patient due to inadvertent vascular or cardiac injury.

Already in use is a wide variety of polymers which are foreign to the human body and which are used in direct contact with its organs, tissues and fluids. These materials are called biomedical polymers, and they have contributed significantly to modern medicine. The barrier created by the preventive polymers is required to remain in place for the period during which the adhesions are generated (a few days), and then, gradually degrade and disappear without having any detrimental effect. Additional requirements pertain to handling and suturing properties of the polymeric film.

The significant step forward represented by Prof. Cohn's invention lies in the development of a new family of biodegradable copolymers, which are combinations of two different monomers (low molecular weight molecules). These copolymers combine two types of segments, each of them rendering the polymers with specific properties. This multicomponent approach permits the variance of various parameters of the materials -- adjusting their basic chemistry, composition and molecular weight -- to comply with the clinical requirements of each specific surgical application.

Prof. Cohn's invention of novel tailor-made biodegradable polymers for the prevention of post-surgical adhesions is patented by Yissum, the Technology Transfer Company of the Hebrew University of Jerusalem.

### **Elbit Systems and Technion to develop vision systems**

Over the next five years, Elbit Systems will award research grants to selected Technion researchers and students.

Elbit Systems Ltd. (Nasdaq: ESLT; TASE: ESLT) has signed a joint research agreement with the Israel Institute of Technology to develop vision systems.

Over the next five years, Elbit Systems will award research grants to selected Technion Electrical Engineering Department researchers and students, who will use the company's Eye Tracking laboratory to support their research. Elbit Systems recently published a call for research in vision and computer aided vision fields for Technion undergraduate and graduate students, and has received a number of research requests. The grant committee, which comprises Elbit Systems' R&D representatives and a Technion observer, will soon determine which of the research requests will be granted, and will continue to follow additional research fields suitable for the award of research grants in the coming years.

Researchers in the eye tracking field will examine the human eye's capability to track objects in space, and qualify and categorize the objects perceived (3D movement), and other topics. The vision researches' findings are expected to contribute to the improvement of data fusion capabilities in determining targeted objects' outlines, efficient automatic calibration in case of overlapping cameras' fields of vision, picture recon-



Please enroll me as a subscriber to the Israel High-Tech & Investment Report.

I understand that if not satisfied, I may cancel my subscription at any time and receive a refund of the unexpired portion. I enclose a check for \$95 (or the Israeli shekel equivalent and 18% v.a.t.) and am sending it to POB 33633, Tel--Aviv 61336.

I am providing you with my name, title, mailing address, e-mail, telephone and fax numbers.

The Israel High-Tech & Investment Report is a monthly report dealing with news, developments and investment opportunities in the universe of Israeli technology and business. While effort is made to ensure the contents' accuracy, it is not guaranteed. Reports about public companies are not intended as promotion of shares, nor should they be construed as such.