ISRAEL HIGH-TECH
& INVESTMENT REPORT

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# “Optimistic Overconfidence” vs. “the Real Thing”

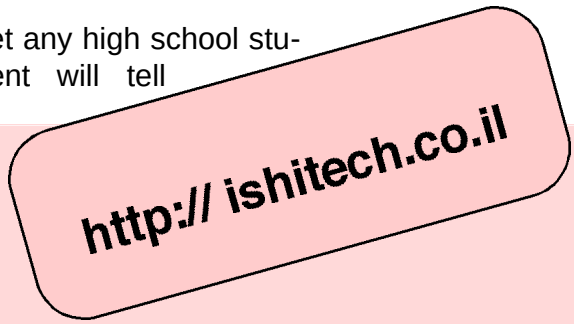
As global economies wobble and international stock markets shake they continue to defy comprehension, economists are turning to Nobel winner psychologist Daniel Kahneman for his incisive insights related to psychology. The Israeli/American Princeton University professor is known for research conclusions indicating the effects of economics to quirks in human behavior. Among these is the tendency to be overconfident or avoid risk. This, asserts the Professor, may lead to investor decisions that don't always bring the best, or most logical, outcomes.

His "Prospect Theory" suggests that people's degree of pleasure depends more on their own subjective experience, than on objective reality.

Professor Kahneman was recently honored at Israel’s Ben Gurion University. His lecture started us thinking as to how psychology affects Israelis’ attitudes towards this country’s economic prospects. How often do we hear the cantankerous sounds of people holding diametrically opposite points of view.

Recently the influential Business Week wrote: "Something is afoot in Israel's financial markets. The leading Tel Aviv stock index is up 34% so far this year. Since reaching this level it has retreated by several percentage points. After unable to raise money on the international capital markets for more than two years, the Israeli government recently attracted institutional investors to a commercial bond offering, raising $750 million".
Prof. Kahneman’s reaction might likely be: "If the market starts rising, that rise in some sense expresses a better mood, but it also causes a lot of people to become more optimistic". Prof. Kahneman’s Prospect theory helps explain biases of beliefs such as "optimistic overconfidence" -- whereby people believe they can do, what in fact they cannot do. When you have a situation where everybody believes they are above average, the markets are going to behave in a funny way".

Yet any high school student will tell



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you if asked, that the Israeli economy is likely to grow less than 1% this year.

The country's gross domestic product that droppped 3.8 percent in 2002 is headed for an additional drop. The intifada's cost to Israel's economy has been estimated by the Bank of Israel at $4 billion. Income has shrunk and the Central Bureau of Statistics reports that unemployment soared to 10.3 percent, close to the highest figure in Israel's history. So far this trend has not been reversed. The conclusion may be drawn that the Israeli public is exhibiting a strong dose of "optimistic overconfidence"

So what is to be expected for the rest 2003 and beyond? We view the future with a "a measured touch of pessimism capping our basic optimism".

The geopolitical situation that prevailed in the Middle East since Israel's inception, precluded trade between Israel and its neighbors. Furthermore, the quality and structure of Israel's industrial production made Europe and the US natural trading partners for Israel. In 2002, the US and the EU accounted for 31% and 30%, respectively, of Israel's exports and for 22% and 40% of its imports. Our guess is if the American economy picks up next year it will have a highly positive impact on Israel's high tech exports and the economy as a whole. The dependence of Israel's industrial exports on American demand should not be overlooked.

The export-driven hi-tech sectors are affected primarily by external demand, and tend to be less sensitive to geo-political events. Exports should not be affected even if the Middle East politics worsen, which is not expected.

The negative investment climate, a a product of perceived instability, resulted in a decrease in Foreign Direct Investment in 2002. FDI to Israel is still high when compared to investment in other industrial nations. Average inflows of non-EU FDI to the EU (as percentage of GDP), for example, were lower than those for Israel. 2002 figures indicate a sharper decline in FDI inflows, a trend that may be reversing, following the war against Iraq. Foreign investors are already expressing optimism in the economy. In the first five months of 2003, the securities portfolio of foreign investors in TASE-traded stocks rose to $1 billion. Foreign interest in the private equity market is also on the rise, as the second quarter of 2003 saw an increase in the participation of foreign venture capital in financing Israeli start-ups.

We do not expect the Intifada to resume though the period ahead will likely be marked by tensions and threats of a return to widespread terrorist violence. What could upset the applecart would be the enalrgement of the scope of the most recent sporadic acts of terror. The Israelis' indominable will to carry on even in the face of lethal suicide bomber attacks makes the restart of the Intifada an unprofitable policy. But the unprofitability of bad policies has never deterred the Arab world from rash actions.
Israel's Finance Minister Benjamin Netanyahu, argues that one key reason smart money is heading to Israel is the government's radical program to liberalize its economy. In three months, Israel

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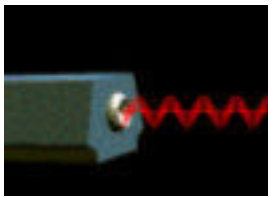
has pushed through massive reductions in state spending, including the first-ever cut in public-sector wages. Income tax rates will be cut. The planned cut in taxes is similar to that enacted by President George Bush that its intent is to put more spending money in the pockets of the citizens.
Fundamentally, we do not disagree with the Finance Minister's optimism, but we worry a bit whether it includes a measure of "optimistic overconfidence".
"Israel has the greatest concentration of people capable of producing conceptual products -- value-added products -- in the world. There are only two economies that have that capacity. Ours is the most concentrated, even though it's a lot smaller than that of the U.S. I claim that everything in Israel is undervalued. A $16,000 per capita income is ridiculous for a country like Israel. It should be around $40,000". Our only concern is that the time span required for the return of prosperity be as short as possible.

### *Israel Develops Laser that Can Detect Explosives*



A novel laser detector under development at Nahal Soreq, Israel's Nuclear Research Center employs a laser beam's ultra-violet spectrum to "light up" molecules in fumes given off by TNT explosives from a distance of up to eight feet.

The detector has been developed after a lengthy R&D effort to develop a Counter-terrorist Technology. that could effectively detect terrorist bomb and reduce the danger to sappers. Previously detection techniques employed dogs and special machines to "sniff" out explosives. Hezbollah terrorism created the impetus for the project. The aim was to discover explosives secreted in cars and suitcases that were smuggled into Israel from the Palestinian Authority, Lebanon or at other border crossings. The Israel Defense Forces' Research and Development unit, focused on three identification technologies. One was based on sniffer principles, the testing the atmosphere for particles of explosives and having the capability to conduct on-the-fly lab-quality analysis of the material. The second was based on "smearing," using a specially treated cloth to wipe down an object believed to contain an explosive and then analyzing the cloth. The drawbacks was that both systems required physical or near physical contact with the suspicious object. The ministry wanted a technology that could identify an explosive from 10 meters away Nahal Soreq have not publicly stated it but previous experience indicates that they would consider a joint development agreement with a foreign organization to commercialize the product.

### *IAI Delivers Lightweight Observation System to Mesa Arizona Police*

The Mesa, Arizona, police force will install the POP 200 night-vision system on its Defender helicopters. Israel Aircraft Industries (IAI) will supply its POP (Plug-in Optronic Payload) 200 night-vision system to the Mesa, Arizona, police force. The system will be installed on Defender helicopters used in patrols and chases. IAI's TAMAM division manufactures the system.
The Mesa police also plan to use the system in missions against drug smugglers and for homeland security tasks.

POP 200 is an infrared, lightweight, module designed for use in helicopters. The crew receives a color television image picture. The system carries a laser that can track and monitor objects.
The system was selected in part due to its capabilities under extreme conditions. The Mesa police operate in both urban and harsh desert

conditions with an extreme diurnal temperature range.

### *U.S. uses Israeli Systems for Blackhawks*

A major unnamed U.S. firm has ordered Israeli systems for the Black Hawk helicopter. The Defense Department has awarded Sikorsky Aircraft a $7.2 million contract for three kits for the UH-60 Blackhawk helicopters from Elbit Systems. Elbit Systems has been contracted by a range of U.S. defense contractors for subsystems for both U.S. fixed- and rotary-wing aircraft. The company also serves as an integrator of air- and land-based military platforms.

The Pentagon contract would also include support package, spares, and a contractor field service representative. The work will be performed at Sikorsky's facility in Stratford, Conn. and will be completed by March 2006.

### *A Water Melon Loving Robot*

While robots are commonly used in automobile factories doing such jobs as painting and welding, they are rarely seen in agriculture. Robotics is usually associated with the manufacturing industry, where it has had a history which is checkered, to say the least. In agriculture, the opportunities for robot-enhanced productivity are immense - and the robots are appearing on farms in various guises and in increasing numbers.

Watermerlon is grown in 90 countries with worldwide production exceeding 50 billion pounds per year.

The United States is the world's fourth largest producer. According to the Department of Agriculture 70% of American households buy watermelon.
The essential 'robotic' blending of intelligent sensing with mechanical actuation can be found in vision-guided tractors, product grading systems, planters and harvesters, applicators for fertilizers and pest control. Robot manipulators can divide plant material for micropropagation in sterile conditions; others can skin fruit for canning.

Harvesting melon is a labor-intensive activity. In the United States manual labor is relatively expensive. Israel is a country short of farm laborers. Taking these considerations into account researchers in both countries have sought mechanized solutions for labor intensive agricultural pursuits.

A team of Israeli and U.S. researchers has designed a vision-endowed, melon-picking robot to do the job. The robot is the result of a collaboration of three Israeli Institutes of higher learning including Ben-Gurion University, the Weizmann Institute of Science, the Agricultural Research Organization and the American Purdue University. It is now being commercialized. The researchers took into account the price issues whereby labor, both in Israel and the United States, is relatively expensive.

The machine consists of a mobile platform on which are mounted an image-processing system, air blowers and a mechanical arm with a gripper attached. As a tractor slowly pulls the platform through the field, cameras take pictures that the system analyzes. The air blowers ruffle the foliage to expose the fruit. When the harvester sights a melon bigger than a certain size and therefore presumed to be ripe it extends the gripper to grab the fruit and lift it off the ground. Onboard software evaluates the image's shape, brightness, and texture to locate the melons. Knives connected to the gripper slash the stalk and the gripper places the melon on a conveyor belt.

The harvester named VIP ROMPER a tractor and picker that guides itself down rows of maturing melon plants with only occasional

human steering corrections. A chemical sniffer determines whether the fruit is ripe. A basketlike gripper on the arm gently grabs the melon, "like a hand folding around it and lifts it as a knife cuts the stem," states Professor Yael Edan of Ben Gurion University of the Negev, Israel.

In field tests, VIP ROMPER correctly identified melons ripe for picking, 85 percent of the time. Prof. Edan estimates a two-armed version could attain a picking rate of one and a half seconds per melon.

# Investments Increase

The Kesselman & Kesselman PricewaterhouseCoopers MoneyTree survey reports a 70% increase in the volume of investments as compared to the first quarter - at least $ 243 million Twice as many investments were made by foreign and other investors this quarter as compared to the previous quarter

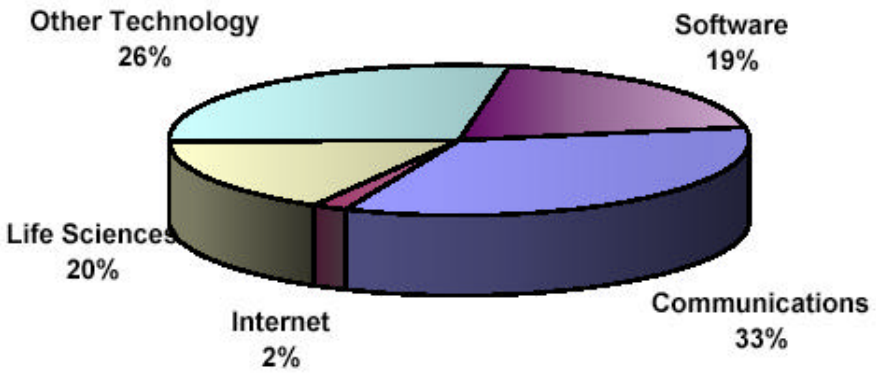
The Quarterly Survey conducted by the IVC Research Center with the cooperation of the Israel Venture Association (IVA) indicates that . in the second quarter of 2003, 86 Israeli high-tech companies raised $271 million from venture investors - local and foreign– an increase of 28 percent from the amount raised in the previous quarter of 2002. Forty-nine companies attracted more than $1 million. Of these, 12 companies raised between $5 million and $10 million and eight companies raised more than $10 million each. In the first half, however, capital raising was down 28 percent from the first six months 2002 levels. This survey, reviews capital raised by private Israeli high-tech companies from Israeli venture capital funds and from other investors. The Survey is based on reports from 130 venture investors, of which 68 are Israeli management companies and 62 are other – mostly foreign – investment entities

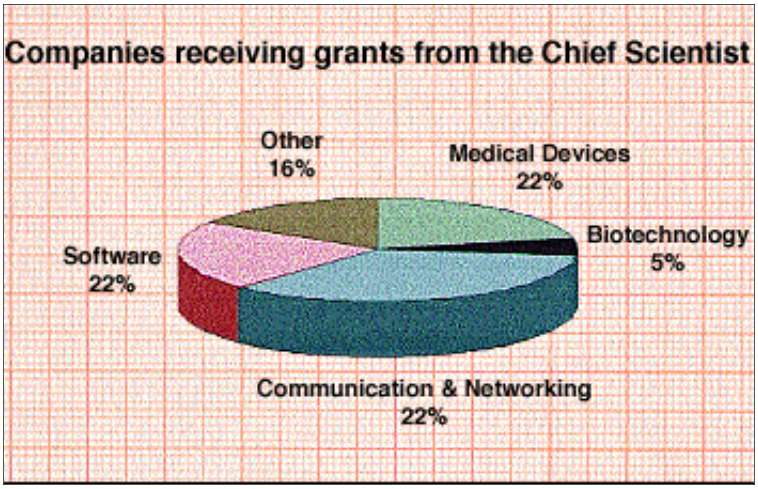
Capital raised in financing rounds without participation of Israeli VCs totaled $50 million, an increase of 72 percent from the previous quarter.

Efrat Zakai, Director of Research at IVC, said, that "the increase in the amount of capital raised by Israeli companies in Q2, is mainly a result of greater foreign investment. In this improved economic climate, where technology sectors are showing signs of recovery, Israeli company capital raising should reach $1 billion for 2003."

Investment by Israeli VCs in Israeli high-tech companies was relatively stable at $94 million. Israeli VC investments in foreign companies

**:Capital Raised by Israeli High Tech Companies by Sector 2003- $482M**






reached $34 million, almost double the $18.2 million invested in Q1 2002.
Seed companies experienced an increase in funding during Q2 2003. Six Seed companies raised $19 million or seven percent of total capital raised, compared to $7 million or only 3 percent of capital raised in Q1. Companies in the R&D and the Initial Revenue stages attracted the most funding – 35 percent and 48 percent, respectively.

### and in the U S A

Reports from Silicon Valley state that the American venture capital industry has experienced the first quarterly increase in venture investment, which rose in the second quarter after hitting a five-year low in the first quarter. It was the first time such funding increased on a quarterly basis since early 2000.

The second quarter of 2003 marked the end of two consecutive years of quarter-to-quarter declines in venture capital investing in the USA..Investments totaled $4.3 billion, up marginally from $4.0 billion in the first quarter of 2003, according to the PricewaterhouseCoopers Thomson Venture Economics/National Venture Capital Association MoneyTree Survey.
.
Venture firms invested $4.3 billion in the second quarter, up from $4.0 billion in the first quarter. The increase in the second quarter of 2003, though slight, is the first
up-move in the post-dot.com era.

Additionally, they invested in 669 deals, compared with 647 in the prior quarter, according to the study. Those measures are well below quarterly levels during the tech boom, reflecting fewer, better investments. They also reflect a "saner" investment pace, said John Taylor, vice president for research at the National Venture Capital Association, one of the partners that issued Tuesday's report. Because venture firms invest on anticipated future market conditions, they need to see a "sustained opening of the IPO market and consecutive quarterly increases in corporate capital expenditures" before declaring the worst is over, said Mark Heesen, NVCA president. "That being said, the venture capital industry is actually in a good place right now -- not withholding money, but not spending it freely, either," Heesen said. "A few more quarters at this pace would be healthy."
Venture investment notched a record $106.2 billion in 8,138 deals at its peak in 2000. Last year, venture funding totaled $21.2 billion in 3,039 deals, according to NVCA, Thomson Venture Economics and PricewaterhouseCoopers.
Investments in companies in the early stage of development increased significantly to $956 million, up from $668 million in the prior quarter -- the first such increase in three years. said: Tracy Lefteroff, global managing partner of the venture capital practice at PricewaterhouseCoopers,

## Israeli Companies on Wall Street

### *Teva's Results Exceed Expectations*

Teva Pharmaceutical Industries Ltd. (Nasdaq: TEVA) reported net income of $137 million before one-time items for the second quarter of 2003, or $210 million including one time items. Fully diluted EPS reached $0.49 before one-time items, up 44%, or $0.75 including one-time items. Net sales for the quarter increased 34% to $764 million; continuing favorable currency

trends accounted for close to one fifth of this increase. Teva's gross profit margin reached 47.1% for the second quarter of 2003, a significantly higher rate than the 43.2% earned in the second quarter in 2002 and exceeding Q1 of 2003 at 46.0%.

Teva is the only Israeli company to bring to market a "blockbuster" self-developed product--- Copaxone for multiple sclerosis indications. Sales of Copaxone are heading towards the level of $1.0 billion a year.

### *U.S. Generic Competition Warms Up*

Two drugmakers moved closer to marketing their generic versions of profitable GlaxoSmithKline Plc9 NYSE:GSK ) drugs One of the companies IMPAX Laboratories, Inc. . has extended US marketing rights to Israel's Teva Pharmaceutical Industries Ltd. for Impax's versions of the products. Glaxo 's antidepressant Paxil, brings in more than $3 billion per year in sales.

### *Retalix Growth on-track*

Israel's Retalix Ltd. (NasdaqNM:RTLX) - a maker of software for food retailers, reported second-quarter net profit edged higher to slightly beat estimates and reiterated it would meet 2003 expectations.
Net profit rose to $1.42 million, or 11 cents per diluted share, from $1.37 million, or 11 cents a share, in the second quarter of 2002 and $1.1 million, or nine cents per share, in the first quarter. Analysts had expected earnings per share of nine cents.
"This quarter has seen us make significant gains on an international scale," Chief Executive Barry Shaked said in a statement.
"We are continuing to win major accounts across all tiers and against all competition," he said, adding he had "great confidence that we are on target to meet our stated financial goals for 2003". Retalix said it expected "2003 annual growth exceeding 20 percent in both top and bottom lines", compared with last year's net profit of $5.6 million and revenues of $76.5 million.
Shares of dual-listed Retalix, which during the quarter received a contract for Arab Palestinian Shopping Centers, the first Palestinian supermarket chain,
Revenues in the quarter rose by 25 percent to $21.5 million from $17.3 million a year earlier and by 4.3 percent from $20.7 million in the first quarter.

### *Given Imaging Announces Second Quarter 2003 Results*

Given Imaging, (NASDAQ:GIVN) the "imaging camera in a pill" company recently announced revenues of $9.7 million for the second quarter of 2003, a 35% increase over the second quarter of 2002, and a 12% increase over the first quarter of 2003.
Net loss for the second quarter was $3.3 million or ($0.13) per share, compared to $4.9 million or ($0.20) per share in the second quarter of 2002, and slightly less than the loss of $3.6 million or ($0.14) per share in the first quarter of 2003.

Company President Dr. Gabriel Merom stated that he the company is on target for becoming profitable in the first half of 2004.

During the quarter, worldwide M2A capsule sales grew to more than 12,000, representing 55% of revenues. M2A reorders in the second quarter increased to more than 10,400, or 86% of total M2A sales. Capsule reorders grew by 118% compared to the second quarter of 2002 and were 21% higher than capsule reorders in the first quarter of 2003.

Sales of workstations totaled 163 for the second quarter of 2003, 106, or 65%, sold in the United States. The number of system sales decreased by 24% compared to the second

quarter of 2002, similar to the first quarter of 2003.

On July 8, Given Imaging received clearance from the FDA to remove "the adjunctive tool" label, thereby establishing the M2A as a first line tool in the diagnosis of small bowel disease. The news attracted buying in the company shares that rose by more than 40% to above $12 a share.

## Agritech 2003

The 15th International Agricultural Exhibition, Agritech 2003 will be held on September 15-18, in Tel Aviv. Agritech, a tri-annual exhibition, highlights the achievements of one of Israel's most successful and world-renowned technological industries. Many of the country's "success stories" and leading companies in agrotechnology, will be launching their most recent innovations at this important event.

### *India-Israel Bilateral Trade up by 24.3% so far this Year*

Two-way trade increased by 24.2% for the first five months of 2003 reaching $606.7 million compared to $488.5 million in the corresponding period last year. Indian exports to Israel for the first five months of 2003 increased by 44.6% from $241.8 million in 2002 to $349.6 million in 2003. Israeli exports to India for the first five months of 2003 increased by 4.2%, from $246.7 million in 2002 to $257.1 million in 2003. There was an increase of 33.3% in diamonds traded between the two countries for the first five months of 2003, from $316.3 million in 2002 to $421.6 million in 2003. Exports of diamonds from India increased by 55% from $150.0 million in 2002 to $232.5 million in 2003 while imports into India increased by 13.7% from $166.3 million in 2002 to $189.1 million in 2003.

### *Iridium Israel Takes Part in Sale of Satellite Phones to Iraq*

Iridium Satellite LLC, provider of global satellite voice and data communications, announced that it has been authorized by the office of the Coalition Provisional Authority (the current governing authority of Iraq) and the Ministry of Transportation and Communications to provide and sell Iridium's mobile satellite communications services, subscriber terminals, and related equipment in Iraq. The Ministry of Transportation and Communications has responsibility, by order of the Coalition Provisional Authority, for licensing all commercial telecommunications services in Iraq. The Israeli branch of Iridium Satellite Solutions will be implementing a program for the supply hundreds of satellite-linked public phones to Iraq. As a result of the project Iraqi cities will be hooked up to a single space-based system. The size of the contract was not announced but sources close to the company, estimate The contract at several million dollars.

### *BioEnterprise lands Israeli Firm.*

Imadent, an Israel-based startup company that has developed an ultrasound imaging system for dental surgery plans to open its U.S. operations in Cleveland. The company will open shop here as part of an agreement with BioEnterprise Corp., the organization that is working to promote bioscience companies in the region. The company's technology allows for real-time imaging of a patient's jaw during dental surgery, increasing the safety and efficacy and lowering the cost of dental surgery. Imadent has been able to use ultrasound, a harmless imaging technology, to image hard tissues such as bones," Mr. Jennings said. "This is a major breakthrough. The proper placement of dental implants is critical as mis-

placement can cause permanent nerve or sinus cavity damage."
BioEnterprise assumes a strongly supportive role and will assist Imadent in creating and conducting clinical studies, and will serve as the company's interim management, identifying engineering support, a business development manager and assisting the company in its ongoing fundraising.
BioEnterprise is making a concerted effort to attract companies from Israel to Cleveland. "We identified the company as a promising start-up late last year, and have been busy evaluating their investment potential since then," said BioEnterprise president Matt Jennings.

### *FDA Grants "Preferred Status" to XTL Hepatitis B drug*


X T L Biopharmaceuticals (LSE: XTL) reported that the US Food and Drug Administration (FDA) had granted an orphan drug designation to XTL's HepeX-B drug candidate for the prevention of hepatitis B infection in liver transplant patients. The designation entitles XTL to exclusive marketing rights in the United States for seven years following marketing approval.

Hepatitis B is the most common form of hepatitis and one of the world's leading causes of death. About 5% of chronic hepatitis B patients will develop end-stage liver disease, a condition that necessitates liver transplantation. During the liver transplantation procedure the diseased liver is removed and a healthy liver from a donor is transplanted.

Without proper treatment, the newly transplanted liver can become re-infected by residual virus in the patient's serum, leading to rapid disease progression and graft failure in many cases. The current market for prevention of hepatitis B infection following liver transplant is estimated to be worth $100 million.

HepeX-B is a combination of two fully human monoclonal antibodies acting on the hepatitis B virus surface antigen, which were selected based on their strong activity against the virus in XTLbio's pre-clinical Trimera model. In a recently reported study, HepeX-B maintained serum levels similar to or higher than the current first-line treatment, while using 1,000 times less drug.

Dr. Norah Terrault, assistant professor of medicine at the University of California's Gastroenterology Division said HepeX-B potentially holds several significant advantages over other products - to patients, clinicians and healthcare payers. "It is an important addition to the armamentarium of treatments for liver transplant patients," she added.

The Israeli indigenous software industry is among the fastest growing software sectors in the world. According to IDC Research, the market is set to grow from US$ 661.3 million to US$ 910.1 million over the next 4 years.

# Israel's Satellite Program

Israel has three advanced military satellites for intelligence that are on the drawing board. These are Ofek 6, Ofek 7 and the radar satellite TECHSA R., Professor Haim Eshed, head of the Defense Ministry's Space Program has announced that he expects the the three satellites to be ready in five years. Ofek 7 and

TECHSAR will be the next generation satellites, following Ofek 5. By the end of the year, Amos 2, the communications satellite is scheduled to be launched.

At Rafael, the Israel Armaments Development Authority, scientists are working on technology that will enable the launching of satellites from F-15 fighters.

Israel is seen as the global leader, with the exception of the United states, in two critically important fields of satellite technology: namely photographic resolution and picture quality.

The lead contractor of projects for the military is the space section of the Israel Aircraft Industries. Key sub-contractors include Elta, Rafael, Elop, Israel Military Industries, Tadiran, Elisra and Specterlink.

### *Advent allocates $30m for Israel seed investments with Gemini*

US venture capital fund Advent International, a global investment fund with $6 billion under management, and Gemini Israel Funds are to collaborate on seed investments in Israel's technology sector. Advent is to allocating $30 million for these investments. Gemini will play the lead role in the activity in Israel. Gemini Israel Funds managing partner Yossi Sela said, "Advent came to the conclusion that Gemini had access to most of the seed investments based on Israeli technology, and that Gemini could therefore invest in the best companies. The closer ties between Gemini and Advent will add depth to Gemini's ability to support existing portfolio companies. It can avail itself of Advent's widespread contacts, whether through strategic investors like NTT, Samsung, Toshiba, and MasterCard, or through direct access to Advent's investment managers and the ramified network of entrepreneurs, customers, and US companies with which Advent is connected." Sela added that because of the large number of Israeli entrepreneurs active in the US, and the great importance of assisting portfolio companies transferring their business activity to the US, Advent would dedicate manpower on the US east coast to expanding Gemini's coverage and its ability to do deals in the New York and Boston areas. Advent will also add manpower on the west coast to bolster Gemini's existing coverage through Tali Aben, the partner managing Gemini's West Coast activity. Advent is a global investment fund with $6 billion under management. In 1993, it participated in setting up the Gemini I fund, the first Yozma fund, and together with Discount Investment it raised $36 million for Gemini. Today, Gemini manages venture capital funds amounting to $350 million in total in three different funds, and it is considered one of Israel's most successful venture capital firms.

Gemini has so far invested in some 70 technology companies. Its main activity is seed investments in Israeli technology in the areas of data communications, enterprise software, fabless semiconductor design, and telecommunications.

### *IBM Building R&D Center in Haifa*

IBM Israel is building a new R&D center in Haifa, which will operate in tandem with its existing facility in the northern coastal city. At first the new center will be recruiting some 40 engineers, who will operate under the auspices of the global IBM engineering and technology services group. The people at the new Haifa center will cooperate with engineering and technology service centers at the group's five labs in the U.S., Germany, Japan and India.

The new facility will give special attention to logical design of ASIC chips, which are designated for predefined applications. They will also offer full design services for analog and digital circuits, including physical planning and design verification, and system-on-a-chip designs. Moshe Molcho, who will manage the new center, says combining a development center with an R&D lab will facilitate cooperation between research and design, to assure better added

value for customers.
The Haifa lab will be IBM's biggest outside the United States. Altogether IBM employs more than 500 people at facilities in Haifa, Tel Aviv, and Rehovot.

# Science Corner

### *Psoriasis and Psoriatic Arthritis Treatment Passes Phase II Clinical Trials*

Psoriasis is a chronic skin disease with as yet no cure that affects approximately 4.5 million people in the U.S. and 5.7 million people in Europe. About 10% of these people develop chronic inflammation of the joints called psoriatic arthritis. In clinical trials testing a drug based on the discovery of Prof. David Wallach of the Weizmann Institute's Biological Chemistry Department, the condition of psoriasis and psoriatic arthritis patients was greatly improved. The treatment had no adverse effects.

The results were reported by the Swiss-based company Serono that produces this drug in their Israel-based subsidiary Interpharm Laboratories. Interpharm was founded by Serono 25 years ago for the application of Weizmann Institute discoveries for therapy.

The drug, called onercept, or TBPI, caused significant improvement in the patients' Psoriasis Area and Severity Index (PASI) score. PASI is the globally accepted measure of treatment efficacy in this indication.

Over the 12-week treatment period patients treated with onercept experienced a significant improvement in quality of life, based on the standard measurements of Short Form 36 (SF-36) and Dermatology Life Quality Index (DLQI).

As a result of this positive outcome, Serono plans to initiate Phase III trials later this year/
The drug works by neutralizing a hormone called "tumor necrosis factor" (TNF), which is produced by the immune system in response to injury or infection. In various inflammatory diseases, TNF production becomes excessive, leading to the destruction of healthy tissue. In search for natural inhibitors of TNF, Wallach's team at the Weizmann Institute isolated, from urine, two proteins called TBP1 and TBP2 that can bind TNF specifically and thus block its function. One of these proteins, TBP1, is the currently tested drug.

### *Call in the Taste Tailors*

Why taste and smell differ among individuals – and how industry may profit

"De gustibus non est disputandum" is a popular saying, conveying that one shouldn't argue about flavors. Now, a team at the Weizmann Institute of Science, headed by Professor Doron Lancet of the Molecular Genetics Department, has found why this is true.

In our genome, around 1,000 genes code for the nose's odor-detecting receptors (responsible for our sense of smell and a great part of flavor perception). Of these, more than half have become totally inactive in all humans, a fact that has been known for years. Now a surprising discovery, published in Nature Genetics, shows that at least 50 genes are "optional" – they can be active in some individuals and inactive in others. This high level of genetic variation among individuals is most unusual.
A simple calculation, based on the new findings, shows that nearly every human being would display a different pattern of active/inactive receptors – an individualized genetic barcode. The uncovered genetic heterogeneity affects the way thousands of aromas and flavors are perceived. Furthermore, the new research shows that the level of obliteration of olfactory receptors varies among different ethnic groups.

The novel discovery has profound implications for the way the perfume, food and beverage industries handle the discovery of new aroma, flavor and fragrance ingredients. Usually one person, or a small test panel, makes sensory decisions taken to represent billions of customers. But since every nose is different, industry might rethink such issues. The investigators believe that soon a DNA chip could be used to perform olfactory genetics typing of panels and target audiences alike. Thus, cosmetics and foodstuff design would be revolutionized in much the same way that the drug industry now seriously contemplates developing tailor-made medications based on the breakthroughs of pharmacogenetics.

### *Reeve Visits Proneuron*

Christopher Reeve, actor, advocate and chairman of the Christopher Reeve Paralysis Foundation (CRPF), visited Israel on July 28 on a five-day visit as a guest of the Deputy Prime Minister .

Christopher Reeve, famous for his portrayal of the role of Superman in the Hollywood film, was seriously injured in an equestrian competition in 1995. Ever since Reeve has become a prominent advocate in search of treatments and a cure for paralysis. At the Weizmann Science Based Industries Parkl Reeve met with Dr. Michal Schwartz who pioneered in developing a groundbreaking surgical procedure to reverse paraplegia. The scientific work was developed by Proneuron Biotechnologies, involves harvesting the patient's white blood cells, processing them, and injecting these macrophages into the spinal sac to regenerate severed nerve conductors. The most salient criterion is that treatment must be initiated within seven days of injury. ***(IHTIR 6/2002)***

The therapy, which recently completed Phase I FDA approved clinical studies, demonstrated preliminary promising results with the first eight patients who were flown to Israel for treatment and follow up from around the world. The technology employed by Proneuron was licensed from the Weizmann Institute and the company's jeadquarters are located next to the Institute.

The positive Phase I results have led to cautious optimism about the potential of the treatment. The Pjase II trials are planned at three locations in the United States and the Sheba Hospital in Israel. One of the American centers jointly with Proneuron has received a $1.0 grant from the BIRD-F Foundation to establish the cell center.. As part of the trials is the procedure as the cells that are implanted need to be harvested and treated at the site where the patient is treated. The patients cells are first extracted, then treated then reintroduced into the body.