

ISRAEL HIGH-TECH & INVESTMENT REPORT

A MONTHLY REPORT COVERING NEWS AND INVESTMENT OPPORTUNITIES

JOSEPH MORGENSTERN, PUBLISHER

December 2001 Vol. XVII Issue No.11 You are invited to visit us at our website: <http://ishitech.co.il>

“It Ain’t Necessarily So...”

Our Report is currently celebrating the beginning of its 18th consecutive year of publication.

Israel's current economic statistics are poor. A precipitous drop in tourism is mostly to be blamed. Unemployment is also on the rise. It is hard to deny that this country is undergoing a recession. The situation appears grim. Yet it is really not as grim as the public statements that emanate from the media, and from vociferous prophets of doom.

"It Ain't Necessarily So", the lyric in George Gershwin's classic American folk opera Porgy and Bess, is more fitting.

In reviewing the contents of this, our end of the year December 2001 issue, we find ourselves reporting on some of the many Israeli high-tech companies that are obtaining millions of dollars in funding to pursue their technological activities. This is occurring while others complain that investment funds for start-ups have totally dried up, on both sides of the Atlantic.

In the September 1991 editorial we quoted the Bible "Behold! I place before you a blessing and a curse." We continued, "The miraculous flood of Russian Jewry, the amazingly short Gulf Conflict, the prospect of a unified Europe and the sudden announcement of a regional conference to deal with the Israeli-Arab conflict, all have about them that double possibility. On the one hand, fulfillment of the age-old prophecy -- of a life of peace for Israel with its neighbors -- seems within our grasp. On the other hand..."

Ten years have passed. US Secretary of State Powell recently spoke eloquently of a vision for a peaceful and tranquil Middle East. The promise of a new step towards non-belligerence, though serious suspicions exist between Palestinian Arabs and Israelis, once again, is a possibility. However, ten years ago the Israeli high-techies were without any capital at all. The venture capital industry, as we know it today, was yet

to be born. Much has happened in that decade. Recently, on a beautifully sunny day, we visited the suburban Nes Ziona Science Based Industries Park. It is adjacent to the Weitzman Institute of Science in Rehovot. Ten years ago it was a small park inhabited by just a few companies. What is most striking today, is that the Park houses hundreds of companies in modern quarters. In the laboratories and on the production lines. billions of dollars of exports are being produced. These range from Interferon, developed in Israel by a group of scientist led by Professor Michel Revel of Weitzman Institute, to

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"It Ain't Necessarily So".....

\$ 330m in Venture Capital Investments in 3Q 2001

The Holy Grail is a CNS Drug

Pharmos Corp. ("PARS") Results for 3Q01

Magal: The Investor's Best Way to Participate in Israel's Security Market

El Al and Boeing in Joint Security Effort

US Embryonic Stem Cell Registry

Growth of Insulin Secreting Cells from Human Stem Cells

BGU and Columbia University Agree to Cooperate on

Commercializing R&D

Teva Investing \$10m in Israeli Biotech Firm Proneuron Biotechnologies

Concord Ventures: Profile of a Winning VC Fund

Surf Communications Solutions Raises \$20m.

Gilian Technologies Obtains Additional Funds from Intel

Transdermics Obtains \$1m. Financing

Pharmaco-Informatics' Clinical Discovery raises \$1m.

Glycominds Completes \$7.1m PP

Mellanox Raising \$40-\$50m.

PowerDsine Completing \$25m. Financing

Xtellus Raises \$8m.

Orex Radiography Obtains \$5m.

New Ultrasound Device Breaks Down Unwanted Fat

NICE Releases Telecommunications Monitoring System for Law Enforcement Agencies

Nanotechnology Breakthrough: Providing Power of a Trillion Computers

electro-optics, and to biotechnology developments. Many of the scientists and engineers employed there speak Hebrew with a tinge of a Russian accent. One of the companies we feature in this month's Report, is located in that Park.

Anyone who doubts the resourcefulness of the Israeli is recommended to "Take a Walk in the Park" -- the Science Based Industries Park in Nes Ziona, within sight of the Weitzman Institute, and 20 minutes away from where we will continue to report on these wondrous events as we begin our eighteenth year.

In the Zohar, the Book of the Kabbala (Jewish mysticism), the acronym for 18 spells *Chai* ("Life" in Hebrew), and is generally considered as the luckiest of numbers.

In the spirit of the meaning of *Chai*, the team from the Israel High-Tech Report wishes one and all, a Happy Holiday Season and a Happy New Year 2002.

\$ 330m in Venture Capital Investments in 3Q 2001

According to a Price Waterhouse Coopers/ Kesselman & Kesselman survey, during the third quarter of 2001, Israeli hi-tech companies raised only \$ 330 million, down 21% as compared to the previous quarter (\$ 415 million) and similar to the level of investments recorded in the last quarter of 1999 (\$ 389 million). This is a decrease of 68% as compared to 3Q 2000, which saw a peak in the venture capital investments (\$ 1.034 billion). There was a decrease of 12% in the number of companies (117) that raised capital during this quarter, as compared with the previous quarter, (133).

The number of venture capital funds that did not make any new investments during the quarter, either in new companies or in their portfolio holdings, increased in the third quarter: 25 venture capital funds.

In the period under review, there was a noticeable trend of venture capital funds maintaining available funds, but not making any new commitments.

Communications and Networks

Despite the decline both in the number of transactions and in the volume of investments, the field of communications and networks continued to lead the investments in the third quarter of 2001: 41 companies in this field raised only \$ 126 million (38%), as compared to 47 companies and \$ 208 million (50%) in the previous quarter. The average investment in this industry decreased significantly as compared to the preceding quarter - \$ 3.1 million as compared to \$ 4.4 million, respectively.

Software

The software industry registered a moderate decline both in the volume of investments and in the number of transactions. 29 software companies raised \$ 91 million during the quarter (28%), as compared to 35 companies which raised \$ 95 million in the preceding quarter (23%). The average investment in this industry,

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however, was \$ 3.1 million as compared to \$ 2.7 million in the previous quarter.

Life Sciences

The life sciences sector constituted 21% of total investments for the quarter, in monetary terms, as compared to 14% in the previous quarter and attracted approximately \$ 68 million, which were infused into 19 companies this quarter (as compared to \$ 59 million which was invested in 20 companies in the preceding quarter). For the first time, the field of biopharmaceuticals leads the investments in the life sciences sector, with an investment volume of approximately \$ 46 million (68% of the total volume of investments in this sector). This sum was invested in 6 companies (as compared to \$ 6.8 million infused into the same number of companies in the preceding quarter). 12 companies in the medical instrumentation field raised \$ 22 million (a decrease of 57% from the volume of investments in this field in the previous quarter).

The Holy Grail is a CNS Drug

Pharmos is nearest of any biotech company in Israel, and for that matter in the world, to produce the first ever drug, that promises to provide relief

Pharmos Corp. ("PARS") Results for 3Q01

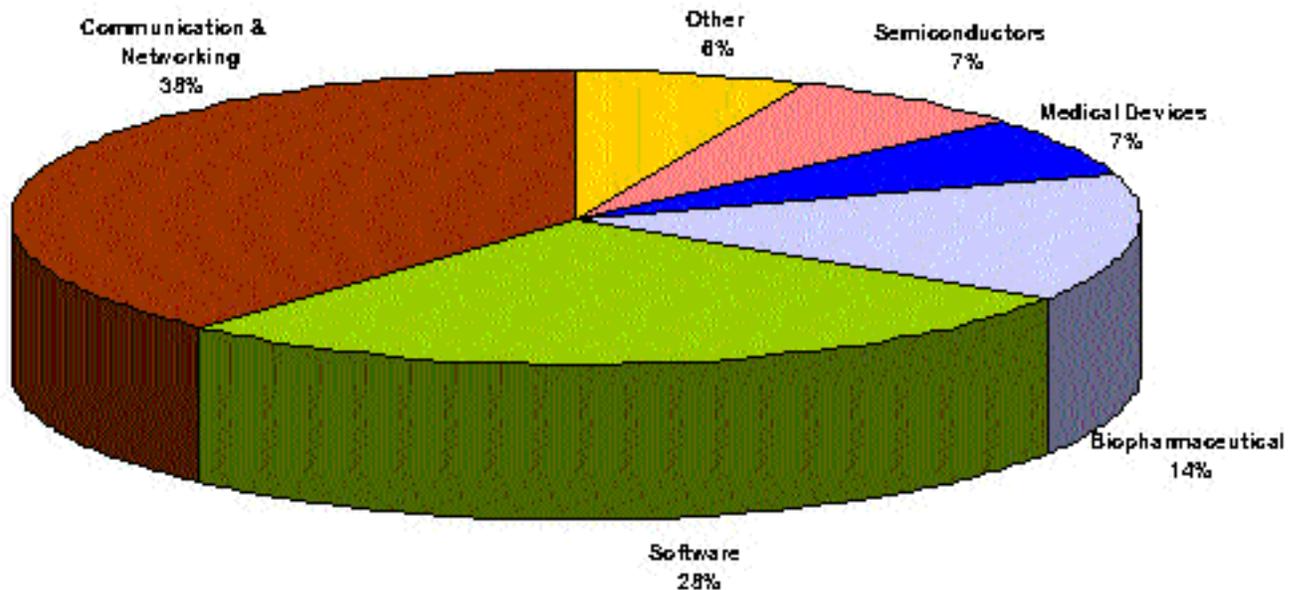
Revenue for the quarter was \$1.71 million, virtually the same for the quarter 3Q2000 (\$1.76 million). Net loss was \$1.9 million, or \$0.04 per share, versus a net loss of \$1.5 million, or \$0.03 per share last year. The increase in net loss resulted from significantly higher R&D spending which was driven by increased enrollment in the Phase III dexanabinol trial in Europe.

for stroke and head injuries.

More than \$100m. has been spent towards that goal. During a recent meeting with the Israel High-Tech & Investment Report, Prof. Haim Aviv, Pharmos' founder and its CEO, sounded upbeat. After many years of strenuous efforts to find financing, for the first time since founding Pharmos. he has accumulated sufficient cash reserves to concentrate on science alone. The money came primarily through sales of established product lines. In October 2001, Pharmos sold its loteprednol etabonate ophthalmic business to Bausch & Lomb. The products sold turned out to be the "best sellers" in the ophthalmic field.

Pharmos' Dexanabinol, its Central Nervous System (CNS) drug candidate, is currently undergoing testing at 36 medical centers in Israel

Total Investments by Type of Financing (in \$ Millions)



and Europe. An FDA submission to obtain authorization to enroll patients in the US is expected to be received shortly. Total enrollment of 860 patients worldwide for the trial, should be completed by early 2003. Marketing however, is not expected to begin before 2004 or 2005.

Biotechnology companies represent one of the riskier forms of investments. They also bring the promise of great rewards, as they have the capacity to improve quality of life and longevity. Should the clinical trials prove to be successful, Pharmos could become the only "company, since Pfizer has bowed out of the field, with a blockbuster drug" for a CNS indication.

Magal: The Investor's Best Way to Participate in Israel's Security Market

Magal Security Systems, Ltd. (NASDAQ: MAGS), recently established a new company, Smart Interactive Systems Inc., to participate in the growing need for real time video monitoring security services. Smart Interactive Systems Inc. will integrate sensors and video cameras located in the protected area, that will then transmit visual information of activity in the area to a central monitoring station for analysis and response. The company will offer its services mainly to industrial sites, commercial businesses and VIP residences.

New York is the intended initial market with operations thereafter expanding nationally and later to other countries. The potential market is large and management believes that in a few years most of the security systems used at industrial and commercial sites will adopt video monitoring systems as the preferred method of surveillance and protection. Magal's products are used currently in more than 60 countries, protecting national borders and sensitive facilities from terrorism, theft and other threats.

The Israeli Prime Minister's sheep ranch and home in the Negev, geographically located only a relatively short distance from Palestinian territory, was recently equipped with a security

fence at a price of \$1.7 million. Magal would not confirm or deny to IHTIR installing the system

The company's shares are dually listed on NASDAQ and on the Tel Aviv Stock Exchange ("TASE").

Company Profile

Magal Security Systems Ltd. is, today, the leading company, worldwide, in the field of Outdoor Intrusion Detection Systems. Founded in 1969 as a department of the Israel Aircraft Industries (IAI), Magal has shown steady growth in both its turnover, as well as in worldwide "market niche" penetration.

In 1984 Magal was established as a private company, with 26% of the shares still held by IAI. In 1993 the Initial Public Offering (IPO) of Magal was made on NASDAQ (the company's symbol being MAGS), a second stock offering was made in 1997.

Magal developed in other fields as well. In 1993 Magal acquired the first of its subsidiaries, Stellar Security Products Inc., a California based company, whose products supplemented Magal's own. Four years later, in 1997, it acquired the Senstar Corporation of Canada, as well as the Civil Security Division of Dornier in Germany. By combining the manufacturing facilities of both Stellar and Senstar into one unit and locating both in Canada, Magal was able to achieve significant savings in overhead costs, while streamlining production. Since June 1997 these subsidiaries use the Senstar-Stellar trade name.



The latest addition to the Magal Group was made at the end of 1997, by the acquisition of Perimeter Products Inc., in California.

Today, the Magal Group of Companies is the leading manufacturer in the field of Outdoor Perimeter Protection, and, with over ten thousand kilometers of its systems installed worldwide, has a 40% share of this market. The group's consolidated revenues in the year 2000 were over US\$ 38m.

El Al and Boeing in Joint Security Effort

El Al Israel Airlines and US airplane manufacturer Boeing (NYSE: BA) signed a memorandum of understanding to study the feasibility of creating a joint security and safety venture for airlines, airports and governments worldwide. The joint venture, if formed, could include developing technology, manufacturing products, designing systems and setting up procedures for training personnel.

BioTechnology Corner

US Embryonic Stem Cell Registry

Seventy-two embryonic stem cell lines were available for federally-funded US researchers, according to a registry of approved cell lines published by the US National Institutes of Health. This is eight more than the government identified when new regulations governing stem cell research were introduced on 9 August this year. President Bush's new rules mean that all federally funded stem cell research must be conducted on cell lines created before 9 August. November 27 was the deadline for scientists to apply to conduct research on the approved lines. Göteborg University in Sweden holds 19 - more than any other institution. Thirteen US institutes and companies hold 36 between them and the rest are in Australia, India and Israel.

All the cell lines are derived from 72 embryos. The original list has expanded, because new cell colonies have been grown from an existing line held in Wisconsin, US. Two main criteria were used for deciding which lines would be acceptable. The stem cells must be derived from an embryo created for reproductive purposes and the embryo must no longer be needed for these purposes.

Embryonic stem cells have attracted much scientific interest as they have the potential to develop into any type of tissue and could therefore be used to treat a wide range of illnesses.

Growth of Insulin Secreting Cells from Human Stem Cells

Research teams at the Rappaport Research Institute, the Rambam Medical Center and the Technion in Haifa, Israel, have reported the identification of human insulin-secreting cells derived from embryonic stem cells. Under the growth conditions used by the investigators, a surprisingly high number of insulin-secreting cells developed in tissue culture from undifferentiated stem cells, were shown to secrete high levels of insulin into the growth medium.

The research teams were led by Prof. Karl Skorecki, Director of the Rappaport Research Institute and Director of Nephrology at Rambam Medical Center, and Prof. Joseph Itzkovitz, Director of Obstetrics and Gynecology at Rambam Medical Center. The paper reporting these findings by Dr. Suheir Asady, a Technion graduate student supervised by Prof. Skorecki and Dr. Maty Tzukerman, appeared in the scientific journal "Diabetes." The ability to grow human insulin-secreting cells in tissue culture from a stem cell source, provides an initial step towards a possible future cell-therapy approach to treating patients with diabetes mellitus.

BGU and Columbia University Agree to Cooperate on Commercializing R&D

Ben Gurion University of the Negev and Columbia University in New York signed a commercial cooperation agreement. BG Negev Technologies is the subsidiary of Ben Gurion University,

responsible for commercial applications of R&D at the university.

The fund that will invest \$5 million to promote applied research in biotechnology and pharmacology.

The agreement would allow the two universities to cooperate in commercializing ongoing and completed developments, carry out new joint research by exploiting the relative advantages of both institutions and raise money from industry to finance joint developments.

Teva Investing \$10m. in Israeli Biotech Firm Proneuron Biotechnologies

Israeli Teva Pharmaceuticals (Nasdaq:TEVA) is investing \$10m. in Proneuron Biotechnologies of Nes Tziona, which is developing technology to regenerate and culture nerve cells for therapeutic purposes. Proneuron Biotechnologies, a private company, currently employing 25 is developing therapies for neurological, ophthalmologic and immune-related disorders such as spinal cord injuries, multiple sclerosis, glaucoma, Parkinson's disease and Alzheimer's disease. The proprietary technology, originating from the Weitzman Institute of Science, derives from research on key mechanisms in the dialogue between the central nervous system (CNS) and the immune system. Proneuron's novel strategy is to modulate these natural mechanisms, harnessing them to treat disorders until i know considered untreatable.

Concord Ventures:

Profile of a Winning VC Fund

Location: Herzliya-Pituach, in the heart of Israel's high tech center, 20 minutes from Tel Aviv. There are six partners, the best known being Matty Karp. Concord specializes in private equity management.

Total employees: 19

Capital under management: U.S. \$260 million

Number of portfolio companies: 43

Name of fund: Concord I.

Specializes in information technology and healthcare.

Established: 1997

Main investors: J.P. Morgan, Bank Leumi pension funds, Discount Bank pension funds, China Development Industrial Bank, Compaq and Kardan Technology.

Size of fund: \$75 million, fully invested.

Portfolio companies: 23

Largest investment: \$7 million.

Generally invests in seed and start-up capital.

Name of fund: Concord II

Specializes in data and telecommunication, medical technologies and biotech and software applications.

Established: 2000

Main investors: Verizon, HarbourVest, J.P. Morgan, Qwest, Goldman-Sachs, Leumi investment, and provident funds of Israeli banks.

Size of fund: \$180 million and, as of 2001, \$70 million still available for investment.

Portfolio companies: 20

Largest investment: \$15 million

Concord generally invests in early stages and provides seed capital.

Concord Venture Management, Ltd. is regarded as one of the leading and most successful Israeli venture capital funds. Its reputation was firmly established by its phenomenal results which placed its first fund, Nitzanim, among the best performers in the United States. The Israel High-Tech and Investment Report met with Matti Karp, managing partner of the group of funds, and heard about the investment policies and approaches to investments which were responsible for the group's impeccable reputation.

"The Nitzanim Fund was established in 1993, and its first investment was carried out in February 1994. The fund was one of the last Yozma Funds (funds which were covered by a government guarantee to investors). Its investments included Galileo Technologies, ESC Medical, RAD Vision, XTL and Accord Networks. We believed that we had applied a unique strategy, as we had the smallest number of investments of any of the Yozma Funds. We tried to receive a substantial portion of the equity of each company and we invested in a very early stage. We were very active in the management and at the board level of those companies. I was a chairman of many of these

companies, and I sat on the executive committees of other companies," related Mr. Karp.

Nitzanim had a high "hit rate." Of the thirteen portfolio companies, six or seven exited by way of public offerings. Only one failed. One is "lingering," and the balance are doing well. Nitzanim returned 129% per year over each of six years. The original fund included \$12 million of private investment money, and \$8 million was provided by the government. This was the original structure of the Yozma funds. Nitzanim has already distributed about \$170 million and the fund still holds good unrealized assets.

"If you look at the second generation of funds started after 1996, one sees a trend among other funds to follow Nitzanim's original strategy. The new funds try to keep the number of investee companies low and also follow our style of participating in the management of these companies.

What differentiated Concord from the others was that the fund tried to get into the companies at a very early stage and used common sense, instead of pre-disposed attitudes as to how things should be. This also allowed us to get the best positions and the best valuations in the invested companies. We insisted that once the company started to be successful, we maintained our position and percentage of ownership and did not allow ourselves to be diluted. Somehow we managed to reach the exit point with a high percentage of ownership; when ESC Medical went public we owned a full 16% of the company. We also were able to bring in over-seas investors such as AVX, brought by Marshal Butler," Mr. Karp explained.

Yes, Mr. Karp expects that the number of Israeli venture capital companies may be reduced from the current figure of about 70. He is aware that, unlike his group of investors, there are venture capital funds whose investors are not living up to their commitments, which creates difficulties for any fund's ability to maintain support for additional funding for its portfolio companies.

Basically an optimistic individual, Karp is looking forward to the second half of 2002, by which time the conditions in which venture capital funds

operate will improve. Hopefully capital markets will once again become more amenable in providing profitable exits for the private equity community of investors.

Young Companies are Raising Capital

Surf Communications Solutions Raises \$20m.

Yokne'am based Surf Communications Solutions has completed a \$20 million financing round at a company value of \$40 million. Leading the investment group are Giza and Pitango Venture Capital funds. Motorola Ventures, making its first investment in Israel, will also participate.

Surf Communications Solutions was founded in 1996 by Amnon Gavish and Avi Fischer. The company manufactures software-based modems.

The company has cooperated for a long time with Motorola, which has incorporated the Israeli company's products in its digital chips, developed by Motorola Semiconductors in Israel.

The company's products, under OEM agreements will be used by Nokia, NEC and Texas Instruments. Shareholders in Surf Communications Solutions include BOS Better Online Solutions (Nasdaq: BOSCO), Intel and Texas Instruments.

Gilian Technologies Obtains Additional Funds from Intel

Israeli Gilian Technologies, which provides solutions for Web security and availability, announced that it had received an investment from Intel Capital, the investment arm of chipmaker giant Intel. The value of the investment was not released.

The Intel Capital investment is an addition to the company's previous financing that included Ascend Technologies, Deutsche Bank eVentures, Evergreen Partners, Itochu Technology and Pitango Venture Capital.

Gilian CEO, Rafael Feitelberg said the funds would be utilized to expand the company's technology and market initiatives, with an increased focus on

industry-specific sales and marketing efforts. "The investment by Intel Capital should help accelerate our penetration of industries that are dependent on both the integrity of Web content and the consistent availability of the corporate website. Customers are saving time and money while preserving their reputations by including the G-Server as a vital part of their security infrastructure. With this additional investment, we can further refine our solutions for growth markets," Feitelberg added.

Gilian Technologies, headquartered in Silicon Valley, has developed G-Server, which is designed to keep Web sites accurate and available regardless of the origin of a security breach. The company's G-Server solution is also designed to ensure that false or misleading information will not be posted on a Web site, thus reducing liability exposure. The company has offices in Herzliya, Israel, as well as in Boston and southern California.

Transdermics Obtains \$1m. Financing

Israeli start-up Transdermics has raised \$1 million from existing investors. The investors are the investment company of Eager Bio Group founder and active chairman Prof. Max Herzberg, and several private investors.

Transdermics develops a platform for delivering drugs through the skin. Its first application is an insulin-releasing patch, used as a substitute for injections. The company has recently completed the first stage of phase two clinical trials of the product in Europe. Additionally, it was learned that Eager Bio Group set up a new company named VectoBiotics with a \$250,000 investment. Prof. Herzberg says that the company is now preparing for a first financing round totaling \$500,000-\$1 million.

Pharmaco-Informatics' Clinical Discovery Raises \$1m.

Jerusalem-based Clinical Discovery Inc., an applied pharmaco-informatics company, has announced the closing of a \$1.0 million seed-funding round, led by an Israel-based group of angel investors and an unnamed US public company. The money will be used for research and development, and to turn out a prototype.

Clinical Discovery was formed in May 2001. The

company has an R&D center in Jerusalem's Har Hotzvim Science Park, employing a dozen doctors, epidemiologists, algorithm specialists and software developers. The company is developing applications that shorten time-to-market for new drugs awaiting FDA approval, and improve the efficiency of the clinical trial process.

The company said that marketing of its lead product was expected to commence in the first quarter of 2002, when the company establishes its headquarters in the northeastern United States.

"As a result of initial meetings in the United States and Europe, our innovative computational platform has already attracted strong interest from leading pharmaceutical and bio-technology companies," said Arnold J. Goldman, CEO of Clinical Discovery.

"Pharmaco-informatics is an emerging field which ties the application of advanced computational and algorithmic technologies to drug discovery and drug development in order to achieve better therapies in shorter timeframes and with greater efficacy and safety. Currently, only one of every 250 drugs entering into pre-clinical tests completes the process successfully to become an approved medication. This very low yield shows that there is a great deal of room for improved efficiency. We believe the market opportunity is exceptionally strong," Mr. Goldman said.

Glycominds Completes \$7.1m PP

Israeli start-up Glycominds has raised \$7.1 million in a private placement led by Israel's Millennium Materials Technologies Fund. Glycominds said Germany's Schott Glas - a manufacturer of special glass - and other venture capital funds also invested in the round.

Glycominds is a biotechnology company that develops technologies for analyzing the interactions between complex carbohydrates (glycans) and proteins. Glycominds said it had achieved a breakthrough in clarifying these interactions. The company's technologies are expected to help identify new drug targets and improve early-stage drug development.

Glycominds claims that it has created the world's largest comprehensive database of glycan sequences, expected to reach approximately 6,000 validated glycan sequences by the end of the year.

The company was founded in 1999 by its CEO and President Dr. Avinoam Dukler and CTO Dr. Nir Dotan.

Mellanox Raising \$40-\$50m.

Israeli company Mellanox Technologies is about to hold a major financing round, both in terms of size and valuation. Mellanox is now completing a \$40-50 million financing round, at a company value of \$190 million. The round is particularly newsworthy given the continuous difficulties with raising capital and the even greater difficulty in holding financing rounds at such a high valuation.

Mellanox, founded in 1999, is registered in the US, and has offices in Santa Clara, California, and Yokne'am, Israel. Most of its activity is in the US. Mellanox Technologies' founder and CEO, Eyal Waldman, was a cofounder of Galileo, which merged with Marvell (Nasdaq: MRVL) last year.

The financing round was led by Bessmer Venture Capital and a first participation by Israeli venture capital funds. It appears that previous investors Sequoia Capital, US Venture Partners, Raza Venture Management, and Intel Capital will also participate in the round. The company raised \$7.6 million in its first round, and \$25 million in March 2000.

The financing round's success can be attributed to the great potential of the company's InfiniBand technology chips, its flagship product, and the company's strong investors. InfiniBand is the most advanced protocol in the industry. It is designed for server, communications, and storage applications.

PowerDsine Completing \$25m. Financing

PowerDsine of Hod Hasharon, Israel is completing a \$25 million financing round at a company value of \$100 million. This represents a higher valuation than in its previous financing round in February 2000. At that time \$22 million was raised at a company value of \$72 million.

The round was led by Deutsche Bank, with a \$15 million investment. Other investors include existing investors, such as Poalim Capital Markets, The

Challenge Fund - Etgar, and JVP. Prominent new investors are investment houses Dain Rauscher and Robertson Stephens

PowerDsine had planned to raise \$40 million at a company value of \$70 million, Morgan Stanley Dean Witter was expected to lead. However, the round ran into difficulties following the terrorist attack on September 11.

PowerDsine develops and markets products that enable the combined transmission of voice, data, and energy between local area networks (LAN) and end-units using only one cable, without the need for an electrical connection.

The company, was founded in 1995 by Yigal Rotem and Ilan Atias. Its 150 customers worldwide include Nortel, Lucent, Ericsson, Samsung, Siemens Fujitsu, Gilat, Telrad, and the RAD group.

Xtellus Raises \$8m.

Israeli company Xtellus is a developer of liquid crystal optic components. In its most recent financing round it raised \$8 million. It has offices in Jerusalem and New Jersey, as well as a subsidiary in South Korea.

British fund Alta Berkeley led the round. Goldman Ventures and Israeli funds AIG Orion, Israel Seed Partners, and Myriad Partners (a Jerusalem-based fund that invested in Tradeum) also participated.

Orex Radiography Obtains \$5m.

Israeli Medical equipment company Orex Computer Radiography has raised \$5 million at a company value of \$20 million. Investors in the round are Israeli funds Medica and Dor Ventures.

Orex develops technology for portable computed radiographs (X-rays) for small clinics and mobile medical units. The company was founded in 1995 as Digident, and initially developed radiography technology for dentistry.

Orex's innovation is its ability to produce immediate digital photos, without having to wait for transparencies to be developed. The digital photos can be processed and sent to other computers.

Last year, the Catalyst Venture Capital fund invested

\$2.6 million in Orex, at a company value of \$12.5 million. Other investors in Orex are the BIRD-F (US-Israeli Bi-national industrial R&D fund), the First Isratech fund, and the Office of the Chief Scientist of Ministry of Industry and Trade. Orex has 60 employees in its Yokne'am and US offices.

New Ultrasound Device Breaks Down Unwanted Fat

An easier alternative to liposuction could allow patients to go for treatments during the lunch hour, claim researchers. The handheld ultrasound device destroys fat cells - without the need for the unpleasant procedure whereby the resulting liquid is to be sucked out of the body using a thin tube inserted through the skin. The conventional technique often needs to be performed under general anaesthetic and requires a period of recuperation for patients.

Scientists at the Sheba Medical Center in Tel Aviv, Israel, who have developed the device, say that their technique will cause far less "collateral damage" to blood vessels and other tissues such as skin and muscles than the invasive liposuction technique. They claim that it will also allow more accurate targeting of small deposits of excess fat.

The novel device has so far been tested only on pigs, but it is hoped to work on humans as well. It is well-known that ultrasonic waves are able to break down fat cells, releasing the fat contained within them.

Its powerful effect can be used for non-invasive destruction of kidney stones. The procedure is carried out at Hadassa Medical Center in Jerusalem and at the Sourasky Medical Center in Tel-Aviv, as well as in centres throughout the world.

Some existing methods of liposuction already employ ultrasound probes to liquefy fat, making suction easier.

However, the Israeli researchers found that even when used the process is implemented externally, the broken down fatty liquid is simply reabsorbed into the bloodstream over the following few weeks.

Dr Ami Glicksman, a researcher, claims that there is

no need for patients even to diet for the technique to be effective. Hestated in an interview: "It is going to be a totally non-invasive procedure - no operating room will be needed. You walk in, you get treated, and you walk out."

While the inventors say that comparatively less fat could be removed in one session, the patient could return for further sessions much more quickly and conveniently.

Dr Yoram Eshel, another researcher on the project, has said, "The inherent safety of our method lies in the fact that we do half the traditional job compared to liposuction and we let nature do the rest".

Physiological clearance of the fat tissue occurs over a period of about three weeks following the procedure, similar to the way that the body clears out damaged tissue.

A New System for Telecommunications

NICE Systems, of Israel, (NASDAQ:NICE), a leader of multimedia recording solutions, announced the release of its new system for telecommunications monitoring, NiceTrack.

NICE has over a decade of experience providing law enforcement, government and military agencies with mission critical applications for intelligence and national security. Intelligence experts designed NiceTrack to support the rapidly evolving telecommunications environment and to meet the special operational needs of law enforcement agencies. It is fully compliant with the latest lawful interception standards set by European Telecommunications Standards Institute, (ETSI) and the American Communications for Law Enforcement Act, (CALEA).

NiceTrack provides monitoring, recording, information management, system administration, data analysis and reporting. It includes the ability to monitor and record a wide variety of media including fixed and mobile networks and voice and data communications.

The system features a highly intuitive graphic interface that provides instant access to key information including a visual display of the location of cellular devices.

Nanotechnology Breakthrough: Providing Power of a Trillion Computers

The emerging field of nanotechnology is expected to contribute to medicine, including cancer diagnostics and treatment research.

Several areas have been pinpointed as holding out promise: early detection and treatment of disease, drug discovery, and drug delivery. To put nanotechnology's function into perspective, consider molecular building blocks of life proteins, nucleic acids, lipids, and carbohydrates materials that possess unique properties determined by their size, folding, and patterns at the nanoscale, or one-billionth of a meter. Examining disease and creating medicines at this scale will lead to new insights in drug discovery.

Or consider the recent use of newly fabricated devices and systems to transform the recent laborious process of genome sequencing and detecting the genes' expression.

The largest of Israeli institutions of higher education have established research and development facilities to develop nanotechnology science and to move these towards practical application. Weizman Institute is the first to report on a significant development of international scientific interest.

A group of scientists headed by Prof. Ehud Shapiro at the Weizman Institute of Science has used biological molecules to create a tiny computer - a programmable two-state, two-symbol finite automaton - in a test tube. Reported in *Nature*, this biological nanocomputer is so small that a trillion (1,000,000,000,000) such computers co-exist and compute in parallel, in a drop the size of 1/10 of a milliliter of watery solution held at room temperature. Collectively, the computers perform a billion operations per second with greater than 99.8% accuracy per operation while requiring less than a billionth of a Watt of power. This study may lead to future computers that can operate within the human body, interacting with its biochemical environment to yield far-reaching biological and pharmaceutical applications.

The computer's input, output, and 'software' are made up of DNA molecules. For 'hardware,' the computer uses two naturally occurring enzymes that manipulate DNA. When mixed together in solution, the software and hardware molecules operate in harmony on the input molecule to create the output molecule, forming

a simple mathematical computing machine, known as a finite automaton. This nanocomputer can be programmed to perform several simple tasks by choosing different software molecules to be mixed in solution. For instance, it can detect whether, in an input molecule encoding a list made of 0's and 1's, all the 0's precede all the 1's.

'The living cell contains incredible molecular machines that manipulate information-encoding molecules such as DNA and RNA in ways that are fundamentally very similar to computation,' says Prof. Shapiro of the Institute's Computer Science and Applied Mathematics Department and the Biological Chemistry Department. "Since we don't know how to effectively modify these machines or create new ones just yet, the trick is to find naturally existing machines that, when combined, can be steered to actually compute".

The nanocomputer created is too simple to have immediate applications, however it may pave the way to future computers that can operate within the human body with unique biological and pharmaceutical applications. "For instance, such a future computer could sense an abnormal biochemical change in the body and decide how to correct it by synthesizing and releasing the necessary drug," says Prof. Zvi Livneh, a DNA expert from the Institute's Department of Biological Chemistry who collaborated on this project.

In the early 1990s, Shapiro's innovative research in programming languages led to the establishment of Ubique, a company that develops interactive online environments. Shapiro took a leave from Weizman to establish Ubique, and when the company was bought by America Online, Inc., he moved to the U.S. to assist in integrating Ubique's technology in America Online's internet services. When America Online sold Ubique to IBM in 1998, Shapiro returned to his research post at the Weizman Institute and established the Laboratory for Biological Nanocomputers at the Department of Biological Chemistry, where the research reported in *Nature* was conducted.

Shapiro's design of a universal molecular computer, which inspired the creation of the molecular automaton reported in *Nature*, was recently awarded a U.S. Patent 6,266,569.

Israel's BioTech Industry at a Glance

	1988	1990	1992	1993	1995	1997	1999	2000
SALES \$m.*	15	50	179	209	250	336	600	800
EMPLOYEES	400	600	2170	2540	2840	3500	3800	4000
COMPANIES	25	30	-	63	87	100	135	160

*The biotechnology committee lists sales as those that derive from locally researched and developed products. The figures include sales of Teva's Copaxone and the Interferon produced by InterPharm.

Sales by Sector (%)

	1997	1999	2000
Pharmaceut.	59.6	66.9	71.5
Diagnostics	12.5	3.9	4.7
Agriculture	26.5	22.8	18.3
Others	5.5	6.4	1.4
	100%	100%	100%

Size of Companies in Sector

	Large	Medium	Small	Start-up	Total
AgBio	4	13	13	25	55
Nutraceutical	1	2	1	6	10
Cosmetic	2	-	4	5	11
Diagnostic	1	7	12	15	35
Environment	-	1	6	5	12
Pharma	5	9	15	25	54
Platform	4	7	17	21	49
Bioinfo				6	6
Misc.					15

The above table shows the Israeli biotechnology companies, as of May 2001, according to sector and size.
 Start-up -- up to three years old and twenty employees
 Small -- three years or older and up to twenty workers
 Medium -- 21-99 workers
 Large -- above 100 workers

Statistical data by courtesy of the Israel National Biotechnology Committee

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. The contents are believed to be accurate. While effort is made to ensure its accuracy, it is not guaranteed. Reports about public companies are not intended or are they to be construed as an effort to sell or promote their shares.