

# ISRAEL HIGH-TECH & INVESTMENT REPORT

A MONTHLY REPORT COVERING NEWS AND INVESTMENT OPPORTUNITIES      JOSEPH MORGENSTERN, PUBLISHER  
December 2013 Vol. XXVIII Issue No.12      You are invited to visit us at our website: <http://ishitech.co.il>

## Dreams that will be realized

The potentialities for industrial development must be surveyed and harnessed...by the State as one of the supreme tasks. We have a mighty weapon which we must utilize with ingenuity and skill, with every means available to us. Science is that weapon, a vessel of strength and our source of defense` stated Chaim Weitzmann. The scientist and statesman was to become Israel's first President.

To the above we could easily substitute the word "technology". Essentially it was the need to establish military materials that led to the founding of a technology basis that resulted in a powerful industrial and scientific base and infrastructure.

Now the Weitzmann Institute of Science has achieved world renown in basic science.

A local English language daily provided me with the platform for extensive regular coverage of science and technology.

Scitex, founded by Efraim Arazi, provided a classic foundation for manipulation of printed photographs.

A short distance away, at the Weitzmann Institute of Science, Professors Michatela Sela and Ruth Arnon laid the foundation for Copaxone, Israel's first blockbuster pharmaceutical  
As we begin our 30th decade of publication of the IHTIR we expect to give coverage to sci-

ence, research and development and ultimately marketable products.

Chaim Weitzmann's dreams for a scientifically based State will continue to be realized.

### and as for the future

Every day we read in the press of startups

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**New MDA command truck is most hi-tech in world**

**Israeli startups on way to second record-breaking quarter in row**

**Israeli startup Onavo will be Facebook's first R&D center in Israel**

**Cisco becomes strategic investor in Wilocity**

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**Israeli sewage water system turns dirt into profit**

**Nano metric materials provider PV Nano Cell raises \$3.5 million**

**Covidien buys Given Imaging for \$860m**

**Sling successfully intercepts missile**

succeeding in raising new funds for their activities. The managers at Pitango, one of Israel's leading venture companies, are also upbeat. Management expects a slew of new public offerings as well as acquisitions. Notably we see takeovers rising in value. An upward trend is also to be noted in the number of companies raising money on the Tel-Aviv Stock Exchange. Investors are willing to pay for a piece of the companies.

The strength of the country's economy results in providing capital for investment. We believe that this is an ongoing trend which will continue into the foreseeable future.

### **MDA command truck is most hi-tech in the world**

Magen David Adom unveiled a multi-million dollar command truck on Sunday designed to direct rescue operations on the most difficult terrain and during cellular network failure.

In an event at the Old Train Station in Tel Aviv, the ambulance service said the creation of the tractor trailer-sized command truck was motivated by the Mt. Carmel forest fire in 2010. During the fire, cellular networks were either too weak for emergency communications, or they crashed because of too much traffic, creating serious communications issues for rescuers.

"It was what made us think about the future," MDA special projects manager Assi Dvilanski said.

Dvilanski, who supervised the construction of the truck, officially called the "National Mobile Command and Control Vehicle," said it is the most technologically advanced command vehicle in the world.

Inside the command truck, as many as five dispatchers and 18 officials can observe more

than two dozen flat-screen computers and TVs, which display dispatch information and the location of every ambulance in Israel. At the truck's nerve center, a single dispatcher can control six different monitors and use nine different phones and radios, all arrayed neatly on a desk and connected to the police and rescue networks.

The truck's dispatchers can connect directly into the 101 phone system, he explained. It is the first time in the history of Israel – and, to Dvilanski's knowledge, the world – that a dispatch center on wheels can connect to the 101 system. This capability is important because it allows the truck to serve as a twelfth dispatch center for MDA or as a full backup, in case one of MDA's centers goes down.

In addition to the 101 system, the truck can tap into the three major cellular networks and aggregate them. For example, if each of the networks was only working at 10 percent of its capacity, the vehicle could combine those

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

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signals to yield a 30 percent signal. The truck is also equipped with satellite phones, in the event that cell networks and landlines are unavailable.

To assist rescuers working over a large area, the truck also has a camera affixed to a mast that can reach a height of 19 meters. The camera can be controlled and viewed by any commander's smart phone.

At 16 m. long and 4 m. wide, with a large satellite dish and extendable canopy, the new command center appears massive and complex. Yet it only takes about 20 minutes to set up, which means it can be installed and broken down quickly if, say, the wind changes during a fire.

In addition to fires, MDA officials said this truck can be used in many different emergencies, from earthquakes to train derailments to the aftermath of a war. In these cases, "we will still be able to have all the emergency calls come into the vehicle," Dvilanski said. The vehicle could also be useful in assisting major sporting events or funerals.

The vehicle even has refrigerators so that rescue coordinators can stay hydrated, though Dvilanski noted that any drinks will have to be consumed outside.

### **Israeli startup Onavo will be Facebook's first R&D center in Israel**

The social media giant will pay \$150m-\$200m for the Israeli mobile networking startup, according to industry sources.

Onavo, the Israeli startup that Facebook has agreed to acquire, will remain in Israel and become the social media giant's first-ever research and development center in the country, Onavo sources said.

### **Israeli startups on way to second record-breaking quarter in row**

Reports of \$85 million raised within a span of just two days indicate that the sector's unprecedented investment gains in the third quarter will be replicated or even surpassed.

### **Nasdaq jump with Tech IPOs**

Chinese and Israeli technology firms, the biggest source of foreign listings on the Nasdaq Stock Market, will boost share sales this year to capitalize on the best gains since 1999, Bank of New York Mellon Corp. said.

As many as eight Chinese technology companies and six Israeli tech and biotechnology developers are planning initial public offerings by listing depositary receipts on the Nasdaq and the New York Stock Exchange in the second half of 2012, said Anthony Moro, the head of emerging-market depositary receipts for BNY Mellon.

The Nasdaq Composite Index (CCMP) has gained 13.5 percent in 2012, the best start to a year for the benchmark gauge in more than a decade, as investors bought technology stocks ahead of the IPO of Facebook Inc. (FB), the world's dominant social networking site. Rising demand for smartphones and tablets is also boosting companies that make the chips and components for these products, with global Internet traffic to climb fourfold by the end of 2015, Cisco Systems Inc. says.

"Four months ago, our phone wasn't ringing but now, as the market has risen, we're pretty busy," Moro said in a May 3 interview. "It's a tech and biotech story right now as U.S. investors are looking for growth companies and technology companies are about the only companies growing right now."

China-based companies accounted for 11 U.S. initial or secondary depositary receipt offerings to raise capital in 2011 and 33 in 2010, accord-

ing to BNY Mellon.  
IPOs Outperform

BioLineRx Ltd. (BLRX), a developer of therapeutic pharmaceutical drugs, was the only Israeli company to raise capital by issuing depositary receipts on U.S. markets in 2011, according to BNY Mellon. SodaStream International Ltd. (SODA), an Airport City, Israel-based maker of homemade soda machines, held an IPO of common shares in New York in 2010.

China has more companies traded on the Nasdaq than any country outside of the U.S., while Israel ranks second, according to Wayne Lee, a spokesman for the New York-based bourse. The Nasdaq has been fending off rising competition from the NYSE, which accounted for 57 percent of proceeds raised in technology company equity offerings in 2011.

IPOs have outperformed the Standard & Poor's 500 Index (SPX) this year, spurring fund managers to seek "growth" companies, which usually don't pay a dividend and initially emphasize increasing revenue over making a profit, BNY Mellon's Moro said.

Companies that have gone public in the U.S. in 2012 have gained an average of 14 percent year-to-date, compared with the S&P 500's 8.9 percent advance, data compiled by Bloomberg show.

### **Carlos Slim investing 60 million dollars in an Israeli startup**

Carlos Slim, the Mexican businessman who has been ranked at the top of the world wealthiest list for years, will invest millions in the video and photo sharing platform "Mobli". Mexican businessman Carlos Slim, who was crowned as the world's second richest man in 2013, has decided to invest 60 million dollars in Israeli startup "Mobli" as part of a partner-

ship with the biggest cellular company in South and Central America "American Mobile", which is owned by Slim.

"Mobli" is a startup that was established in 2011 that deals with connections between people and communities according to interests. The platform allows web users to follow photos posted by other users. The cooperation with Slim will allow Mobli to launch their visual search engine and users will be able to search and find photographs in the archives that were shared in the past.

"The investment is a great opportunity as well as a great responsibility to continue, improve and develop powerful technology" Moshe Hogeg, Founder and CEO of the company said. "The strategic partnership with 'American Mobile' will allow us to reach a massive audience, millions of users in Latin America".

"Developed amazing technology"

"Mobile access enriches our day to day and opens up the opportunity for a completely new experience for our users across the world" Slim said in addressing the decision to invest in the Israeli startup. "Mobli developed amazing technology and this strategic partnership will allow 'American Mobile' to bring added value to its users' experience".

Leonardo DiCaprio, an investor in "Mobli", also had something to say about the move. "I was always excited about Mobli's mission to connect people across the world by sharing photographs" DiCaprio said. "The announcement today says that that a new large community will get to know the amazing experience of discovering and sharing".

Waze CEO: Israel will have many more billion dollar exits

: The combination of strong products workers and high tech in Israel will make it possible to achieve more unicorn companies.

“In the past ten years, 39 companies joined the unicorn club (companies that achieved an exit of over \$1 billion). Only one Israeli company belongs to this club, and it is Waze,” Waze CEO Noam Bardin told a meeting of Tmura - The Israeli Public Service Venture Fund. Waze was acquired by Google Inc. (Nasdaq: GOOG) for \$1 billion earlier this year.

“Although Israel has a great many start-ups, the numbers are not proportionate. In the past ten years, 6,000 start-ups were founded in Israel, but there was only one unicorn,” said Bardin. “Part of the historical reason for this is the lack of skill in allocating products. But Israel now has better skilled people in products in the industry, as well as programmers and engineers.

“The combination of strong products workers and high tech in Israel will make it possible to achieve more unicorns, and the management of these companies will not have to fear going to the US at a point at which this can help their companies succeed.

“Israeli cynicism is a key element. For example, the concept of Instagram, which is to take pictures of food, would never have succeeded in Israel. Cynicism creates a high threshold for a reasonable business model. In addition, the average age of managers at unicorn companies in the past ten years has been 34, not 19 or 20 as many people think. This means that experience is the important factor that creates change in the high-tech industry. Israeli cynicism, combined with a practical approach and management experience, and above this the creativity and technical experience, makes Israel fertile ground for technology that people

really wan

Front News Views Features Real estate Israel

Lumenis to raise \$100m on Nasdaq

The medical devices company plans to raise the money at a company valuation of \$500 million by February.

Sources inform “Globes” that Lumenis Inc. has set a target date of February 14 to return Nasdaq. The medical devices company, controlled by Viola Group unit VPartners and XT Group Ltd. unit XT Investments Ltd. (formerly Ofer Hi-Tech), has picked Goldman Sachs as the lead book runner and Credit Suisse as one of the co-managers of the offering. It has also set a target of \$100 million and a company value of \$450-500 million, after money.

The amount of the offering and the company value are well above previous estimates that Lumenis could achieve. The difference is apparently due to developments in the US capital market for IPOs for technology companies in general and life sciences companies in particular, compared with a few years ago, and because of Lumenis’s improved financial results.

Lumenis still files annual financial reports with the US Securities and Exchange Commission (SEC) to order to preserve certain rights when it resumes being traded. The latest report states that revenue was \$248 million in 2012, similar to amounts in 2011 and previous years. It is possible that this stagnation prevented the company from going public before, as well as negative sentiment toward the aesthetic devices market, which accounts for a third of the company’s business. Profit, however, rose to \$7 million in 2012 from \$700,000 in 2011.

However, the situation appears to have changed in 2013, and Lumenis has shown growth.

Lumenis had \$27 million in cash at the end of 2012 and \$82 million in debt, including \$13 million in short-term debt. Raising \$100 million could allow the company to expand its marketing network, speed up the development of new products, and make acquisitions of other companies in its field.

Lumenis develops medical devices that are mainly based on lasers. It has three divisions: medical aesthetics; laser surgery, and ophthalmology. It was founded in 1991 as ESC by Dr. Shimon Eckhouse, and subsequently went through several upheavals, including a change in management following a hostile takeover, an IPO on Nasdaq in 1996, and delisting in 2006, following heavy losses. The buyers who took Lumenis private were VPartners (which owned 45.3% of the company at the end of 2012) and XT Investments (34.9%), after they acquired control of the company at a value of \$280 million. The IPO may include an offer to sell, depending on demand.

VPartners and XT Investments rebuilt Lumenis as a private company, at first under CEO Dov Ofer, and in the past year, under his successor, Tzipi Ozer-Armon, who previously served as an executive at Teva Pharmaceutical Industries Ltd. (NYSE: TEVA; TASE: TEVA) and SanDisk Corporation (Nasdaq:SNDK).

As part of a financing round in 2009, Agate Medical Investments LP and Sky Fund invested in Lumenis. Other investors include Anglo-American Veritas Ltd., MedMax, Nitzanim Venture Fund, Medica Venture Partners, and Goldman Sachs.

Lumenis's recovery included a joint marketing agreement for invasive surgical devices for the digestive tract with Boston Scientific Inc. (NYSE: BSX), which is also the company's major customer and distributor of its products

in Japan. Lumenis says that this agreement is an important source of income.

The aesthetics market, which accounts for an important part of Lumenis's revenue, has been struggling since the economic crisis in 2007-09, and many Asian competitors entered the sector. Lumenis was nonetheless able to enter new markets, neutralizing some of the blow. In 2012, 32% of sales were in the US, 30% in China and the Asia-Pacific region, 17% in Europe, the Middle East and Africa (although less than 1% in Israel), and 16% in Japan. The company has 160 distribution agreements and 310 direct sales staff.

At the end of 2012, surgical devices were the company's biggest activity, 38% of the total, followed by aesthetic devices at 36%, and ophthalmic devices at 25%. Surgical devices have increased as a proportion of the company's business at the expense of aesthetic devices.

### **Blumberg Capital closes \$150m fund, to include Israel-focus**

Blumberg Capital has closed Blumberg Capital III, a \$150 million venture capital fund dedicated to seed and early stage investing in disruptive technology start-ups, which will include a focus on Israel. Blumberg Capital is headquartered in San Francisco with an office in Tel Aviv.

Blumberg Capital managing partner David Blumberg said, "We specialize in leading seed-stage financing rounds with a motto of 'Go early, go big'."

Blumberg Capital managing director Bruce Taragin said, "We're appreciative that Blumberg Capital is being recognized by entrepreneurs as a premier seed venture capital firm. By actively supporting our portfolio companies, we have built meaningful relationships with

founders and management teams, which drive our proprietary deal flow.”

Uri Levine, founder and chairman of FeeX, a Blumberg Capital portfolio company, and who was previously a founder of Waze, said “Blumberg Capital was our first choice to lead our Series A financing. The Blumberg Capital team was engaged and helpful throughout the due diligence process and has proven to be a great partner with strategic introductions to help us scale in Israel and the US.”

Other recent Blumberg Capital investments in Israeli start-ups include payment processing company Credorax, and to do list app Any.DO.

Blumberg Capital specializes in leading Seed and Series A rounds in syndication with angels, venture capital firms and strategic investors. Typical investments range from \$500,000 to \$3 million with additional amounts reserved for follow-on investments.

Blumberg Capital said that the Blumberg Capital III fund was oversubscribed.

### **Cisco becomes strategic investor in Wilocity**

The Israeli wireless chipset developer and Cisco will collaborate to develop a Wi-Fi standard for enterprise networking.

11 November 13 11:40, Shmulik Shelach

60 GHz multi-gigabit wireless chipset developer Wilocity Ltd. and Cisco Systems Inc. (Nasdaq: CSCO) will collaborate to develop a new Wi-Fi standard for enterprise networking. Sources inform “Globes” that Cisco made a strategic investment in Wilocity, its first investment in the company, as part of its \$35 million financing round in mid-October.

Wilocity was founded in 2007 by CEO Tal Tamir, COO Danny Rettig, VP communications

architecture Gal Basson, and VP products and sales Jorge Myszne. The company has developed a 60 GHz wireless chipset for mobile computing, consumer electronics, and peripherals. The technology is designed for short-range wireless communications for the home and office, at speeds of 1-5 Gbps, more than ten times faster than the latest wireless protocol, n11, for WiFi. In theory, it could be possible to transmit a 2-gigabyte HD movie within seconds between computers.

Prior to the collaboration with Cisco, Wilocity had one major strategic partner Dell Inc. (Nasdaq: DELL), which embeds Wilocity chipsets in its laptops. Cisco will use Wilocity’s tri-band chipsets in communications and computer equipment that Cisco sells to enterprises and service providers.

Tamir said, “Our tri-band Wi-Fi technology will augment existing wired and wireless infrastructures and enhance multi-user collaboration.”

“Tri-band Wi-Fi from Wilocity provides much needed network capacity and speed in the enterprise as it supports data rates far faster than other current wireless standards, opening the way to new use cases and applications,” said Cisco Enterprise Networking Group CTO

### **High-tech exits reach \$4b in 2013**

A review by “Globes” found that, in 2004-13, Israeli high-tech and biotech companies were sold for \$36.2 billion altogether.

11 November 13 18:57, Tali Tsipori

So far this year, 20 Israeli high tech and life sciences companies at varying degrees of maturity have been sold for a total of \$4 billion. This figure does not include the sale of the Wertheimer family’s remaining stake in Iscar Ltd. to Warren Buffett. The most prominent exit was of traffic report app Waze to Google Inc. (Nasdaq: GOOG) for nearly \$1 billion.

Although 2013 is not a record year, it is the third consecutive very good year for Israeli high tech. In 2012, companies were sold for a total of \$3.9 billion, and in 2011, 36 companies were sold for \$5 billion. The peak year in the past decade was 2006, with companies sold for \$10.1 billion altogether, including the sales of two public companies - Mercury Interactive to Hewlett Packard Co. (NYSE:HPQ) and msystems to SanDisk Corporation (Nasdaq:SNBK). Excluding these two deals, companies were sold for \$4 billion, about the same as this year.

A review by "Globes" found that, in 2004-13, Israeli companies were sold for \$36.2 billion altogether (NIS 130 billion).

### **Israeli sewage water system turns dirt into profit**

An Israeli recycling company that turns raw sewage waters into recycled products and energy while cutting down on costs signed an agreement with a Dutch wastewater and paper mill facility.

The firm, Applied Clean Tech, has been developing their Sewage Recycling System (SRS) since 2007 and uses wastewaters to create different recycled products, including energy.

According to the company, their system prevents approximately half of the sludge from ever being formed and creates recyclable materials by converting the bio-solids into Recylose, a material made of cellulose.

Cellulose is the main component of plant cell walls and it is mainly found in paper, but it also has many other uses like in the textile industry, in insulation and some kinds of plastic.

"It saves a lot of money, about 30 percent of operational costs and it's extremely useful in

those countries like Israel, that cannot make cellulose and therefore spend a lot of money importing it," said Applied Clean Tech's CEO, Raphael Aharon.

The system separates the dirt from the water, sterilizes both the clean and the waste water and then separates the cellulose from the scrap material.

Applied Clean Tech has currently installed the SRS system in four Israeli cities and have sold one unit in Mexico and another one in Scotland, but if the Dutch collaboration proves to be fruitful, the company hopes they will expand to other countries in Europe.

Payments processing platform provider Credorax secures \$40 million from FTV Capital

Payments processing platform provider Credorax has secured an investment of \$40 million from FTV Capital. The proceeds will be used to further enhance the company's technology platform, client service, distribution capabilities and geographic footprint.

Credorax, Benjamin Nachman, FTV Capital, Chris Winship Credorax offers a unified payment and transaction-processing platform to Payment Service Providers, ISOs and online merchants across all 27 European Union (EU) member states. Credorax is a principal member of Visa and MasterCard and a PSD-licensed financial institution in Europe.

"Credorax's differentiated technology-driven approach to e-commerce acquiring is what attracted us to the business," said Chris Winship, FTV Capital partner and new Credorax board member. "We are very impressed with the execution to-date and look forward to helping the company continue to deliver innovative solutions to PSPs, ISOs and merchants while growing their presence in Europe, the US and

internationally.”

Credorax was founded in 2008 by Benjamin Nachman, the company CEO. Credorax headquarters are in Boston, MA, US with offices in Malta, London, UK, and Tel Aviv, Israel.

15:45 Posted in e-Commerce, Mobile Software, Retail, Shopping | Permalink | Comments (0) | Email this | Tags: credorax, benjamin nachman, ftv capital, chris winship

### **Nano metric materials provider PV Nano Cell raises \$3.5 million**

Nano metric materials provider PV Nano Cell (PVN) has raised \$3.5 million in a funding round led by the Infinity IP Bank. Other participating in the funding round included the Israel Electric Corporation’s Karat Program, Slobel, and Terra Venture Partners.

The company is currently in advanced stages of forming a joint venture in China, with a \$2.5 million fund invested by the Chinese partner.

PVN.jpgPVN develops and manufactures innovative nano metric materials that enable non-contact printing of conductive patterns in solar cells and for printed electronics. The company’s says its technology achieves significant cost reduction in the manufacturing process of silicon cells through inkjet printing of inks based on nano metric crystal materials.

“The company is stimulating great interest from potential investors and customers, mainly because the inks that we’ve developed allow for significantly reduced costs in the printing of conductive patterns,” said Dr. Fernando de la Vega, CEO of PVN. “So far, we have focused on the photovoltaic market, we intend to expand by applying our technologies to additional applications, such as printing of various flexible electronic devices.”

PVN was founded in 2010 by de la Vega, a PhD in applied chemistry and expert on nano-metric materials. To date, PVN has raised an approximate total of \$5.5 million from investors, including the Chief Scientist at the Israeli Ministry of Economy and the Ministry of Energy and Water resources.

### **AOL acquires video advertising platform provider Adap.tv for \$405 million**

American digital content company AOL has acquired video advertising platform provider Adap.tv for \$405 million in cash (\$322 million) and stock (\$83 million in AOL shares).

AOL, Adap.tv, Amir Ashkenazi, Teg Grenager eBay, Bessemer Venture Partners, Gemini Israel Funds, Redpoint Ventures, Spark Capital, Adap.tv is an online video advertising company whose advertising technology platform provides advertisers and publishers the ability to buy and sell video advertising inventory across desktop, mobile, and connected TV platforms.

The acquisition is expected to enhance AOL offerings to publishers and advertisers. In 2012, Adap.tv supported more than 26,000 global ad campaigns, which ran on approximately 9,500 Web sites and was used by many top brand advertisers.

“At Adap.tv, we are focused on building the most important business within the most important category in digital advertising,” said Amir Ashkenazi, CEO, Adap.tv. “We believe that most TV advertising will soon be traded programmatically on platforms like ours. The combination of AOL and Adap.tv accelerates our vision of efficient and effective TV and video advertising.”

Adap.tv will operate independently as part of AOL’s video organization which is led by Ran Harnevo, SVP, Video, and be included as part

of the overall solution offered by AOL Networks to its publisher and advertiser partners.

Adap.tv was founded in 2007 by Ashkenazi and Teg Grenager, the company's chief product officer. Prior to founding Adap.tv, Ashkenazi was a founder and the CTO of Shopping.com, an ecommerce service, which was acquired by eBay in 2005. Before founding Adap.tv, Grenager studied natural language processing and computational linguistics at Stanford University, where he is a PhD candidate in computer science.

### **Israeli researchers develop substance that attacks antibiotic-resistant germs**

Dr. Udi Qimron in his laboratory at Tel Aviv University. Some 1,500 people died of antibiotic-resistant infections in Israel in 2010. Photo by Nir Kafri

A group of Israeli researchers has succeeded in isolating a protein that kills bacteria, in what is a first step toward developing a substitute for antibiotics. The substance isolated by a Tel Aviv University team prevents bacteria from dividing, thus destroying them and combatting infections. "In the future, a new antibiotic can be produced from this protein," according to the researchers who published their findings on Monday in the journal, "Proceedings of the National Academy of Sciences."

The team is made up of Dr. Udi Qimron, doctoral students Ruth Kiro and Shahar Molshanski-Mor, and Dr. Ido Yosef, all of whom are with the Department of Clinical Microbiology and Immunology, Sackler School of Medicine, Tel Aviv University; and two American scientists, Dr. Sara L. Milam and Prof. Harold P. Erickson, from Duke University Medical Center.

In recent decades, the resistance of bacteria to antibiotics has dramatically increased, leaving modern medicine sometimes powerless to fight

infections and bacterial diseases. The World Health Organization has defined this problem as one of the three greatest threats to public health.

As early as 1947, shortly after the use of antibiotics started to become widespread, the resistance of bacteria to antibiotics was discovered. Since then, the phenomenon has worsened largely because of the extension of the average lifespan and the erosion of our immune systems. Bacteriophages, discovered in the early part of the previous century, were for a long time considered a potential ally in the war on infection in the human body and have been extensively used in Eastern Europe. However, they were largely abandoned by Western medicine, part because their activity is very localized compared to antibiotics.

In contrast with viruses, bacteriophages (also referred to simply as phages) do not harm human beings. They attach themselves to a bacterium, injecting it with DNA and quickly reproduce within it; sometimes, as many as 5,000 phages can infest a single bacterial cell. The bacterial cell keeps on elongating until it is eventually destroyed. Bacteriophages are the most common life form on earth, outnumbering the bacteria found in nature by 10 to 1.

"Viruses are infested with bacteriophages, which are their natural enemies and which in most cases destroy them [the viruses]," explains Qimron. "Ever since the discovery of bacteriophages in the early 20th century, scientists have understood that, on the principle of the 'enemy of your enemy is your friend,' medical use could be made of phages to fight viruses."

Qimron and his colleagues wanted to understand the role played by each of the 56 genes of bacteriophage T7, which is a virulent phage that infects

its host, the Escherichia coli (E. coli), producing over 100 progeny per host in less than 25 minutes. If the T7 phage completes a successful phage growth cycle, it invariably culminates in cell disintegration of the host. The scientists discovered one of the proteins produced by the E. coli phage T7 -- known as Gene 0.4 -- impedes cell division in the E. coli cell. "With its capacity for cell division blocked, the bacterium continues to elongate until it dies," says Qimron.

The researchers are in the process of registering a world patent for Gene 0.4. "Potentially, this protein could be the ideal antibiotic," notes Qimron.

According to Dr. Rotem Sorek, a researcher in the Weizmann Institute of Science's Department of Molecular Genetics, this is the first major

breakthrough in the war between bacteriophages and bacteria. "Although there is still a long way to go before the implementation stage, this research can serve as a basis for antibiotic treatment in the future."

The Russians developed the use of bacteriophages to fight infection during the Cold War, notes Sorek. "Every Russian soldier was issued ampoules

containing phages; the ampoules were to be used against intestinal and other kinds of infections." Sorek points out that the use of bacteriophages spread to the West in the 1990s, partly thanks to scientists who immigrated to Western countries from the former Soviet

Union. However, Dr. Silvio Pitlik, an expert on infectious diseases, notes that "bacteria know

how to develop a certain resistance to phages; they have defense mechanisms that they use against them," says Pitlik of the Rabin Medical Center, Beilinson campus, and currently a visiting scientist at the Weizmann Institute. Nevertheless, he adds: "I believe that, in future, more use will be made of phages because of the slowdown in the discovery of new antibiotics."

### **Covidien buys Given Imaging for \$860m**

Given Imaging CEO: After thoroughly evaluating our options we determined that this deal is in the best interests of Given Imaging.

8 December 13 12:35, Globes correspondent

Irish healthcare company Covidien plc (NYSE: COV) has acquired IDB Holding Corp. Ltd. (TASE:IDBH) unit capsule endoscope developer Given Imaging Ltd. (Nasdaq: GIVN; TASE: GIVN) for \$860 million, net of cash and investments acquired. Covidien is paying \$30 per share, a 15% premium on the share's closing price on Nasdaq on Friday night when the company had a market cap of \$753 million.

IDB subsidiary Discount Investment Corporation (TASE: DISI) owns 14.7% of Given Imaging, subsidiary Elron Electronic Industries Ltd. (TASE: ELRN), owns 21.2%, including 8.3% through RDC, its joint venture with Rafael Advanced Defense Systems Ltd. in equal shares. Discount Investment said that it would make \$142 million on the sale, Elron said that it would make \$204 million, and RDC will make \$80 million.

Covidien said, "This transaction provides Covidien additional scale and scope to serve the multibillion dollar global gastrointestinal (GI) market and supports the company's strategy to comprehensively address key global specialties and procedures. We believe Given Imaging is one of the most attractive specialty procedure

areas. Acquiring Given will enable Covidien to significantly expand its presence in a \$3 billion GI market”

Covidien added, “Given Imaging provides one of the broadest technology platforms for visualizing, diagnosing and monitoring the digestive system, including its flagship PillCam, an innovative swallowed capsule endoscope.

Covidien group president medical devices & US said, “Adding Given’s portfolio of diagnostics to our portfolio accelerates Covidien’s strategy of providing physicians with products that support the patient along the care continuum from diagnosis to treatment. It also confirms our leadership in developing less-invasive screening, diagnosis and treatment solutions that can improve patient outcomes and lower health-care costs.”

Given Imaging president and CEO Homi Shamir said, “Given Imaging revolutionized GI diagnostics over 12 years ago with the launch of PillCam and created an entirely new diagnostic category - capsule endoscopy. The combination of Covidien’s established global presence and Given Imaging’s innovative capabilities has the potential to transform this market. After thoroughly evaluating our strategic options we determined that this transaction is in the best interests of Given Imaging, its shareholders and employees and provides unique benefits to patients globally.”

### **Israeli company presents new water-tion technology**

Water-Gen – a provider of tactical water supply solutions to Armies, Police Forces, and NGOs – will introduce the next generations of its SPRING Back-Carried Water Purification and GEN-350G Atmospheric Water Generation units at the DSEI exhibition in London.

Spring in Operation. A battery-operated, back-carried water purification unit, SPRING was developed in cooperation with the Israeli Ministry of Defense (MOD) and the Israeli Defense Forces (IDF), and has successfully completed extensive field and logistic trials prior to equipping the IDF with hundreds of systems. Utilizing a specially-designed multi-barrier filtration method to purify chemical and microbiological contaminants – including pesticides, cyanide, bacteria, and viruses – the system represents a significant improvement over other solutions available today, and is the only one that complies with military water standards. SPRING provides fresh, potable water while a unique monitoring system continuously tracks the operational status of the unit and the quality of the water. If the unit detects a deviation from the required water quality, or any suspected malfunction, it automatically shuts down and alerts the user in order to prevent consumption. The system, which weighs 12 kg, can purify 180 liters (45 gallons) of water per single

battery, at a flow rate of 40-55 liters per hour (10-15 gallons/hour).

GEN Installation on Merkava. Water-Gen The GEN-350G Atmospheric Water Generation Unit creates water directly at the point of use from the natural humidity in the air. Requiring no additional infrastructure or consumables, the unit produces 450 liters/day at a remarkable efficiency of 310 kWatt-hour/liter – enabled by the revolutionary GENius™ heat exchange technology, using the only heat exchanger made of plastic – that allows the production of 5 times more water per kilowatt of electricity consumed than any other solution. GEN-350G was a huge success at the NATO Capable Logistician Exercise 2013 (CL13) as a representative of the UK, and won a major US Army tender for the supply of a number of systems to Honduras.

Also on display will be Water-Gen's atmospheric water generation units for combat vehicles, which produce 30-60 liters per day of safe, high-quality water from the air. Both these units significantly decrease the dependence of the troops on continuous resupply, reducing the overall logistical burden. These systems recently won a French Army tender for the purchase of the systems for evaluation.

According to Arye Kohavi, CEO of Water-Gen, "We have recently established ourselves as global leaders in the field, having sold dozens of systems to a variety of customers worldwide – including armies,

police forces, and NGOs – and having successfully participated in a number of demonstrations and exercises. In addition, we are in a period of significant technological advancement, and are proud to present new generations of our flagship products that are breaking all water production records – both in terms of low production costs as well as electricity requirements."

He continues, "As we progress in our marketing and R&D efforts, we note great interest in our solutions being expressed by many markets, and are confident that in the coming months, we will be able to announce additional orders and purchases."

### **Sling successfully intercepts missile**

Israel and the US today completed a successful intercept trial of the David's Sling short range ballistic missile interceptor.

The Israel Missile Defense Organization and the US Missile Defense Agency (MDA) today completed a successful intercept test of the David's Sling short range ballistic missile interceptor. This was David's Sling second intercept test of its Stunner interceptor, and was conducted at a test range in southern Israel.

The target missile was launched at 7:30 am, the multi-mission radar successfully detected and tracked the target and transferred target flight information to the battle management control sys-

tem. The Stunner interceptor successfully performed its planned trajectory and destroyed the target missile.

David's Sling is designed as an additional layer of defense against ballistic missiles, to add interception opportunities to the joint US-Israel Arrow anti-ballistic missile system and to improve Israel's active defense architecture against missile threats. The successful test is a major milestone in the development of the David's Sling and provides confidence in future Israeli capabilities to defeat the developing ballistic missile threat.

Rafael Advanced Defense Systems Ltd. is the chief contractor for David's Sling together with Raytheon Company (NYSE: RTN). The radar system is being developed by Israel Aerospace Industries Ltd. (IAI) (TASE: ARSP.B1) unit Elta Group, and the Golden Almond battle management control system is being developed by Elbit Systems Ltd. (Nasdaq: ESLT; TASE: ESLT) unit Elisra.

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