

# ISRAEL HIGH-TECH & INVESTMENT REPORT

A MONTHLY REPORT COVERING NEWS AND INVESTMENT OPPORTUNITIES  
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## Nobel Prize time is here!

### Israel's Ten Nobel Prize Winners

1. Dan Shechtman, Chemistry, 2011
2. Ada E. Yonath, Chemistry, 2009
3. Robert Aumann, born in Germany, Economics, 2005
4. Aaron Ciechanover, Chemistry, 2004
5. Avram Hershko, born in Hungary, Chemistry, 2004
6. Daniel Kahneman, Economics, 2002
7. Yitzhak Rabin, Peace, 1994
8. Shimon Peres, born in what was then Poland, now Belarus, Peace, 1994
9. Menachem Begin, born in what was then Russia, now Belarus, Peace, 1978
10. Shmuel Yosef Agnon, born in what was then Austria-Hungary, now Ukraine, Literature, 1966

Crystal clarity wins Chemistry Nobel for Israeli  
Israeli scientist Daniel Shechtman won the 2011  
Nobel Prize for Chemistry for the secret of  
quasicrystals, an atomic mosaic whose discovery  
overturned theories about solids.

Shechtman, aged 70, ran into fierce hostility  
among fellow chemists after making a eureka-like  
discovery in 1982 that at the time was dismissed  
as laughable.

Today, his work "has fundamentally altered how  
chemists conceive of solid matter," the Nobel jury  
said.

"It's a paradigm shift in chemistry. His findings  
have rewritten the first chapter of textbooks



In this Issue

To our Jewish sub-  
scribers and readers  
we extend our best  
wishes for a Healthy  
Joyous and Prosper-  
ous for 5772

of ordered matter,” Sven Lidin, a member of the Nobel Committee for Chemistry, said in a separate tribute.

Quasicrystals are crystals whose atomic pattern is highly geometrical yet never repeats. To the untutored eye, they look strikingly similar to the tiled patterns of abstract Islamic art.

Shechtman’s exploit can be pinpointed to April 8, 1982, one of the extremely rare examples when a scientific breakthrough can be dated to a moment in time.

He had melted a mix of aluminium and manganese and then rapidly chilled it before studying the outcome at the atomic level under the electron microscope.

Expecting to see disorder, Shechtman instead saw concentric circles, each made of 10 bright dots the same distance from each other.

Four or six dots in the circles would have been possible, but absolutely not 10 -- a finding that caused him to say out loud in Hebrew, “There can be no such creature”. He wrote in his notebook, “10 Fold???”

“It was forbidden by the paradigm, by the rules that the International Union of Crystallographers had created,” Shechtman said in a previous interview with the Israel Institute of Technology in Haifa where he is a professor, and rebroadcast by Swedish radio on Wednesday.

“I was ridiculed. I was treated badly by my peers and my colleagues and the head of my laboratory came to me smiling sheepishly, and he put a book on my desk and said ‘Danny, why don’t you read this and see that it is impossible what you are saying?’

“I said, ‘I don’t need to read it... I know it’s impossible, but here it is.’”

Shechtman’s findings were so controversial that

he was ultimately asked to leave his research group at the US National Institute of Standards and Technology.

It was only in November 1984 that Shechtman was able to find a journal -- Physical Review Letters -- where with a trio of other researchers he could publish his data.

“The article went off like a bomb among crystallographers,” the Nobel jury said.

“It questioned the most fundamental truth of their science: that all crystals consist of repeating, periodic patterns.”

Shechtman told the nobelprize.org website in an interview after the prize announcement that the distinction was “really, really wonderful news for me and for my colleagues.”

He said the experience of his discovery had taught him “that a good scientist is a humble scientist, somebody who is willing to listen, to muse on signs which are not expected.”

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“Because discoveries today are really not expected, if they were expected they would have been discovered a long time ago.”

Quasicrystals have been found in the lab and some have been discovered to occur naturally in minerals.

Their closely-packed structure helps them “armour” materials. Steel quasicrystals, for instance, are used to imbed softer steel in razor blades and ultra-thin needles used in optical surgery. Another characteristic is that they are non-adhesive, which gives them a potential outlet in frying pans and other cooking implements.

They are poor conductors of heat, which opens up their use as thermo-electrical materials, in which stored-up heat -- from car engines, for instance -- is converted into electricity.

The new laureate will receive the 10 million Swedish kronor (\$1.48 million, 1.08 million euros) prize at a formal ceremony in Stockholm on December 10, the anniversary of the death of prize creator Alfred Nobel.

### **Telmap is named 8th fastest growing technology company in Deloitte Israel Technology Fast 50 Awards**

Telmap, pioneers in mobile location-based services, is proud to announce that it was named 8th on the 2011 Deloitte Israel Technology Fast 50, a ranking of the 50 fastest growing technology companies in Israel. Telmap has been included on the list for the past five years.

Telmap, established in year 2000 is a world leader in mobile location-based services. Telmap provides mobile operators with white label, hosted and managed services that are fully designed to open new business opportunities and generate new revenue streams. Telmap has established a solid reputation for its innovation around end-to-end mobile local search, mapping and navigation

services that enrich on-the-go experiences through integration of local content, community interactions, and relevant retail offers.

Telmap’s flagship product is the world’s first personalized Mobile Location Companion that caters to all users’ needs while out and about, with location central to everything: social interactions, deals and promotions, exploration of one’s surroundings, and more. The Telmap technological architecture is open to third party developers as well as content providers for a wide range of integration and publishing methods.

Telmap has been repeatedly selected by leading industry players including Orange FT Group, Vodafone, Vodacom, MTS, SFR, O2, Telefonica, SingTel, OPTUS, Cellcom, Pelephone, Partner and more.

“We are excited to be ranked 8th on this very prestigious list. The fact that we are on it for the 5th consecutive year is a strong indication that our growth is not only significant and consistent but also sustainable.

We will continue to nurture what we view as our key success factors: our strong relationships with our customers, the mobile operators, our product superiority, our innovative business models and our strong commitment to deliver end user value around location-based services,” said Oren Nissim, Telmap’s CEO. “Being one of the 50 fastest growing technology companies in Israel is an impressive accomplishment. We commend Telmap for making the Deloitte Technology Fast 50 with a phenomenal 1573% growth rate over five years”, said Tal Chen, partner in charge of the Deloitte Brightman Almagor Zohar Technology Fast 50 Program.

### **Israeli Scientist Develops Technology to Diagnose Hearing Loss**

An Israeli scientist at Tel Aviv University has developed a unique fast-track technology to diagnose hearing loss.

An Israeli scientist at Tel Aviv University has developed a unique fast-track gene-based technology to diagnose hearing loss, one that is faster and cheaper than current methods.

Professor Karen Avraham at the university's Sackler Faculty of Medicine used "exome deep sequencing" – a method that sequences thousands of genes at a time – working together in a unique collaboration with Professor Moein Kanaan from Bethlehem University.

Exome sequencing collects relevant DNA from specific sites of the body. The process was used to identify five genetic mutations leading to deafness in a population of 11 Jewish Israelis and Palestinian Authority Arabs. None were related to each other, but all had deafness in their families. This is the first time scientists have identified some of these genetic mutations in Middle Eastern deaf populations, and the first time this technology has ever been applied to these populations. The research was funded by the U.S. National Institutes of Health.

Avraham's method provides better diagnosis capabilities and can improve the quality of care for patients with hearing loss, she reported in the latest issue of *Genome Biology*. For less than \$500, researchers can now scan all the known genes for deafness and provide results in a matter of weeks, as opposed to testing that in the past has cost many times more.

More than 28 million Americans have hearing impaired, with at least half of the cases traced to genetic causes.

The condition can be especially challenging for children who are born with hearing impairment, because spoken language, reading and cognitive development are all tied to hearing. "That makes early diagnosis essential for identifying appropriate therapy and treatment," Avraham commented.

"It is a remarkable step forward in helping us to find treatments – and even cures – for patients," she added. "This new technology is changing the way we practice genomic medicine, and revolutionizing genetic diagnostics." The technology can be used

to search for genetic mutations that characterize any disease or condition, she noted.

**CSarin Technologies' D-Light System Measures a Polished Diamond's Quality**

Sarin's D-Light provides additional parameters to measure the quality of polished diamonds. Israel's Sarin Technologies, which develops, manufactures and markets cutting-edge technology for the diamond industry, has announced the launch of its D-Light Light Performance System for quantifying the appearance of polished diamonds.

The D-Light systems measures a diamond's brilliance (how much white light is reflected); its fire (how much of a polished diamond's light is broken into colored bursts); its sparkle (the intensity of a diamond's flashes); and light symmetry (the level of symmetry in a diamond's play of light.)

Sarin CEO Uzi Levami explained that the Sarin D-Light would provide "vibrant visualization of a diamond's appearance under varying light conditions," allowing customers to more fully understand the beauty of polished diamonds.

### **Citigroup intends to open a technology research and development center in Israel**

to support its global activities, Israeli officials said.

The U.S. bank will become the second international bank to open an R&D center in Israel after Barclays Capital.

Israel's government has granted Citi 93 million shekels (\$25 million) over five years to help finance the center.

'Citi ... will add Israel to its portfolio of a center of strategic innovation that will focus on the development of advanced products and applications for the capital market,' Don Callahan, Citi's chief operations and technology officer, said in a joint statement with Israel's Finance and Industry ministries.

Last year, Israel's government launched a plan to try and attract financial services sector firms to Israel.



**eBay buys Israeli start up The Gifts Project**

The price is estimated to be in the tens of millions of dollars.

Eight months of close cooperation were enough for online retailing giant eBay to decide to buy Israeli start up The Gifts Project. It is estimated that eBay paid several tens of millions of dollars for the company, which was founded two years ago by Ron and Maya Gura with Matan Bar and Erez Dickman, and which enables the group purchasing of gifts. The purchase price will give the company's initial investors, among them Yossi Vardi and Eyal Gura, a good return on an investment of a few million dollars. Other investors in The Gifts Project are Index Ventures (which is invested in other Israel Internet companies such as Soluto and My Heritage) and Gemini Israel Fund.

Eyal Gura is the brother of The Gifts Project CEO Ron Gura. He can look back on five highly successful months, in which he has made three exits.

In April, Gura sold two Israeli start ups that he founded: PicApp was sold for \$10 million to Indian company Ybrant, and PicScout was sold to Getty Images for \$20 million.

In January this year, The Gifts Project signed a cooperation agreement with eBay, under which eBay offered group gift buying through the Israeli company's technology.

The eBay Group Gift feature enabled any surfer to type in the name of a friend (or to import it through Facebook Connect) and to choose an event for which the gift is intended. The user then receives a list of possible gifts for purchasing on eBay, based on the friend's areas of interest on Facebook. Users can invite other friends to join in the purchase via Twitter or Facebook.

This is eBay's third acquisition in Israel. In 2005, it bought Shopping.com for \$620 million, and in 2008 it bought Fraud Sciences for \$169 million.

Tyco International buys Visonic for \$100m  
The home security company will continue to

operate independently but its systems will be sold as Tyco Security Products brands.

15 September

Home security systems developer Visonic Ltd. (TASE:VSC) has been acquired by Tyco International Inc. (NYSE: TYC) for \$100 million in cash. The deal was closed at \$2.26 per share for Visonic (NIS 8.31 at today's exchange rate), the company announced today..

Tel Aviv headquartered Visonic will continue to operate as an independent company but its systems will be sold as Tyco Security Products brands: DSC and Bentel in the intrusion field; American Dynamics in video; Software House, Kantech and CEM in access control; Sur-Gard in central station communications and Connect24 for wireless communications.

Visonic will provide innovative wireless technology and products to Tyco Security Products' intrusion business and enable both businesses to leverage the strengths of their combined R&D and manufacturing facilities.

Visonic CEO Avi Barir said, "Under the Tyco umbrella we will be able to offer everything we do today and much more."

Tyco Security Products president Mark VanDover said, "The acquisition of Visonic will strengthen the technology capabilities in our intrusion security portfolio and will enable us to enhance the solutions we can offer to our commercial and residential customers. Visonic is an established leader in wireless security technology and its strong presence in the European security market complements Tyco's strength in the North American market."

Visonic chairman and CEO Yaacov Kotlicki owns 71.4% of the company. The company held its IPO on the London Stock Exchange in 2004, raising \$18 million at a company value of \$65 million. It was floated on the TASE in June 2006 and delisted from the London Stock Exchange in 2010.

## World Economic Forum: Israel ranked 22nd in global competitiveness

Top of the pile was Switzerland, the United States fell one place to fifth; Nordic countries dominated the top 10

The 2011 World Economic Forum's Annual Competitive Index, a widely watched barometer of economic vitality, ranked Israel 22nd in its Global Competitive Report, up two places from last year, and up five places from 2009.

The annual report covers 142 countries. The survey examines the business-operating environment and competitiveness of the economy on a global basis, but does not examine the level of centralization or competition between companies.

Top of the pile was Switzerland - for the third year in a row - while the world's largest economy, the United States, fell one place to fifth. Nordic countries dominated the top 10, with Sweden 3rd, Finland 4th, and Denmark 8th, and Norway was ranked 16th. Canada slipped out of the top ten to 12th, with the United Kingdom taking 10th place. Australia ranked 20th, down four places. China's ranking is the strongest among the large, developing so-called BRIC economies. South Africa ranked 50th, Brazil 53rd, India 56th, and Russia, 66th.

The World Economic Forum's Center for Global Competitiveness and Performance is publishing the Global Competitiveness Report (GCR) every year. It is considered the most comprehensive and authoritative assessment of the comparative strengths and weaknesses of national economies, used by governments, academics and business leaders.

The Global Competitiveness Report's competitiveness ranking is based on the Global Competitiveness Index (GCI), developed for the World Economic Forum by Sala-i-Martin and introduced in 2004.

The GCI comprises 12 categories – the pillars of competitiveness – which together provide a comprehensive picture of a country's competitiveness landscape. The pillars are: institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication and innovation.

## Fishing in the desert.

"It wasn't easy to convince people that growing fish in the desert makes sense," reminisces marine biologist Samuel Appelbaum, peering through the opaque water where thousands of barramundi are being harvested.

Under the sweltering sun, the luminescent fishponds – sparks of a liquid mirage in the parched moonscape – bristle with the tropical sea fish that should be more at home, seemingly, in southeast Pacific high seas than in sand.

Seemingly, because, for the past 14 years under Appelbaum's guidance, local fish farmer Amit Ziv has been tending ponds stocked with the half-kilo carnivore specie. Twice a week, his team of desert fishermen dressed in diving suits haul their nets filled with one-and-a-half ton of the aquatic creature. The whole procedure takes about 20 minutes.

At the packing house, the fish catch is hosed with special icy water at minus three degrees Celsius. "Barramundi die of heart attack below 15 degrees," explains the manager of the Deli-Dag fish farm. It's then sorted by size and shipped around the country.

Once a biblical wilderness where Abraham

wandered and watered his herd, the Negev has become a source – of money. Israeli scientists and farmers like Appelbaum and Ziv have developed an innovative way of raising tropical sea fish that makes use of warm brackish (slightly salty) water. Desert barramundi fetch 60 shekels (18 dollars) per kilo in the domestic boutique market. Ziv's clamor, "Desert fish on your plate, there's nothing better than that!" may sound like a promising auction, but the down-to-earth kibbutznik is selling no fishy patter. "Our fish is bred in an uncontaminated environment. Water is purified by sunlight and dehydrated air. There's obviously no other aquatic species around. So it doesn't catch any disease. Since organic fish is on high demand in industrial countries, we plan to export."

The somewhat incongruous endeavor is the fruit of decades of research. Some 60 years ago, it became clear that a vast prehistoric thermal aquifer is actually nestled 700-metre deep in the womb of the unforgiving wasteland. But the naturally hot ocean of saline water was out of reach. Drilling the rocky underground was then too expensive.

Cheaper technologies were introduced during the 1960s. Geothermal water became economically viable. Nowadays, drilling a one-kilometer deep well costs the State company Mekorot around a million dollars. Effortlessly emerging at sea level, the 40-degree artesian water is pumped to the surface of the 200-metre high plateau, cooled and stored in fishponds at a constant temperature of 28 degrees.

"There are billions of cubic meters of water free of any pollutants, an ecological treasure-trove that's sustainable for at least the next 100 years," marvels Appelbaum. The fish physiologist at the Bengis Center for Desert Aquaculture had first to convince himself that the water is good enough for growing fish, not just trees and vegetables. He finally concluded that the water is "physiologically wonderful."

"Fish need water, but they're unhappy in seawater salinity. The brackish water found here is 20 times less saline than marine water, yet five times saltier than fresh water."

Seems out of place? "True, we have almost no rainfall here. For humans, desert means no water. The fish don't mind, as long as there's high-quality water laden with nitrates and ammonia – it contains 1,500mg chloride per litre – and good food. Oxygen dissolves better in water under dry conditions.

"We raise fish all year, and, with the heat, the breeding is intense," Ziv adds. The Kibbutz produces 200 tons of fresh barramundi per year. Nothing's lost, nothing's created. Ponds are covered like greenhouses to prevent evaporation. The brine is recycled up to six times before it's circulated to irrigate the kibbutz's jojoba orchards and olive groves that thrive on the chemicals produced by the fish excrements."The metabolites that the fish excrete are an excellent diet for plants," notes Ziv.

Moreover, the geothermal heat is used by the Kibbutz and by tourist spas of the area. "We've managed to create a combination of desert aquaculture and agriculture integrated in an ecosystem that's not so unique after all," chimes in the modest scientist.

"Take a problem and turn it into an asset", has long been a national motto. The Negev makes up 60 percent of the land. The chronic shortage of water has forced Israelis to think out of the box. "If you live in an area which is aplenty with natural resources, you worry less," reckons Appelbaum. "Here, either you say, 'To hell, I give up, I leave', or you decide, 'I'm staying, but I'll find a solution.' The drive is to want to make life livable in the desert. You make use of whatever resources you discover."

Israel's founding pioneers wanted to fulfill Isaiah's prophecy in the Bible, to make the desert bloom. Appelbaum doesn't share this vision. "I don't want

to conquer and change the desert. I'd like to keep it untouched, a pure beauty. I just want to love it, live in it, with it, and from it."

Development in the Negev might once again become not just lucrative but strategic patriotism, were this already tiny country with available land as scarce as water to withdraw from occupied territories for peace with the Palestinians and Syria.

National rights to water – in the West Bank (and below it, to its aquifer) and in the more fertile Golan Heights (and below it, to the Lake of Galilee's northeast tip) – have been contentious issues of past negotiations.

The scientist-cum-pioneer lays out his personal, more global, vision: "The whole planet is 40 percent barren – lands which are considered poor, useless, cursed. It's wrong. Let's think fruitfully," urges Appelbaum.

"Contrary to such stigma, sparsely inhabited arid lands are unspoiled and conceal resources. The technology is simple and can be applied wherever there's an aquifer. Fish like clean water and sunlight. Deserts can become oceans for fish, sources of food production for all the nations of the world."

The BIRD Foundation, whose mission is to stimulate, promote and support industrial R&D of mutual benefit to the United States and Israel, approved last week an investment in nine new projects with a total value of 8.1 million dollars.

The projects, approved at a meeting of the Board of Directors in Washing DC, include advanced developments in life sciences, information technology for medical applications, electronics, software and energy.

Innovative Projects

Europe R&D leaders meet in north Israel  
EUREKA's representatives from 40 countries agree to invest

€134 million in industrial initiatives across Europe, approve 89 project proposals

The companies participating include Pioneer (a subsidiary of Dupont), Access USA, and MedStar Health.

The BIRD Foundation promotes cooperation between Israeli and American companies in various fields of technology, and helps locate strategic partners in both countries for joint product development.

The Foundation has approved over 820 projects in which the BIRD Foundation has invested 290 million dollars during 34 years of operation. These projects have produced to date direct and indirect sales of over \$8 billion.

The projects approved include developments such as an advanced medical simulation system, developing foliar-disease-resistant varieties of soybean leaves, and a highly efficient energy system for small commercial application.

"US companies are investing considerable resources in innovation, including identifying other unique solutions worldwide," said Dr. Eitan Yudilevich, executive director of the BIRD Foundation. "In Israel they find an inexhaustible pool of creative ideas and innovation.

"The synergetic connection between American and Israeli companies, with the assistance of the BIRD Foundation, creates a great advantage to both parties, which eventually manifests itself in manufacturing jobs, sales and profits. "

The next approval cycle of the Foundation will take place in December. The deadline for submitting abstracts is September 15.

Examining patients and taking a medical history are more useful to hospital doctors in diagnosing patients than high-tech scans, suggests a new study from Israel.

Doctors said that when tests such as CT scans and ultrasounds were given to patients right after they showed up at the ER, the imaging only helped in making a diagnosis in about one in



three cases.

“The doctoring process is still a personal communication between the patient and the clinician,” said Dr. Matthew Sibbald, a cardiologist at the University of Toronto who wasn’t involved in the new study.

“As much as we want to ...rely on the technology, it’s not the technology that helps us make a diagnosis,” he told Reuters Health.

Those types of imaging tests add heft to a hospital bill and research suggests the low levels of radiation from multiple CT scans might increase a person’s risk of cancer over the long term.

To see whether such scans were really helpful, researchers led by Dr. Ami Schattner of Kaplan Medical Center in Rehovot, Israel, followed all the patients who showed up in the ER of an Israeli teaching hospital and were subsequently admitted to the hospital.

Over about two months, 442 consecutive patients with a range of ailments made up the study group. Each was separately examined by two doctors, a resident and a senior physician, who also asked patients about past health problems.

Both doctors had access to results from all routine tests, including blood and urine analysis, and any extra scans that had been done when the patient first got to the ER.

The researchers later looked at how accurate the clinicians were in their decisions, compared to the final diagnoses patients were given during or after their hospitalization. They also asked the doctors what factors they relied on most when diagnosing each patient.

Both clinicians made the correct diagnosis between 80 and 85 percent of the time.

Only about one in six patients had extra testing (mostly CT scans, usually of the head) done in the ER—the rest just had simple blood, urine or heart tests.

But even for the patients who did have extra scans, the doctors said the results helped to make a diagnosis only about one-third of the time.

Instead, patient history alone or history plus a physical exam were most important to a doctor’s correct diagnosis in almost 60 percent of cases.

When basic tests were included, they were the basis of more than 90 percent of correct diagnoses along with history and exams.

CT scans are important in some cases, such as when a person has a head injury and doctors want to rule out bleeding, Sibbald said. But, “they’re done so routinely,” he added. “I think it’s important to realize that just getting an image of somebody isn’t a diagnosis.”

And doing extra scans isn’t harmless. Even if each scans only exposes patients to a small amount of radiation, it can add up, along with radiation from similar screening and other scans, over a lifetime.

In addition, Sibbald said, “you run the risk of just finding odd lumps or bumps which leads to more imaging.”

CT scans typically cost a few hundred dollars each and use of the test continues to rise—especially in the U.S.

An estimated 72 million CT scans were done in the U.S. in 2007.

Sibbald said that a patient history is still the most essential piece of information for doctors. “Without the history, they’re defenseless,” he said. “They haven’t had a chance to frame what they’re looking at.”

“Basic clinical skills remain a powerful tool, sufficient for achieving an accurate diagnosis in most cases,” Schattner and his colleagues wrote in Archives of Internal Medicine.

“Physicians may count more on their clinical faculties when making decisions about patients,” they concluded.

### **Hebrew University student turns paper mill waste into ‘green’ material for industrial applications**

A method to use paper mill waste to produce ecologically friendly, industrial foams from renewable resources has been developed by a graduate student in agriculture at the Hebrew University of Jerusalem.

Foams are used for numerous day-to-day uses,

including in the manufacture of furniture and car interiors. In many composite material applications, they are used as core material in “sandwich” panels to achieve high strength, weight reduction, energy dissipation and insulation. Conventional foams are produced from polymers such as polyurethane, polystyrene, polyvinyl chloride (PVC) and polyethylene terephthalate (PET). Since all of these current foams rely on fossil oil, they present a clear environmental disadvantage.

Shaul Lapidot, a Ph.D. student of Prof. Oded Shoseyov, along with his laboratory colleagues at the Robert H. Smith Faculty of Agriculture, Food and Environment of the Hebrew University in Rehovot, has formulated a procedure for production of nano-crystalline cellulose (NCC) from paper mill waste. NCC is further processed into composite foams for applications in the composite materials industry as bio-based replacement for synthetic foams.

The process of paper production involves loss of all fibers with dimensions lower than the forming fabric mesh. Consequently around 50% of the total fibers initially produced are washed away as sludge. In Europe alone, 11 million tons of waste are produced annually by this industry, creating an incentive for finding alternative uses and different applications for the wastes.

Lapidot has found that fibers from paper mill sludge are a perfect source for NCC production due to their small dimensions, which require relatively low energy and chemical input in order to process them into NCC. He also developed the application of NCC into nano-structured foams. This is further processed into composite foams for applications in the composite materials industry to be used as bio-based replacement for synthetic foams.

NCC foams that Lapidot and his colleagues have recently developed are highly porous and lightweight. Additional strengthening of the foams was enabled by infiltration of furan resin, a hemicellulose-based resin produced from raw crop waste, such as that remaining from sugar cane processing, as well as oat hulls, corn cobs and rice hulls.

The new NCC reinforced foams display technical

performance, which matches current high-end synthetic foams. Melodea Ltd., an Israeli-Swedish start-up company that aims to develop it for industrial scale production, recently licensed the technology from Yissum, the technology transfer company of the Hebrew University.

Lapidot's development has led to his being awarded one of the Barenholz Prizes that were presented on June 21 at the Hebrew University Board of Governors meeting. The award is named for its donor, Prof. Yehezkel Barenholz of the Hebrew University-Hadassah Medical School.

Factor in keeping “good order” of genes and preventing disease discovered by Hebrew University, Swiss scientists

Jerusalem, Oct. 2, 2011 – A factor that is crucial for the proper positioning of genes in the cell nucleus has been discovered by a team of researchers from the Alexander Silberman Institute of Life Sciences at the Hebrew University of Jerusalem and the Friedrich Miescher Institute for Biomedical Research in Basel, Switzerland.

The researchers found that the lamin filamentous network is an essential element in this proper positioning, the lack of which can cause specific diseases. Lamin proteins make filaments that are located mainly at the periphery of the cell nucleus, which stores and transcribes genetic material in all living matter. The lamins maintain the nuclear shape and help organize chromosomes.

Mutations in the genes that encode lamin proteins cause 14 different diseases in man, collectively termed laminopathies. These include early aging diseases and diseases that affect peripheral neurons, heart, skin, bones and muscles.

One of the muscle diseases caused by dominant mutations in the gene encoding lamin A is Emery-Dreifuss muscular dystrophy (AD-EDMD). It is characterized by weakening in certain skeletal muscles and early contractures at the neck, elbows and Achilles tendons, as well as cardiac conduction defects. How these mutations lead to the disease was largely unknown.

By manipulating the lamin gene in the worm *Caenorhabditis elegans*, Prof. Yosef Gruenbaum of the Hebrew University of Jerusalem and his students Anna Mattout and Erin Bank, together with Prof. Susan Gasser of the Friedrich Miescher Institute for Biomedical Research and her students Brietta Pike, Benjamin Towbin, Adriana Gonzalez and Peter Meister were able to show that lamin is necessary for the positioning of regions in the DNA that is mostly inactive (heterochromatin).

They then introduced low levels of a lamin carrying a mutation, which in humans causes AD-EDMD, into the worms and tracked their expression. In the worms expressing the mutant lamin, they detected abnormal retention of a muscle-specific gene array at the nuclear periphery. (The effect of the mutation was specific to muscle and had no effect on other cells.) The animals expressing the mutant lamin had selectively perturbed structure of body muscle and reduced muscle function, which resemble the situation in human patients.

One important conclusion of this study, which appears in the latest online edition of the journal *Current Biology*, is that lamin filaments help arrange silent genes at the nuclear periphery and – during normal tissue-specific activation – allow release of the activated normal gene.

Another conclusion is that a disease-linked local mutation in lamin can impair muscle-specific reorganization of genes during tissue-specific promoter activation in a dominant manner. This dominance and the correlated muscle dysfunction typifies, for example, Emery Dreifuss Muscular Dystrophy.

Intel acquires Israeli mobile navigation firm Telma  
Chipmaker Intel Corp has agreed to acquire mobile navigation software maker Telmap, the chief executive of the Israel-based company said on Sunday.

Details of the deal were not disclosed but Israeli media said Intel is paying about \$300 million to

\$350 million.

Telmap CEO Oren Nissim declined to comment on the price and said the deal was expected to close before the end of the year.

Telmap will become a wholly-owned subsidiary of Intel, which has two plants and four development centers in Israel, and will retain its brand, management and 210 employees.

“The unique thing about this transaction is that here comes a giant and says ‘We really like what you’re doing, we believe in your strategy, we want to enhance and go forward. We’re not here to swallow you up,’” Nissim told Reuters.

Teaming up with Intel will enable Telmap to provide a “true alternative” to offerings from giants such as Nokia and Google, Nissim said.

“I think to a large extent that from a strategic perspective came the only company that could have come,” he said of Intel.

Intel expects Telmap to become much bigger and reach places it hasn’t before, whether it be in Europe, Asia-Pacific or the United States, Nissim said, adding Telmap will stay in Israel but expects to recruit workers

In the 20th century, Jews, more than any other minority, ethnic or cultural, have been recipients of the Nobel Prize, with almost one-fifth of all Nobel laureates being Jewish. Of the total Israel has six Nobel laureates.

A total of nearly 700 individuals and 20 organizations have been Nobel recipients. Jewish names appear 127 times on the list, about 18 percent of the total. Of these 48 have been awarded for achievements in the fields of medicine and biomedicine. It is estimated that about one-third of the faculty at Harvard Medical School is Jewish. A 12th century physician Moshe ben Maimon-Rambam (Maimonides) is the role model for a generation of Israeli physicians who became active not only

in the care of the sick but in the development of treatments and medical systems.

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One-of-five Nobel Prize Laureates are Jewish

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In December 1902, the first Nobel Prize was awarded in Stockholm to Wilhelm Roentgen, the discoverer of X-rays. Alfred Nobel, 1833-1996, a Swedish industrialist and inventor of dynamite, bequeathed a \$9 million endowment to fund prizes of \$40,000 in 1901. Today the prize has grown to \$1 million, to those individuals who have made the most important contributions in five areas. The sixth, "economic sciences," was added in 1969.

Nobel could hardly have imagined the almost mythic status that would accrue to the laureates. From the start "The Prize" (as it was sensationalized in Irving Wallace's 1960 novel) became one of the most sought-after awards in the world, and eventually the yardstick against which other prizes and recognition were to be measured.

A total of nearly 700 individuals and 20 organizations have been Nobel recipients, including two who refused the prize (Leo Tolstoy in 1902 and Jean-Paul Sartre in 1964.) Thirty women have won Nobels. The United States has about one-third of all winners. Also remarkable is the fact that 14 percent of all the laureates in a 100-year span have been Californians, most of them affiliated with one or more of the world-class higher education and research institutions in that state.

Jewish names appear 127 times on the list, about 18 percent of the total. This is an astonishing percentage for a group of people who add up to 1/24th of 1 percent of the world's population. But this positive disproportion is echoed even further in the over-representation of Jews, compared to the general population, in such fields as the physical and social sciences, and in literature. An examination of the large professional communities from which Nobel laureates are selected would reveal an even more dominant disproportion. As an example, it is estimated that about one-third of the faculty at Harvard Medical School is Jewish.

The figure for the total number of Jewish Nobel Prize winners varies slightly, depending on the strictness of the "Who's a Jew?" definition. But the figure cited most frequently is 161, or 22 percent of Nobel Prizes in all categories awarded between 1901-2003. With the 2004 additions, the total stands at 166.



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