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FORTUNE

**Our 13th
annual playlist
of upstarts
changing
the game.**

BREAKOUT COMPANIES

Each spring we conduct a rigorously unscientific survey—picking the brains of gurus and geeks to cull truly innovative companies from a frothy sea of poseurs. Today's esprit de cool flows from San Diego to Beijing, encompassing touch recognition, noninvasive biopsies, and—at last!—self-heating coffee. And this year there's a bonus: You get to choose the next Google.

RETAIL

INTELLIFIT, Horsham, Pa., intellifit.com
Intellifit wants to make dressing rooms obsolete. Using holographic imaging technology created to detect weapons in airports, Intellifit's body scanners size you up in about ten seconds (collecting 200,000 data points) and then spit out tailor-made clothing recommendations for retailers such as Lane Bryant, Macy's, Levi's, Lands' End, and David's Bridal.

Previous white-light or laser scanners required customers to don cycling shorts for their scans. But Intellifit's cylindrical booths (see photo) use low-power radio waves, allowing you to keep your street clothes on. Eventually Intellifit hopes apparel makers will use its reams of data (it compiles the information from 1,000 profiles a week) to make clothes that fit better in the first place. Early adopter David's Bridal has already revamped its plus-sized dresses based on Intellifit's information, helping boost that line from 1% to 8% of total sales. About a dozen scanners are in stores now (generating about \$4 million in annual revenues for Intellifit), but president Ed Gribbin expects to have 150 installed next year. — *Matthew Boyle*

media gear

SLING MEDIA, San Mateo, Calif., slingmedia.com
Back in 2002, the San Francisco Giants looked as if they might make the baseball playoffs for the first time in five years, and the prospect frustrated die-hard fans Blake and Jason Krikorian no end. They were traveling all the time for work, and there was no way to easily and cheaply watch their home team play outside the Bay Area. Their frustration led them to develop a gadget they call a Slingbox. Available in stores nationwide around July 1, it allows you to "sling," or transfer, any channel you get on cable TV or any program stored on your TiVo to a PC anywhere in the world. It makes watching a hometown baseball game while on business in Shanghai as easy as powering up your laptop. Formed a year ago, the team quickly raised \$10 million in venture capital and signed partnerships with Microsoft and Texas Instruments to help with video compression and chip production. Sure, the company may fizzle, as newbies usually do in the cut-throat consumer electronics game. But with their \$249 device, it's hard to see how the Krikorian brothers don't at least get credit for showing us a new way. — *Fred Vogelstein*

GADGETRY

SIGMATEL, Austin, sigmatel.com
Crack open an Apple iPod Shuffle or other MP3 player (like the one above), and chances are you'll find a SigmaTel integrated audio chip. Most of the world's music players—we're talking tens of millions of them—rely on the Austin company's single-chip solution to import music, decode digital audio formats, manage battery power, control the display, and commu-

nicate with either a flash memory chip or a tiny hard-disk drive. By combining all those functions on one piece of silicon, SigmaTel enables MP3 devices to get really small, like Oakley's Thump music-playing sunglasses. SigmaTel relies on homegrown software to set itself apart from larger competitors like Samsung and Motorola, which use SigmaTel chips in their MP3 players. Sounds good to us. — *Peter Lewis*

BIOTECH

CRUCCELL, Leiden, the Netherlands, crucell.com
If the deadly bird flu simmering in Southeast Asia boils up into a pandemic, demand for influenza vaccines will explode. So will Crucell's stock price. The company offers a line of human cells that's emerging as a key ingredient for making the vaccines. Currently vaccine production entails growing flu viruses in fertilized chicken eggs; the viruses are extracted, deactivated, and processed into flu shots. The eggs come from high-tech poultry farms that would be hard to expand fast. Boosting vaccine production with Crucell's methods would be relatively easy—its cells, in which flu viruses thrive, are kept in big vats called bioreactors that can be readily multiplied to expand capacity.

Recently the U.S. government awarded \$97 million to Sanofi Pasteur, the vaccine unit of Sanofi Aventis, to fund its transition to Crucell technology for making flu vaccines in the U.S. The process is also being used to develop vaccines for malaria, Ebola virus, and West Nile virus. Crucell is hawking its technology to make many other bioengineered medicines too. A raft of drugmakers, including Glaxo-SmithKline and Roche, have licensed its "PER.C6" cells for that purpose. If enough customers follow suit, Crucell's investors won't have to wait for a flu pandemic to see the stock take off. — *David Stipp*

MATERIALS

ASPEN AEROGELS Northborough, Mass., aerogel.com
Some call aerogels "frozen smoke." More than 95% air, the material was discovered in 1931. Its mind-bending thermal and acoustic properties captivated scientists but for decades its fragility frustrated attempts at commercialization. Finally, while working on a NASA spacesuit contract in 1995, research lab Aspen Systems hit on a way to integrate aerogels with a substrate to create a durable textile with twice the insulating capacity of rival fabrics. Ten years and 24 patents later, Aspen is selling its wonder "blanket" for applications as diverse as Burton's snowboarding jackets, military attack helicopters, and deep-sea oil pipelines. The company projects \$20 million in revenues for 2005 and is breaking ground on its second factory. Says CEO Don Young: "If you think of insulation as a \$20 billion market, we're still just dancing around the margins." — *Oliver Ryan*

CHOOSE THE NEXT GOOGLE

Will any of these startups become the new search king? Go to fortune.com to learn more and vote your preference.

1. SNAP.COM

The latest brainchild of Idealab. Still in beta.

2. ANSWERS.COM

A product of publicly traded GuruNet. Part search, part librarian.

3. CLUSTY.COM

Also in beta. Organizes results into neat little folders.

4. NONE OF THE ABOVE.

Nobody out-Google Google.

GLOSSARY

● PLACE-SHIFTING

Diverting a TV channel or stored TV show to your laptop or PDA.

● BIOREACTOR

A vat, typically made of stainless steel, for growing bacteria or other bugs used in the making of biotech drugs.

MOBILE TECHNOLOGY

GOTV NETWORKS, Sherman Oaks, Calif.,
gotvnetworks.com

Did you miss *Desperate Housewives* on Sunday? Don't worry. Soon GoTV, a creator and distributor of mobile content, will make it possible for you to switch on your cellphone and watch a three-minute recap of the show.

GoTV, a 46-person firm near Hollywood, now distributes movie reviews, sports scores, and headline news to cellphones. Rather than stream live TV to the devices like some of its rivals, GoTV tailors material to fit the screens and attention spans of a mobile audience. Among the creations of its Emmy-winning producers are PurePhat, a hip-hop channel; SportsTracker, a source for real-time scores; and, due in July, BoostTV, an MTV-like video program for teens. Don't expect images on the little screen to be identical to those on prime time, warns CEO David Bluhm. "Remember," he says, "content changed from radio to TV." — *Julie Schlosser*

AUTHENTEC, Melbourne, Fla.,
authentec.com

Trying to identify hospital patients by fingerprints, Scott Moody and Dale Setlak discovered that prints are unreliable if fingers are dirty or scarred. They founded AuthenTec to develop touch-recognition technology. Swiping a finger over the company's dime-sized TruePrint sensor sends radio waves under the fingertip's surface to find a clean print in the "live layer" of skin below.

AuthenTec supplies Japan's NTT DoCoMo and Korea's LG with sensors for cellphones. The sensors ensure privacy and security on phones used as credit cards in Japan. The sensors also act as speed dials—each of your fingers represents two numbers; you dial one with an upward swipe and the other with a downward swipe, for 20 numbers in all.

Moody says he expects U.S. cellphones to incorporate AuthenTec's devices by 2006. Meanwhile you can find the sensors stateside on Fujitsu and Toshiba PCs. — *Julia Boorstin*

SCANBUY, New York City, scanbuy.com

Bargain hunters have a new ally: the cellphone. Soon it will be easy to walk into a store, point your camera phone at the bar code on a product, and within seconds find the same item online for a comparable or better price.

Consumer bar-code technology, already common in Japan, is about to hit the U.S., says Olivier Attia. His 13-person company, Scanbuy, offers what he calls scancommerce software, which links any bar code to the Internet via camera phones. (The square code—above left—is designed to be especially phone-friendly.) The Nokia Series 60 and other phones can read the codes; they connect users to Amazon or PriceGrabber websites.

Before rushing to the mall, customers must download ScanZoom, Scanbuy's free software, to their cells. Scanbuy

makes money by selling decoding technology to handset makers and by taking a cut from online retailers when goods are purchased via ScanZoom. Attia says he'll know he's arrived when "the sign outside the store reads NO PETS, NO FOOD, AND NO BAR-CODE SCANNING." — *Julie Schlosser*

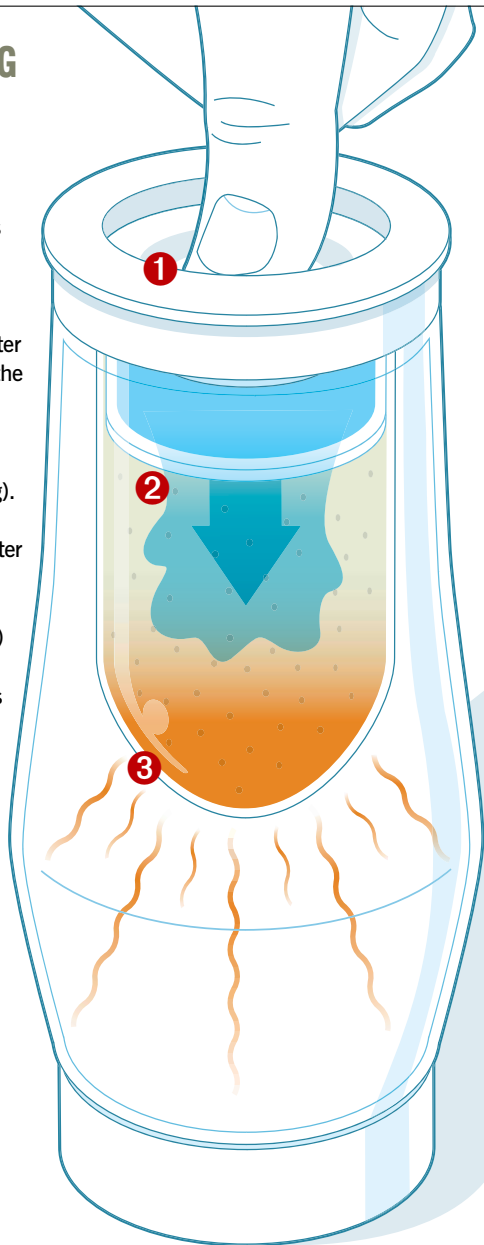
TECHFAITH WIRELESS, Beijing, techfaithwireless.com

By 2008 more than 500 million Chinese will have mobile handsets, many of which will sport designs from Techfaith Wireless. Founded by former Motorola execs and backed by Intel's VC arm, Techfaith counts as clients eight of the top ten Chinese handset brands, and its reach extends far beyond the Great Wall: Kyocera, NEC, and UTStarcom also use its sleek designs. Revenues exploded from \$9.7 million in 2003 to \$46.6 million last year. Its proximity to manufacturing hubs and a seemingly bottomless pool of cheap engineering talent keep costs down and turnaround times short. That helps explain why the business has been profitable since 2003. Will investors have faith? We'll find out when Techfaith debuts on the Nasdaq this year. — *Matthew Boyle*

PACKAGING

HOW IT WORKS

Custom-built molding machines join an inner cone holding calcium oxide (quicklime) with a six-layer outer vessel containing the beverage (coffee right now; cocoa, soups, and mac & cheese are coming). Push a plastic button ❶, and water (shown in blue) is released into the quicklime (orange) ❷, starting a reaction that heats the contents to 145 degrees in six to eight minutes ❸.



ONTECH, San Diego, ontech.com

In an on-demand world, why not have on-demand hot coffee at your desk? That's the promise of OnTech, whose self-heating, shelf-stable lattes—sold under the Wolfgang Puck brand at Kroger, BJ's Wholesale Club, and Kmart—have finally made it to retail shelves after nearly a decade of R&D. (A four-pack at Kroger costs \$8.99.) An earlier effort at self-heating cans flopped, but in 2003, CEO Jonathan Weisz gave the project a jolt of venture financing (\$8 million) and business savvy. He partnered with Puck, packaging giant Sonoco, and Lakeside Foods to launch the insta-hot era. Though an analyst scoffs that the product is a mere novelty, a Kroger rep says, "There's nothing like it" in stores today. OnTech's market may just be heating up. — *Matthew Boyle*

ILLUSTRATION BY JUAN VELASCO

METALS

QUESTEK, Evanston, Ill., questek.com

What's a company in the stodgy steel sector doing here? Merely rethinking how steel is made, using powerful computer design tools to slash 60% of the time and 75% of the cost from the traditional trial-and-error R&D process. To get an alloy of a particular strength and flexibility, say, QuesTek's software determines both what ingredients should go into the steel and how it should be processed. QuesTek began doing mainly research and contract work for the government. After a difficult slog, the business is profitable on \$5 million in annual sales. QuesTek's focus today is persuading the Air Force to use one of its superstrong stainless alloys to replace airplane landing gear coated in toxic cadmium. The next step will be products for civilians. Eventually we might see QuesTek's steel in everything from knives to golf clubs. — *Matthew Boyle*

CONTENT

ODEO, San Francisco, odeo.com

Noah Glass makes for a lousy deejay. A recent segment of the Noah E. Glass Audio Feed channel was called "Talking About the Studio" and featured his 18-second monologue about the placement of a scrollbar. Glass, 35, can be forgiven for lacking on-air charisma, though. His real talent lies in what goes on behind the mike, where he serves as co-founder of Odeo: home to his channel and soon to anyone else who wants in on the exploding world of Internet audio content called podcasts.

The service works like this: When Odeo goes live in early May, podcasters will log on and employ Odeo-crafted, simple-to-use tools to record anything from found sounds to near-professional shows. Creators assign "tags" to signal their shows' topics. Listeners then subscribe by tag or by channel and tune in or have the show automatically downloaded to their PCs. Odeo plans to sell advertising and possibly audio tools and content.

The idea of a one-stop shop for podcasting isn't new. Where Odeo appears to be the pioneer is in making podcasting—finding, creating, and listening—truly simple. The same business model helped co-founder Evan Williams, 33, succeed with his last startup, Pyra, which created Blogger.com. Google purchased Pyra in 2003 for an undisclosed amount. In 2004, Williams split and teamed with Glass to start Odeo. To paraphrase the renowned philosopher LL Cool J, the two are hoping people can't live without their Odeo. — *Daniel Roth*

GADGETRY

MDA, Brampton, Ontario, mdrobotics.ca

The Canadian company best known for making giant robot arms for the space shuttle has come up with two robot vision systems that are more down-to-earth. Engineers at MDA were tinkering with cameras to

GLOSSARY

● **PODCASTING**

A practice that caught on in 2004 of publishing audible, often blog-like, content over the Internet. The word is an amalgam of iPod and broadcasting.

● **TAG** In the blog world, a technical marker used to sort content.

MEET THE RUNNERS-UP

LOG ON TO FORTUNE.COM for more on our annual playlist of breakout companies, including profiles of the 2005 runners-up and (for subscribers only) 2004's winners.

help robots navigate on Mars or repair satellites in space when they realized that humans could use them too. The Ice Camera employs spectral analysis to instantly detect ice and snow on aircraft, roads, and bridges, thereby saving lives as well as money. The Instant Scene Modeler is a stereo camera system. As the camera user walks around, say, a crime scene, the ISM's software precisely calibrates the images and constructs a photo-realistic, 3-D computer model that can be rotated, zoomed, measured, and otherwise examined by crime lab experts hundreds or thousands of miles away—someday, maybe even those on another planet. — *Peter Lewis*

RETAIL

KHIMETRICS, Scottsdale, khimetrics.com
Wal-Mart is no longer the only retailer that manipulates shoppers' wallets with strategic pricing. Khimetrics developed algorithms to analyze how to price and position items, taking into account purchasing history, competitors, region, and even weather. When Wal-Mart rejected its software in 1999, the startup peddled it to other retailers. Now it helps a dozen companies, including Albertson's, Lowe's, and ShopKo.

Retailers input preferences—to put items on sale or to boost margins—using a web interface. The software pops out profitability forecasts and sales strategies. Khimetrics has been profitable since 2002 and last year generated sales of \$21 million. Next the company plans to analyze venue tickets, helping promoters gauge how much fans will pay to see stars. — *Julia Boorstin*

SECURITY

WHOLESECURITY Austin, wholesecurity.com
Long gone are the days when hackers wreaked computer havoc just for bragging rights. These days they want money. That's why companies like eBay, AmeriTrade, and Deutsche Bank have turned to WholeSecurity, a startup in Austin. The company's Web Caller ID software can detect and instantly warn against phishing, which tricks consumers into giving up passwords or data by directing them to official-looking but bogus websites. WholeSecurity's other product, Confidence Online, crawls to a computer on demand, looking for active threats. Unlike rivals, which rely on databases of known threats, WholeSecurity seeks telltale signs of roguish behavior. Hackers can bypass virus filters or exploit unpatched security holes, but they can't change the way that the rogue code behaves any more than a snake can change the way it slithers. By looking for the slither rather than the snake, WholeSecurity claims to block more than 98% of malicious threats. The company has raised \$20 million so far in venture funding, and it expects

to break even early next year. — *Peter Lewis*

ENERGY

STIRLING ENERGY SYSTEMS, Phoenix, stirlingenergy.com

Sometimes the hottest new things have been around awhile. Stirling Energy Systems (SES) was formed nine years ago when it acquired a solar concentrator system that McDonnell Douglas had built in the 1970s and married it to an engine technology invented by Robert Stirling in 1816. The result is the Sun Catcher, a clean, renewable solar-energy system that uses giant mirrors to focus the sun's rays on a 21st-century version of Stirling's engine. Stirling engines have two sealed chambers containing hydrogen. When one is heated—that's where the sun comes in—the gas expands and pushes a piston; when it cools, the piston retreats. The mechanical action turns a generator and produces electricity. While it sounds Rube Goldberg-esque, SES says the Sun Catcher is cheaper, more effective, and more reliable than the photovoltaic solar panels we commonly see today. — *Peter Lewis*

SECURITY

ORCHESTRIA, New York City, orchestria.com

Scandals on Wall Street have made companies increasingly aware of the pitfalls of internal communication. That's good news for Orchestria, whose content-scanning software enables organizations to monitor internal communications—from BlackBerry to Bloomberg. Customers can set the software to watch for telltale words and patterns of communication—a stock analyst exchanging e-mails with an investment banker, say—to ensure that messages don't violate regulatory or company policies. If the software detects suspicious content, it can warn the employee before the message is sent, or even block its transmission. Had Orchestria's software been installed at Merrill Lynch, Henry Blodget might never have been able to send those snide e-mails privately ridiculing the stocks he was publicly recommending. Indeed, Orchestria says that eight of the ten top Wall Street firms that settled with Eliot Spitzer in 2003 have signed on as customers. — *Andreas Cervenka*

TEXTING

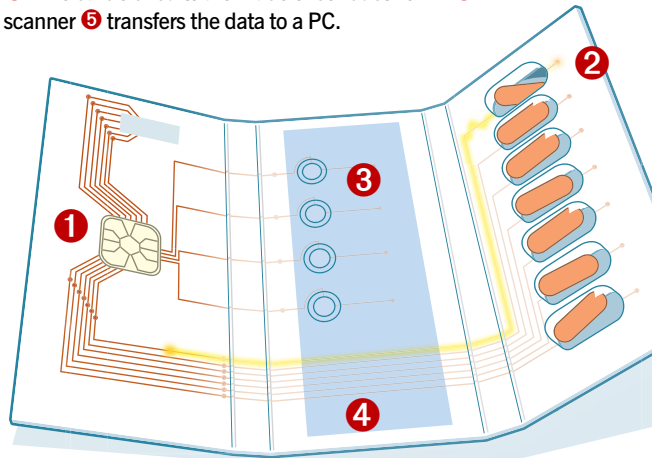
MOBILE 365, Chantilly, Va., mobile365.com

Shipping a text message from one cellphone to another isn't always so easy. A message from a Verizon customer in New York to a Vodafone handset in England, say, not only must traverse the pond but must navigate a couple of different wireless standards. Things will only get more complicated when consumers want to use their phones to send photos or videoclips to friends around the globe. Mobile 365, formed last year when promising upstarts InphoMatch and Mobileway merged, does all the

PACKAGING

HOW IT WORKS

The Cypak disposable pill pack, now being tested for use in clinical trials, incorporates a microchip ❶ that buzzes to remind the patient to take a dose, records when a pill is popped out ❷, and lets the patient answer survey questions using touchpads ❸. The card's circuits are made of conductive ink ❹. A scanner ❺ transfers the data to a PC.



CYPAK, Stockholm, cypak.com

Disposable computers. Packages that can communicate. Sounds like sci-fi, but that's what Cypak, a Swedish company founded by Stina Ehrensward and her husband, Jakob, is working to make real. Using advanced radio-frequency identification (RFID) technology and simple microchips affixed to paper or plastic, Cypak's "intelligent" containers will be able to detect tampering or remind patients to take their medicine. The packages are being tested in the U.S., Sweden, and Germany and could make their commercial appearance as early as next year. Cypak has also developed a keypad-equipped smart card that communicates wirelessly with a PC. Customers can use it to log on without touching the computer's keyboard, thereby preventing the log-in code from being stolen by a keystroke-detecting virus. — *Andreas Cervenka*

ILLUSTRATION BY JUAN VELASCO

do e-mail, and surf the web. For business techies, being able to put multiple operating systems on each server can make it easier and less expensive to run a company's systems. For example, it enables them to allocate servers to different applications as usage patterns shift in the course of a day. Now four-month-old XenSource aims to make the process, called "virtualization," cheaper and easier than ever. The company uses fast-growing open-source software called Xen (pronounced "zen"), which it manages but doesn't own. Much as Red Hat does with Linux, XenSource plans to make money by charging for additional software and services. Silicon Valley is excited because Xen promises big increases in computing efficiency. Hundreds of engineers at AMD, IBM, Intel, Sun, and other companies have been contributing code and planning products to work with it. — *David Kirkpatrick*

LANGUAGE PROCESSING

ATTENSITY, Palo Alto, attensity.com

For all corporate America's efforts to solicit customer and employee feedback, companies have never quite figured out what to do with all those e-mails and phone messages once they get them. Attensity—a startup with 2004 revenues of more than \$4 million and big backing from In-Q-Tel, the investment arm of the CIA—has created software to turn those texts into an easy-to-analyze database. Think of it as lightning-fast computerized sentence diagramming: Each document is distilled into a spreadsheet of who did what when, where, and to whom, making patterns, repetitions, and relationships between words easy to spot. Major companies such as Whirlpool have bought the software, hoping it will help them identify and address product and service issues more efficiently. And federal antiterror agencies have used Attensity's software to sort out a 17-year backlog of intelligence and parse intercepted communications quickly enough to make arrests. — *Nadira A. Hira*

GLOSSARY

● **MMS** Short for Multimedia Messaging Service, a way for cellphone users to send images and audioclips in addition to text messages. It follows Short Message Service (SMS), which handles just text.

● **XEN** (pronounced "zen") Open-source software that allows multiple operating systems to run on one processor.

● **PHISHING** (from previous page) Creating a supposedly official e-mail or website to trick users into divulging valuable personal data.

back-end stuff that makes global messaging possible. Its software and network systems, called SMS Exchange and MMS Exchange, help deliver messages reliably across different wireless phone standards. They also help mobile-phone companies and content companies bill for messages, ringtones, and other transactions. Mobile 365 isn't glamorous, but it has found an important—and lucrative—niche in the frenzied business of mobile content. The private company, which posted \$80 million in revenues for the fiscal year ending March 31, says it makes money, and word on the Street is that it will file for a public offering this year. — *Stephanie N. Mehta*

COMPUTING

XENSOURCE, Palo Alto, xensource.com

Most of us think one operating system on our PC is quite enough. But running a corporate data center is a lot different from just using a PC to write memos,

CONTENT

IODA, San Francisco, iodalliance.com

Two years ago it seemed as if everybody in the online music world was lamenting that rock stars like Madonna wouldn't let their songs be sold on the Internet. Kevin Arnold was an exception. A self-described "music technology geek" and founder of San Francisco's Noise Pop festival, he was convinced that there is a market in cyberspace for songs by obscure artists like the Plastic Constellations and Drist. In 2003 he launched the Independent Online Distribution Alliance, better known by its mystical-sounding acronym, IODA. Today it is a fast-growing company, distributing music from 500 independent record labels to digital retailers like iTunes, Napster, Rhapsody, MSN Music, and Starbucks' Hear Music. IODA has yet to turn a profit, but Arnold expects \$3 million in revenue this year—a tenfold increase over 2004.

It's easy now to see why IODA is thriving. Unlike a traditional record store, digital music services essentially have infinite shelf space, and their customers love to explore the weirder corners of their libraries. Rhapsody and Napster,

which offer subscription services, say that less than 50% of the songs that customers groove to each month come from major-label catalogs. When a big-name artist like Eminem puts out a record, one of its cuts will quickly become the services' most downloaded song, but that will still account for just a tiny fraction of what subscribers are actually listening to. Says Napster COO Laura Goldberg: "Our people are really into sampling new stuff." Perhaps before long Drist will outsell Madonna. — *Devin Leonard*

BIOTECH

SIRTRIS PHARMACEUTICALS Waltham, Mass., sirtrispharma.com

It doesn't take sorcery to slow aging—scientists have long known that cutting calorie intake by a third or so dramatically extends lifespan in animals (probably in people too). Recently they've found key enzymes, called sirtuins, that appear to exert age-slowng effects when calories are restricted; they apparently prevent stressed-out cells from dying. Sirtris, which was co-founded by Harvard Medical School researcher David Sinclair, plans to develop sirtuin-based drugs. Such medicines promise to treat diseases as varied as Alzheimer's and cancer. Sirtuin boosters could slow the death of neurons in Alzheimer's, for example, while sirtuin blockers may fight cancer by making tumor cells especially prone to die. This young biotech is many years from launching products, but with \$45 million in startup capital and a stellar scientific advisory board, it appears poised to age well. — *David Stipp*

BACTERIN, Belgrade, Mont., bacterin.com

Sprung from a government-sponsored microbiology lab, Bacterin's anti-infective coatings, when applied to medical devices like catheters or orthopedic implants, kill or inhibit bacteria and prevent the spread of infection. The coatings consist of thin films that contain a biologically active substance, so the body reads the device—say, a knee implant—not as an alien hunk of metal but as friendly bone. Medical-device makers Baxter International, C.R. Bard, and Cook have agreed to use Bacterin's coatings on their products, which could boost revenues from \$7.6 million this year to a projected \$23 million in 2006.

The Pentagon has given Bacterin \$1.4 million to fight infections by coating the metal rods and pins medics use to treat arm and leg wounds on the battlefield. With an IPO possible by 2008, that's a fight worth investing in. — *Matthew Boyle*

XDX, San Francisco, xdx.com

It's a wonder that 4,500 patients receive life-extending heart transplants each year. But the process is gruelling. After long, invasive surgery, patients need dozens of biopsies over subsequent years to make sure their bodies aren't rejecting their new tickers. Each time, a cardiologist snakes a catheter through the patient's jugular and snips tissue from the heart. The procedure takes half a day and costs up to \$5,000.

XDx has developed a technology called AlloMap that enables doctors to determine with a simple blood test whether a patient will reject a transplanted heart. For \$2,950, XDx scans the blood for proteins that trigger a patient's body to attack the new organ. Doctors get a score indicating the likelihood of rejection. — *David Stire*