HUMAN HEALTH

ENVIRONMENTAL HEALTH

EVERY DAY IS A NEW CHANCE TO MAKE A DIFFERENCE

Our Company Overview

PerkinElmer®
For the Better

FOR PEOPLE
FOR THE PLANET
FOR THE BETTER

Over the years, we've played a key role in some of the world's most important scientific breakthroughs. Through development of innovative technologies and services – and by helping our customers meet their most complex challenges – we're improving human and environmental health.

Providing solutions that help you protect our environment, our food supply, and the health of our families. That's where we come in.

By The Numbers

1937 PerkinElmer founded

150 Countries we serve

MORE THAN 3000 U.S. and international patents

We're helping improve human and environmental health.

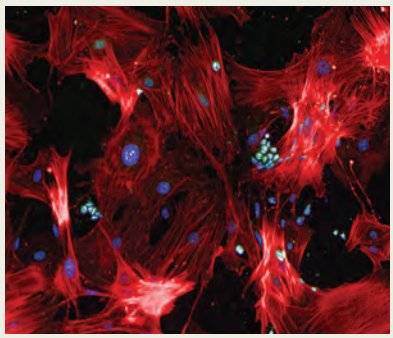
At PerkinElmer, we've long known that human health and environmental health are inextricably linked at the most basic level. The idea that all life is interconnected informs everything we do – and everything we are. To that end, we're committed to providing the technologies and expertise needed for scientists and researchers to improve human *and* environmental health. We believe that to address some of the most daunting scientific challenges, researchers and clinicians will need the most advanced technologies and expertise to enable them to measure, analyze, visualize, and report information. So today, we're leading the way, leveraging our technologies and expertise in detection, imaging, informatics, and services to enable critical insights and discoveries in diagnostics, life sciences, and the environment.

Detection

Our innovative detection technologies enable scientists, clinicians, and healthcare providers to identify a broad range of diseases and biological pathways, enabling smarter decision making, earlier diagnosis, more effective treatment, and better prognosis for millions. And we make it possible for scientists, public policymakers – and consumers – to gain a deeper understanding of how best to protect our environment, and for food producers to detect both known *and* unknown analytes in their ingredients, leading to a safer and more healthful food supply.

Imaging

Scientists are using imaging technology to visualize simple and complex disease processes as well as cellular, biological, and chemical events. Our advanced visualization and imaging technologies – everything from 3D and 4D rotatable imaging of live cells to noninvasive *in vivo* imaging – are helping scientists identify new targets for biotherapeutics, validate predictions from genomics data, discover new lead compounds, and much more, giving them a much greater understanding of the underlying science of diseases and their cures.We also provide medical imaging components that can be used to generate earlier medical insights, more accurate diagnoses, and faster and more effective treatments in radiation therapy, radiosurgery, and more.



Informatics

Labs produce massive amounts of digital data that they need to organize, analyze, visualize, and share. So they depend on the integration and automation of processes, combined with state-of-the-art workflow management, to be able to run efficiently and deliver accurate, reproducible results. Our informatics and software solutions blend social networking, cloud technology, personal publication, and refined data mining to assist internal and external research communication and management. By bringing together data from multiple sources — chemical structures, text, numbers, images, chemical properties, biological assays, and more — our end-to-end informatics solutions help you uncover opportunities, anticipate trends, and accelerate discovery.

Services

Today's labs are both scientific and commercial enterprises – and to compete and win, you need service and support that take your entire lab into consideration. So we take a team-based, consultative approach to every engagement – one that addresses your lab's unique set of requirements. Our expert, global service and support teams, comprised of dedicated lab- and field-based applications specialists, can work with you to overcome your unique application challenges.

ENVIRONMENTAL

BECAUSE IT'S THE ONLY PLANET WE'VE GOT

Our environment is increasingly contaminated – and we all have a role to play in mitigating and reversing that damage. The work you do to prevent the pollution of our air, water, and soil is tireless. But to make a *real* difference in our impact on the planet, there's a continuous need to keep pace with changing regulations – and changing contaminants.

That means innovative solutions for testing, testing, and *more* testing. That's where we come in.

In One Year

2.25 BILLION Amount of air, soil, and water samples analyzed using our solutions.

150 MILLION Trace element samples analyzed by our new ICP-MS systems.

50 MILLION Organic chemical samples tested with our chromatography systems.

How many air, water, and soil samples did scientists test using PerkinElmer solutions in just one year? Around 2.25 *billion*. That's a lot of real answers about the sources of pollution and contaminants.

We're proud of this expertise in the detection of organic and radioactive contaminants, trace and toxic metals, chemicals, and other impurities in our surroundings. In fact, we've assisted the U.S. EPA in developing many of the methodologies for testing air and water samples.

Breathe in, drink deep, and walk with confidence.

Air pollution is a key concern for people everywhere – and we're committed to helping them breathe easier. Measuring ozone precursors, identifying as-yet-unknown air toxins, testing for soil vapor intrusions – these are some of the challenging problems we help governments and other organizations grapple with, through many of the most sophisticated air monitoring systems and methods available anywhere. And with Elm® technology, we deliver an interactive, map-based interface to air quality data, which enables communities to link environmental monitoring to specific public-health and urban-planning decisions – so citizens can live healthier, more productive lives.

At the same time, the world's water supply is increasingly at risk. That's why we're delivering ultrasensitive, reliable systems to not only meet regulations, but also detect the smallest concentrations of drinking-water contaminants – and do it quickly.

What's more, as hydrofracking, farmland pesticides, and contamination-site containment and processing continue to be major concerns globally, we're busy developing the instrumentation and cutting-edge methodologies for everything from sample preparation to analysis. We're also the undisputed leader in the critical science of radiometric detection.

Climate change. Sprawling industrialization. Growing concern over contaminants in the air, water, and soil. These are the realities impacting China and other countries around the world. Every day, the Shanghai EPA analyzes hundreds of samples using a full range of PerkinElmer organic and inorganic solutions and application expertise – and the insights gained can help make Shanghai just a little bit safer.

There are any number of ways that harmful vapors can seep into our buildings – and into our lives. CARO Analytical Services is doing something about it. This Canadian company collaborated with us to develop innovative thermal desorption tube technologies addressing breakthrough volumes needed to meet new regulatory methods quickly. And that goes a long way toward keeping buildings safer from contamination.

As a leading academic research group, the Colorado School of Mines is delving into the science of engineered nanomaterials, attempting to understand their unique properties and effects on environmental health. Our state-of-the-art NexION® ICP-MS systems are helping them accelerate single-particle analysis – with the end goal of better determining nanomaterial behavior in realistic concentrations.

Applications

Air particulate monitoring
Air toxins
Benzene
Carbamates
DROs and GROs
Grease and oil
Hexavalent chromium
Incident monitoring
Industrial hygiene
Mercury
Mineral content
Ozone precursors
Pesticides and PCBs
Radiation detection
Semivolatiles
Soil vapor intrusion (SVI)
Speciation
Toxic and trace metals
Volatile organic compounds (VOCs)

Technologies

Atomic spectroscopy
Automated liquid handling
Chromatography
Gamma counters
Hyphenated techniques
Liquid scintillation
Mass spectroscopy
Molecular spectroscopy
Radiometric detection
Sample handling
Sample preparation
Soil vapor intrusion (SVI) tubes
Thermal analysis

FOOD

ENSURING THE FOOD SUPPLY IS REAL UNADULTERATED GOODNESS

Helping protect the world's food supply while managing the pressures of a global supply chain is critical (and *complicated*) work. So you need a partner who can work across geographic and cultural boundaries to help you improve your outcomes – and nourish your brands and bottom line.

Food For Thought

60+ MILLION Number of trace metals our systems analyzed in U.S. food supply per year.

600,000 TONS Milk screened annually in China for melamine using our integrated solutions.

TWO BILLION Juice boxes in U.S. analyzed and ensured safe to drink every year using our inorganic technologies.

In today's world, the foods and beverages we consume come to us from all over the world, due in part to global supply chains and the changing food tastes. For these reasons and more, ensuring that the food supply is genuine, unadulterated, and free of residues and other contaminants is an important undertaking.

Making sure food is both nutritious *and* authentic.

For food processors who want to protect the food supply from contamination and adulteration, and to detect and deter food fraud, we're delivering a wide range of solutions: best-in-class instrumentation, deep-seated scientific understanding, and world-class service and support teams. These solutions help you identify dangers in your food supply chain so that you can help ensure its safety – while minimizing corporate losses.

These solutions can also help by enabling you to protect everything that keeps your brand strong and vital: flavor, texture, and nutritional content, along with safety and authenticity. For new ingredients, new foods, or new brands, our solutions can help you respond quickly to changing consumer tastes and attitudes.

With these tools and knowledge management framework in place, we can also help you meet fast-changing and more stringent local and global food regulations. And we provide a full informatics system that enables you to track all your critical data, plus a Food Method Development Service to help you develop new, nontargeted screening methods, using your own samples running on your systems.

The pomegranate's popularity has skyrocketed in the past decade due to its perceived health benefits and increased availability. Its juice is also expensive, fetching up to $60 per gallon. As a result, some producers have been known to add apple juice to "extend" the product. But thanks to our innovative direct sampling accessory (DSA) technology coupled with our AxION® TOF systems, it only takes seconds for bottlers to ensure that those little 8-ounce containers hold nothing but the precious juice they're paying for.

When children start falling ill, the hunt for a cause takes on an increased sense of urgency. So when a particular brand of butter was found to be making kids sick, Flora Research Laboratories, using PerkinElmer Spectrum™ 400 MIR/NIR systems, found that the packaging contained the contaminant: insect pheromone bait. Through quick action, the producer was able to protect its brand equity while making its customers safer.

Nutraceutical companies know that a product recall can jeopardize public health *and* shake confidence in an emerging market. Companies can verify ingredient purity and integrity through a cost-effective, highly reliable PerkinElmer FT-IR solution, enabling them to minimize corporate losses, maximize productivity – and promote and protect their brands.

Applications

- Authenticity
- Dairy
- Drug residues
- Fats and oils
- Geographical origin
- Health additives
- Ingredient authenticity
- Ingredient grading
- Juices
- Natural sweeteners and flavors
- New food research
- Nutraceuticals
- Pesticide residues
- Quality and consistency assurance
- Species ID
- Spices
- Toxins

Technologies

- Atomic spectroscopy
- Chromatography
- Elemental analysis
- Food test kits
- Mass spectroscopy
- Molecular spectroscopy
- Radiometric detection
- Thermal analysis

LIFE SCIENCES

ON THE FRONT LINE IN THE FIGHT AGAINST DISEASE

Fighting disease and unlocking the mysteries of health and long life take passion, perseverance – and a consuming desire to understand the science behind it all. Unchecked, disease waits for no one. And to make a difference, you need to accelerate your science to keep pace.

Discovery That Adds Up

22 Novel therapeutic drugs whose development was enabled by our technologies.

50 MILLION Cell samples analyzed in one year on Opera® High Content Screening Systems.

52 Terabases of genetic data sequenced by PerkinElmer DNA Services to date (5 times more data than in the print collection of the U.S. Library of Congress).

A recent World Health Organization Global Burden of Disease study presents a stark good news/bad news scenario: On the whole, we're living longer, but we're doing so with more disability. For every year of gained life expectancy since 1990, 2.5 months of it is spent in diminished health. It's a daunting challenge for those of us tasked with helping improve human health. But it's one we're more than happy to take on.

Better diagnosis, treatment, and prevention – for better outcomes.

Start with our comprehensive, robust portfolio of detection, imaging, and automation technologies, together with proven applications, that support everything from basic drug- , therapy- , or disease-related research to the development and analysis of exciting new possibilities for drugs and treatments. Our translational imaging solutions enable you to image everything from a well to a cell to a tissue or whole animal. These are the go-to technologies for researchers everywhere, with more than 4,000 peer-reviewed citations of our *in vivo* imaging platform alone.

At the same time, our complete family of reagents is optimized for our extensive range of high-performance solutions: assay platforms, including Alpha technology, with thousands of citations to its credit; multimode detection systems, all validated for use with our expansive array of reagents; and automation instrumentation and custom assay development. It's everything you need to ensure consistent, reproducible results across your critical applications.

What's more, our microfluidic solutions are changing research paradigms. With these disruptive technologies, many methods that used to take weeks to perform now can be accomplished in a matter of *hours*, accelerating the discovery-to-commercialization process and getting much-needed new medicines to market that much faster.

Mitochondrial defects play an important role in cancer's deadly progression. So researchers at London's Cancer Research Institute are using our Opera® High Content Screening System to determine the effects of drug compounds on hard-to-study mitochondria – and even gleaning data on the efficacy of *two* doses of medication. And that's giving researchers a double dose of optimism for the future.

Modifications to chromatin – strands of DNA wrapped around repeating units of histone protein octamers – may be a key that unlocks our potential to treat many diseases. Now researchers at the University of North Carolina are using our AlphaScreen® assay technology to study these histone-binding proteins – and they're working to translate their discoveries into therapies.

Elliot Parish was four when he lost his fight with medulloblastoma. That's when his parents, Rick and Emily, began their fight, waging a fundraising campaign called Telethon Adventurers. The money from sponsored events funded research and equipment – not least of which was an IVIS® Spectrum *In Vivo* Imaging System. At Princess Margaret Hospital, where it resides, it's simply called Elliot's Machine.

Applications

Biological systems research
Biomarker research
Biotherapeutics
Cellular research
Genomic analysis
Pathology of diseases
Targeted small molecules

Technologies

Assays and reagents
Alpha Technology
Automation and liquid handling
Blotting
Cellular imaging and analysis
Custom radiosynthesis/radiolabeling
Data visualization
Fluorescence molecular tomography
Forensic workstations
Gamma counters
High content screening
Immunoassay technology
Informatics
In vivo imaging technology
Liquid scintillation counting
Live-cell imaging
MicroCT
Microfluidics
Microplate technology
Multimode detection
Optical imaging
Phosphor imaging
Plate readers and imagers
Radiochemicals
Radioimaging
Radiometric detection
Radiotherapeutics
SPA technology
Spinning disk confocal microscopy
3D image analysis
Tyramide signal amplification

DIAGNOSTICS

IT'S ALL ABOUT FAMILY

Ensuring early diagnosis and treatment for babies, for pregnant women, and for families takes commitment and dedication. That means earlier risk assessments, diagnosis, and treatment. Because the earlier we start, the better the chance *they* have.

For Healthier Families

450 MILLION Babies screened worldwide to date for a variety of life-threatening diseases, helping them get off to a healthier start.

55 BABIES Every day, we help to reveal serious disorders in newborns.

ONE MILLION We touch over one million lives every year through our advances in digital imaging technology enabling cancer treatment systems.

When your health is at stake, having access to the right tools for an effective diagnosis and potential treatment is critical. For these reasons and more, we provide a complete portfolio of diagnostics, medical imaging, and treatment systems that go a long way toward ensuring healthier mothers-to-be, healthier babies, and of course, healthier families.

Earlier insights can make all the difference.

For us, "giving kids a head start" means doing pioneering work in prenatal risk assessment and neonatal screening; delivering next-generation instrumentation and diagnostic capabilities; and providing proven cord-blood and cord-tissue stem-cell services. Everything you need to give families the health they need. All from one trusted source.

Many debilitating childhood diseases are treatable if identified and diagnosed early. So we deliver a comprehensive suite of prenatal, neonatal, and healthy pregnancy testing solutions for everything from biotinidase deficiency to cystic fibrosis to phenylketonuria to preeclampsia. In addition, we sponsor a large network of specialty labs in the United States focused solely on prenatal and neonatal testing services. Altogether, we've enabled doctors and clinicians to screen 450 million babies around the world – and counting.

Every year, our advances in digital imaging technology for oncology systems help you treat more than one million cancer patients. Plus, we're a world leader in design, development, and production of amorphous silicon (aSi) flat-panel detectors, and our expanded portfolio includes complementary metal-oxide-semiconductor (CMOS) X-ray detection technologies for providers of oncology, angiography, and cardiovascular and neurovascular imaging systems. We have more than 20 years' experience partnering with OEMs to integrate flat-panel detectors into demanding X-ray applications and customize those products to meet specific digital-imaging requirements.

What's more, we're a trusted channel for bringing infectious disease diagnostics to China and emerging regions around the world. These assays comply with regulations put forth by China's State Food and Drug Administration (CFDA), delivering the safety and peace of mind of the internationally recognized PerkinElmer brand – at affordable price points.

It's called preeclampsia, and for pregnant women, it starts with swelling, high blood pressure, and increased protein levels. Untreated, it can lead to full-blown eclampsia, causing preterm births or even seizures that can lead to death during pregnancy. We're working closely with the European Foundation for the Care of Newborn Infants to raise awareness of preeclampsia and promote what we know can make a difference: early screening.

Congenital hypothyroidism can lead to growth failure and developmental challenges. It's also detectable – and *treatable* – in the first few weeks of life. Now, a new Cairo-based laboratory equipped with PerkinElmer screening tools collects specimens from 4,000 facilities all over the country for processing. It's a single-heel-prick test – and it's free of charge to all Egyptian babies.

Whether you're detecting tumors in human or animal tissue, you need high-quality imaging with little noise and less image lag. That's just what our aSi and CMOS X-ray detection technologies are designed to deliver. Now many of the X-ray systems for surgeons, dentists, cardiologists, and veterinarians have a sensitive – and *sophisticated* – imaging solution.

Applications

Cord blood and cord tissue banking

Cytogenetics

Diabetes

Digital imaging for 3D cone-beam CT technology

Hemoglobinopathies

Hepatitis B and HIV testing

Newborn screening for metabolic disorders

Oncology

Preeclampsia and preterm birth

Prenatal risk assessment for trisomy disorders

Reproductive hormones and infertility

Thyroid diseases

Technologies

Array CGH

Immunoassays

BACS-on-Beads™

Digital X-ray flat-panel detectors

Mass spectroscopy

Time-resolved fluorescence (TRF)

ADVANCED MATERIALS AND AGROSCIENCE

GIVING NATURE A HELPING HAND

We know that innovative, next-generation, high-quality materials and chemicals can make a real difference in our quest to improve environmental sustainability and operational efficiencies. And our powerful, robust, and reliable solutions and components help our customers deliver these benefits to an eager, hungry world – in an environmentally conscious and efficient way.

The Story By Numbers

FIVE MILLION Number of advanced architectural glass samples tested for efficiency using our systems, per year.

FOUR MILLION Every year, amount of advanced coating samples our systems test for functional performance and formulation.

TWO MILLION Number of oil samples analyzed in one year by the industry leader using our OilExpress™ System.

In many different ways, chemicals are playing a large – and growing – part in our lives. Consider the products we count on most: Medicines? Around 85% chemicals. Plastic bottles? As much as 80%. Shampoo? It's 30% chemicals. Even food is nearly 10% chemical-based. Clearly, chemicals are with us and here to stay. No wonder there's a focus on making them safer and more effective – and ensuring that they're used in compliance with stringent regulation.

The right chemicals and materials can improve our lives.

In today's large-scale farming concerns, chemical fertilizers allow us to grow the foodstuffs we require to feed a growing global population – and yet, pesticides can enter the ecosystem and be harmful to populations. So agrochemical businesses depend on us to help detect for pesticides, residues, and volatile and semivolatile organic compounds; metals; nanoparticles; and radioactive contaminants and other impurities.

In fine chemicals, we provide some of the most sensitive technologies available for the production of pure chemical substances. Manufacturers can be subject to a high degree of regulatory oversight, especially where pharmaceuticals are concerned, and our instruments, applications, and services can help keep you in compliance with global regulations, including RoHS, REACH, and WEEE directives.

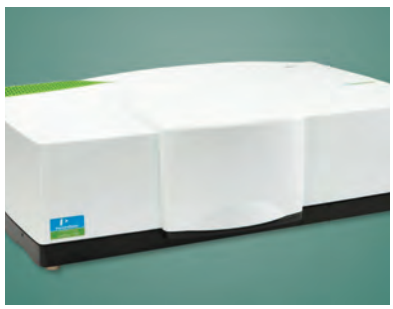
Nanomaterials are present in a variety of application areas: enhancing CT and MRI scans, improving surface coatings, inhibiting food spoilage, improving hydrogen fuel cells, providing next-generation medical inhalation delivery systems, preventing microbial growth on clothing, and more. Our instruments enable scientists to better understand these particles, their potential applications, and their possible impact on the environment.

Industrial nondestructive testing is a key to proactive monitoring and issue prevention. Whether you're concerned with component and system manufacturing or inspection and evaluation of materials, our flat panel X-ray detectors (FPDs) allow you to find the most subtle features and inconsistencies in materials, whether they're caused in the manufacturing process or through fatigue in a real-time environment.

Feeding the world in a sustainable, nutritious way is critical in today's global economy. New science and technology are needed to ensure safe, reliable pest management and control. Leveraging PerkinElmer solutions and expertise, global agrochemical companies can focus on developing effective solutions that address the most pressing crop production issues.

Economic growth and industrialization drive the need for innovative, energy-efficient, sustainable chemicals, materials, and plastics worldwide. Our FT-IR and DSC technologies help specialty chemicals and materials companies characterize thousands of samples – helping them to create tomorrow's innovative products today.

The race to develop innovative nanomaterials is heating up, and the Department of NanoEngineering at the University of California, San Diego (UCSD) wants to be at the vanguard. So when it came to establishing a state-of-the-art lab, they chose PerkinElmer material characterization technologies. Now we're helping UCSD deliver on the *big* expectations of the nano world.



Applications

3D cone-beam CT
Adhesives
Biochemicals
Biofuels
Bioplastics
Casting inspection
Catalysts
CMP pastes
Coatings
Epoxies
Film replacement
Fungicides
Geology
Herbicides
In-line manufacturing inspection
Insecticides
Lubricants and oils
Nanomaterials testing
OLED/LCD displays
PCB inspection
Pesticides
Petrochemical
Petroleum refining
Photovoltaics/battery technologies
Pigments/paints
Plant breeding
Plant genomics
Polymers/plastics
Polyurethanes
Seeds and traits biotechnology
Semiconductors
X-ray metrology

Technologies

Atomic spectroscopy
Chromatography
Digital X-ray flat-panel detectors (FPDs)
Elemental analysis
High-content screening
Liquid handling
Mass spectroscopy
Molecular spectroscopy
Thermal analysis

THE WAYS WE COME TOGETHER SET US APART

We focus our energies on improving the health and well-being of people and the environment. That means being an active corporate citizen, designing eco-innovative products, engaging in sustainable and ethical business practices, growing community involvement – and supporting organizations whose missions dovetail with our own.

How We Participate

30 Percentage of employees who engaged in For the Better Day community outreach events in 2013

10 Percent drop in emissions of greenhouse gases produced by our facilities, worldwide, 2009 to 2013

Improving human and environmental health is the guiding principle behind our interactions with all of our stakeholders – customers, shareholders, and employees alike. It drives the way we build our products, taking into consideration the environmental impact of the product lifecycle, from design to disposal. It inspires our thinking about the sustainability of our operations, improving energy efficiency, lowering greenhouse gas emissions, and reducing waste of all kinds. And it helps foster community involvement, enabling employees to volunteer in even greater numbers to support organizations in their regions that advance human and environmental health.

Here are a few examples of how we put these principles into action:

Cards to Combat Cancer

At St. Jude Children's Research Hospital in Memphis, Tennessee, the goal is to understand, treat – and defeat – childhood cancer and other diseases. They do it free of charge, because they just want kids to *get well*. And so do we. So at our 2013 Revolutionaries for Global Health Summit in Newton, Massachusetts, employees and attendees took time from keynotes and breakouts to design hundreds of handmade get-well cards to help lift St. Jude's kids' spirits. Of course, we're helping find cures with our technologies and expertise – but the little things can make a big difference.

Water, Water Everywhere

The Journeys Within Our Community (JWOC) Clean Water Project in Doun Keo, a village in rural Cambodia, does more than drill wells – it's about education, good hygiene, and environmental awareness coming together to ensure a future replete with fresh drinking water. PerkinElmer first assessed the conditions of the community's 215 wells, then determined which wells needed repair and where to drill new ones, presented seminars teaching healthy habits, offered personal filtration kits and training, and performed water testing. In all, 1,140 villagers now have access to pure water for the first time in their lives.

The Power of Energy Efficiency

Energy efficiency is a concern all around the world, and we thought it was time we stepped up to the challenge of using energy in a more efficient and effective way. At our Groningen, Netherlands site, we set a goal of increasing renewable energy use by switching to 100% wind-powered electricity, which saved 495 tons of carbon emissions per year; improving lighting efficiency and reducing heat transmission into the facility, saving 125,000 kWh per year; and using high-efficiency insulation, which saved 11,000 cubic meters of natural gas per year.

We're Helping, One Foot at a Time

Every year, 15 million babies are born preterm – about 10% of all babies born worldwide. That's why every November 17, we come together to observe World Prematurity Day to raise awareness of the problem. In 2013, employees in our Turku, Finland office got together and knitted 267 pairs of socks, which were first displayed in the office lobby and then donated to the Newborn unit at Turku University Hospital.

Learn more at: www.perkinelmer.com

All PerkinElmer products may not be available in all countries.
Contact your local supplier for more information.

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