

A new generation of possibilities.



# 3730 and 3730*xl*

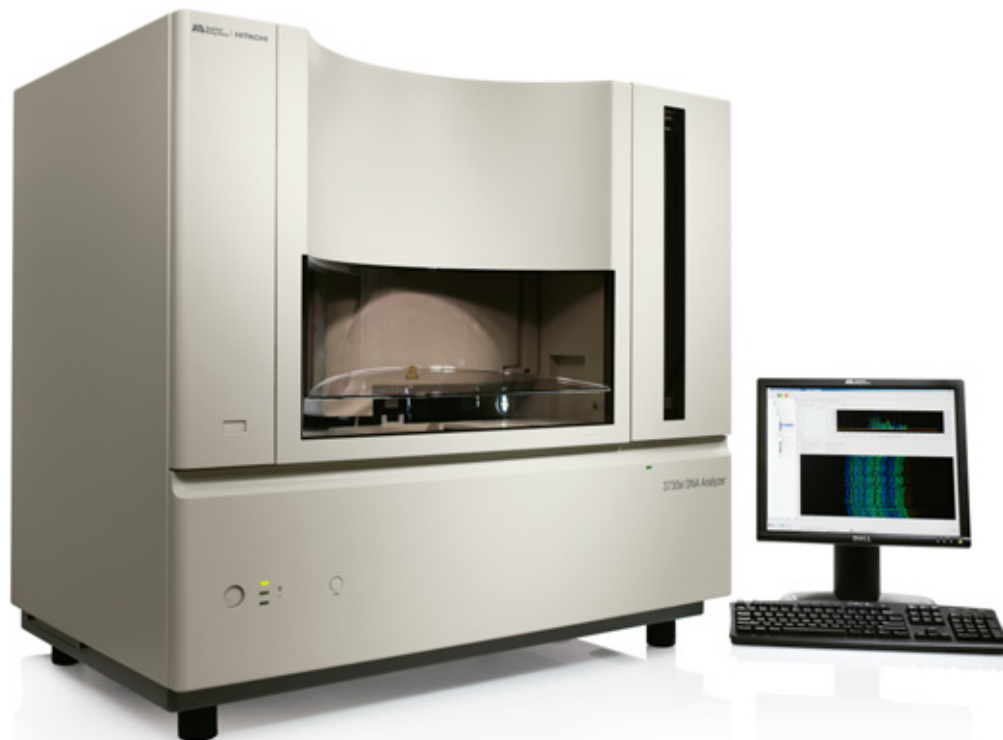
DNA Analyzers

# Expand your horizons.

The successful completion of the Human Genome Project has ushered in a new era in biosciences. The recent expansion in genome sequencing and the ready access to genomic data from a variety of organisms has extended the frontiers of scientific investigation and revolutionized the discovery process. The future for sequencing and fragment analysis shows tremendous potential with an exciting diversity of research projects to be undertaken. But—until recently—technology constraints and cost barriers kept many important projects from moving forward.

The Applied Biosystems 3730 Series DNA Analyzers have been developed to meet the growing needs of a broad range of industries and application areas—from core and research laboratories in academic, government, and medical institutions, to biotech, pharmaceutical laboratories, and genome centers. By dramatically improving data quality, significantly reducing total cost per sample, and enabling more runs per day, it allows you to pursue the projects that are important to your laboratory—even those that used to be considered too large, too complicated, or too expensive.

New applications demand greater versatility and technical performance from DNA analyzers. Whether your laboratory's focus is *de novo* sequencing, resequencing, microsatellite-based fragment analysis, or SNP genotyping, the fully automated 3730 series enables you to work at unprecedented levels of productivity and efficiency.





## Real World Successes

### Well-established market leader

Since launching in 2002, the 3730 and 3730*xl* DNA Analyzers have fast become established as the industry standard in genome centers, core facilities, and research labs—many of them successfully transitioning from our previous generation systems, such as the ABI PRISM® 3700 and ABI PRISM® 377 DNA Analyzers.

The 96-capillary Applied Biosystems 3730*xl* DNA Analyzer has been developed specifically to meet the demands of high-throughput sequencing and genotyping projects, and those that require fast turnaround times. It lets you generate—and utilize—enormous amounts of information faster and at lower cost than ever before.

The 48-capillary 3730 system offers the same superior data quality and low cost per read as the 3730*xl* system in an upgradeable, 48-capillary configuration.

With both the 96- and 48-capillary systems, you get:

- Enhanced data quality and more successful samples per day
- Minimum reagent consumption and sample usage
- High reliability and easy maintenance
- Automated production with accurate sample tracking
- Integration with reagents, application software, and data management systems

### Wide range of applications

In addition to setting the benchmark for high-throughput genetic analysis, the system's optimized application assays and analysis software are also providing a complete solution across a range of genetic analysis applications.

Fully supported applications:

- *De novo* sequencing
- Resequencing (mutational profiling)
- Microsatellite analysis
- SNP genotyping

The system-capable\* applications include:

- AFLP®
- BAC Fingerprinting
- Methylation
- LOH (loss of heterozygosity)
- RFLP
- SAGE™

*\*It has been demonstrated by customers or third parties that the 3730 series analyzers are capable of running these applications without any apparent negative effects on the system. While we have not performed optimization or testing to fully support these applications, supporting third-party documentation may be available. Please contact your local Applied Biosystems representative to further discuss applications of interest to you.*

### **"Give us a day, and we'll tell you where these fish came from."**

*Jim Seeb, PhD., Principal Stock Status Scientist, Alaska Department of Fish and Game Division of Commercial Fisheries Gene Conservation Laboratory*

"During critical fishing season, we're able to provide real-time feedback on where the fish are coming from, so fisheries can adjust their harvesting practices."

"We use our 3730 system to do sequencing and microsatellite analysis. We look at allele frequencies in caught salmon and compare them against known frequencies from different rivers where they might have come from."

"Our 3730 system replaced two 377 slab gel systems. It has doubled our throughput (with room to expand), and improved our data quality, too. In fact, the 3730 System has made doing things—like managing fisheries in season—easier."

"Overall, the genetics approach is a lot more efficient than physically tagging all the fish in the ocean!"

For a closer look at the work Jim Seeb's lab is doing, visit: <http://www.cf.adfg.state.ak.us/geninfo/research/genetics/genetics.php>

### **"The Applied Biosystems combination of the 3730*xl* instrument, chemistry, and software is the best thing I have seen out there. The 3730*xl* produced excellent sequencing data the very same day it was installed!"**

*Helaman Escobar, Director, DNA Sequencing and Genomics Core Lab, University of Utah*

"As a core lab it's really important for us to have a reliable instrument. Last year, we processed about 120,000 sequencing samples, from about 350 PIs, and some outside customers. They count on us for fast and accurate results, every day."

"We have consistently good data coming out of the 3730*xl* system. So the instrument is one less thing to worry about, and that's a huge advantage. A lot of samples that we weren't able to see on our older system, we can now see on our 3730*xl* Analyzer. Users really like that—instead of getting blank field sequence, they're actually getting real data."

For a closer look at the operation of Helaman Escobar's core facility, visit: <http://www.cores.utah.edu/DNASequencing/sequencing.html>

# Better, faster, more cost-effective science.

Based on Applied Biosystems proven capillary electrophoresis technology and industry-standard reagents, the 3730 series platform combines advanced sample tracking and automation with innovative optics and capillary design. The result: significantly enhanced data quality, and a 40% or greater reduction in cost per sample!<sup>1</sup>

In fact, with a typical ROI of around 2-3 years<sup>2</sup> for a core/research laboratory, you can upgrade your existing instruments while significantly increasing the amount of sequencing and genotyping information generated for every dollar spent. And, because the 3730 platform is compatible with today's leading sample preparation and informatics solutions, you can integrate new systems quickly into your existing infrastructure.

## **Longer sequencing read lengths, enhanced fragment analysis color balance**

The 3730/3730xl systems feature an enhanced optical design that provides a higher signal-to-noise ratio and a more uniform signal profile across the array. This design, combined with our advanced POP-7™ polymer, enables the longest read lengths of any available system, and provides improved color balance for handling fragment analysis samples.

## **More successful samples per day, lower operating expenses**

The 3730 and 3730xl DNA Analyzers are designed to use a minimum volume of reagents. They have been proven to deliver significantly lower running costs than gel-based or other capillary instruments.

## **Reduced operator intervention, simplified operation**

3730 series instruments are engineered for highly reliable, unattended operation for up to 48 hours.<sup>3</sup> Automation features include an integrated plate stacker, internal bar code reader, and onboard polymer delivery pump (PDP). The PDP setup simplifies maintenance tasks by allowing for on-instrument cleaning of the pump without disassembly. In addition, the overall instrument design allows for quicker array replacement and troubleshooting.

<sup>1</sup>Cost per sample estimate based on comparison of the 3730 vs. 3700, running 100,000 samples per year. Actual cost will vary depending on lab operating conditions, consumables usage and number of annual samples processed.

<sup>2</sup>ROI estimate based on converting from a 3700 to 3730/3730xl, running 100,000 samples per year. Actual ROI will vary depending on lab operating conditions, consumables usage, and number of annual samples processed.

<sup>3</sup>Only for select modules with run times greater than 30 minutes.





# Maximize your success.

The state-of-the-art 3730 series analyzers—combined with industry standard chemistry, integrated software, application solutions, and world class service and support—provide the total solution for your genetic analysis needs.



## Optimized, high performance sequencing chemistries

Applied Biosystems BigDye® Terminator v3.1 and v1.1 Cycle Sequencing Kits provide a comprehensive solution for today's wide range of sequencing applications. For applications at every throughput level, these robust chemistries give you the longest reads, the best success rates even with difficult templates, and the highest data quality.

- Successfully read homopolymer repeats and other challenging motifs
- Enhanced base calling accuracy and mixed-base detection

## Multiple solutions for fragment analysis

Applied Biosystems also provides solutions for a wide range of fragment analysis applications. With the human and mouse linkage mapping kits or the SNPlex™ system, you can perform high-throughput genotyping using either microsatellites or SNPs.

- The option of 5-dye chemistry allows for 33% greater throughput
- Applied Biosystems size standards produce precise and accurate sizing, yielding high-quality, reproducible results

## Novel application solutions extend your analyzer's capabilities.



## VariantSEQr™ Resequencing System

Designed primarily to address bottlenecks in a resequencing workflow, the system provides ready-to-use pre-validated PCR primer sets, universal protocols for PCR/PCR clean-up and universal sequencing/sequencing clean-up. By overcoming several common technical limitations, the system enables you to complete resequencing projects of various sizes in a straightforward, rapid and cost effective manner, without compromising data quality.



## SNPlex™ Genotyping System

A flexible, high-throughput SNP genotyping solution that runs on the 3730 series. You get everything you need: fixed and custom SNPlex™ assays, robust universal reagents, plus a powerful automated software suite. The integrated system delivers scalable analysis with unsurpassed accuracy, and a standard workflow eliminates time-consuming assay design and optimization. For more information, visit [www.allsnps.com](http://www.allsnps.com)

# Make the most of your results.

With powerful, integrated data analysis and service tools, we are making it quicker and easier for investigators to get meaningful results.

## Integrated data analysis tools

Accurate data analysis and fast data quality control is key for every lab. A powerful, integrated software suite allows you to generate more meaningful data with less work, and reduce your time to results. Data Collection software, included with the instrument, simplifies instrument setup and operation, and allows real-time data visualization.

The KB™ basecaller, the latest basecalling algorithm incorporated in Data Collection, Sequencing Analysis, and SeqScape® software packages, was evaluated by large sequencing centers in side-by-side comparisons with alternative basecalling tools. They reported that KB basecaller consistently provides longer, high quality readlengths than the original ABI Basecaller.



## Applied Biosystems genetic analysis software suite

**Sequencing Analysis software**—Automates basecalling, and assigns quality values. Allows the option to visualize, edit, print and re-basecall sequence data using the KB basecaller.

**SeqScape® software**—Offers the most complete solution for variant detection projects. The software reads Genbank files to create a reference sequence and annotate sequence features such as protein coding sequence, introns, and exons. In addition, data from dbSNP can be automatically imported to provide accurate nucleotide variants information.

**GeneMapper® software**—Enables configurable, automated allele calling, a valuable asset for high-throughput genotyping. The software can process over 100,000 genotypes per hour, and significantly reduce the time and effort in the genotyping process.

- Tools for microsatellite and SNPlex system data analysis
- Analysis support for loss of heterozygosity (LOH) microsatellite assay
- New amplified fragment length polymorphism (AFLP) analysis method

**BioTrekker™ software**—An optional data-mining tool provides a fast, powerful way to search for, retrieve, and manage millions of genotypes.

## BioMonitor<sup>SM</sup> remote diagnostics

Applied Biosystems BioMonitor<sup>SM</sup> service is a Device Relationship Management system (DRM) developed in conjunction with the sophisticated technology of Axeda. This value added service allows Applied Biosystems service engineers to diagnose problems remotely—helping you avoid or minimize the effect of issues that can cause downtime and loss of samples.

The BioMonitor<sup>SM</sup> service is part of Applied Biosystems suite of service and support products, and is available at no charge to customers who are under warranty on supported products or who have purchased a BioAssurance<sup>SM</sup> Support Plan.

## Owning the 3730 platform has never been easier.

With flexible payment solutions, you can take advantage of the latest Applied Biosystems genetic analysis technology immediately. Options include leasing, cost per result financing and trade-in programs. Your local sales representative can tell you more about programs in your region, or email Applied Biosystems Financial Services at **[ABFS@appliedbiosystems.com](mailto:ABFS@appliedbiosystems.com)**





## The benefits of the 3730 and 3730*xl* systems speak for themselves.

"Previously, we operated two 3700 Genetic Analyzers that were purchased primarily with institutional funds. Last year, we upgraded to two 3730/3730*xl* systems but chose to lease the instruments rather than purchase outright. This move has more than paid for itself and we are enjoying substantial improvements in quality, read length, speed, and reliability. At the same time, our reagents costs have dropped significantly, allowing overall costs to users to drop."

**Dr. Alfred L. George Jr.**  
DNA Sequencing Facility,  
Vanderbilt University, Nashville, USA

"The most exciting features of the 3730 are its reliability and high data quality. In addition, the high level of automation leads to high-throughput and allows us to meet the quick turnaround time required for our BAC-end sequencing project and genotyping projects. Overall, it is clear that the 3730 is superior to its competition in many ways."

**Dr. Diethard Tautz**  
Institute for Genetics,  
University of Cologne, Cologne, Germany

"At Kazusa, the 3730 DNA analyzer has played a vital role in the study of human, plant, and various other genetic organisms. The 3730 is a robust, trouble-free instrument, and the high quality genomic data it produces has significantly helped in our understanding of areas such as disease-resistance genes and environmental pollution. It has substantially reduced our running costs compared to the 3700, and enhanced our lab productivity. I highly recommend this instrument to laboratories looking for high quality, state-of-the-art genetic analysis instrument."

**Dr. Osamu Ohara**  
Department Head, Human Gene Research,  
Kazusa DNA Research Institute, Chiba, Japan

"The Applied Biosystems combination of the 3730*xl* instrument, chemistry and software is the best thing I have seen out there. The 3730*xl* produced excellent sequencing data the very same day it was installed. It allows me to utilize my precious time helping our core lab users with their projects rather than on machine optimization. The Big Dye chemistry and KB™ Basecaller are really an unbeatable team, and it will be very hard to increase the performance that this achieves out-of-the-box."

**Helaman Escobar**  
DNA Sequencing and Genomics Core Lab,  
University of Utah, Salt Lake City, USA



**iScience.** To better understand the complex interaction of biological processes, life scientists are developing revolutionary approaches to discovery that unite technology, informatics, and traditional laboratory research. In partnership with our customers, Applied Biosystems provides the innovative products, services, and knowledge resources that make this new, **Integrated Science** possible.

### Worldwide Sales Offices

Applied Biosystems vast distribution and service network, composed of highly trained support and applications personnel, reaches 150 countries on six continents. For international office locations, please call the division headquarters or refer to our Web site at [www.appliedbiosystems.com](http://www.appliedbiosystems.com)

Applera is committed to providing the world's leading technology and information for life scientists. Applera Corporation consists of the Applied Biosystems and Celera Genomics businesses.

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Not for use in diagnostic procedures.

**NOTICE TO PURCHASER:** This instrument is Authorized for use in DNA sequencing and fragment analysis. This authorization is included in the purchase price of this instrument and corresponds to the up-front fee component of a license under process claims of U.S. Patent Nos. 5,821,058 and 5,332,666 and under all process claims for DNA sequence and fragment analysis of U.S. patents now or hereafter owned or licensable by Applied Biosystems for which an Authorization is required, and under corresponding process claims in foreign counterparts of the foregoing for which an Authorization is required. The running royalty component of licenses may be purchased from Applied Biosystems or obtained by using Authorized reagents purchased from Authorized suppliers in accordance with the label rights accompanying such reagents. Purchase of this instrument does not itself convey to the purchaser a complete license or right to perform the above processes. This instrument is also licensed under U.S. Patent No. 5,171,534 and apparatus and system claims in foreign counterparts thereof. No rights are granted expressly, by implication or by estoppel under composition claims or under other process or system claims owned or licensable by Applied Biosystems. For more information regarding licenses, please contact the Director of Licensing at Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404, USA.

**NOTICE TO PURCHASER:** The purchase price of the Applied Biosystems 3730 and 3730*xl* DNA Analyzers includes a grant of a limited, non-transferable license under U.S. Patent No. 5,567,292 and method claims of its foreign counterparts, and under U.S. Patent No. 6,358,385 and element claims of its foreign counterparts, to use this particular instrument for electrophoresis methods employing fluorescence as a means of detection. No other licenses or rights are hereby conveyed either expressly, by implication, or estoppel including, but not limited to, any claims to a composition.

The Applied Biosystems 3730 and 3730*xl* DNA Analyzers include patented technology licensed from Hitachi, Ltd. as part of a strategic partnership between Applied Biosystems and Hitachi, Ltd., as well as patented technology of Applied Biosystems.

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Printed in the USA, 01/05, P+s,  
Publication 106BR11-01

