

Identity



NEWS FOR THE GENETIC IDENTITY COMMUNITY • SUMMER 2008

Product Updates

PowerPlex® S5 System Quick Screening Tool Makes Fast Work of Sorting DNA Samples

Promega announces a new five-loci STR system that simplifies and accelerates applications requiring sorting of DNA samples. The new PowerPlex® S5 System helps DNA-typing labs efficiently process the large number of DNA samples that may accompany a variety of events such as large crime scenes, mass disasters or population screenings. In these cases, a quick screening of the samples can be done to identify contributors and rule out others. A quick screening step offers advantages over larger multiplex STR analysis, including cost and labor savings. The loci in the PowerPlex® S5 System are provided in a "mini STR" format, with the largest amplicons at less than 260bp. The minimum number of loci and small size of the amplicons combine to make data analysis and interpretation of the STR results quick and easy. PowerPlex® S5 works well with low-copy-number and inhibited samples. The robust design of the system provides maximum sensitivity with low quantities of DNA. Reproducible results can be obtained with as little as 50pg of DNA. The improved buffer system has proven to be extremely robust toward inhibition. Full profiles can still be achieved with concentrations of 130µM hematin, 200ng tannic acid or 150ng humic acid present in the amplification.

The PowerPlex® S5 system comes complete with premixed primer pairs and internal lane standard in addition to *Taq* DNA polymerase. The simplified system includes a protocol that makes analysis straightforward, and the PCR protocol requires no ramping.

Automated Differex™ System

Automated methods for extraction of sexual assault samples for forensic applications are now available. These methods combine the Promega Differex™ and DNA IQ™ System chemistries into an easy-to-run, highly efficient protocol that can extract up to 40

sexual assault samples in less than 5 hours. Previously, manual extraction of many samples could take up to 5 working days for a single forensic analyst to perform. These methods are available for the Beckman Coulter Biomek® 2000 and Biomek® 3000 platforms as well as the Tecan Freedom EVO® platform.

Information regarding the new methods, as well as electronic protocols, can be found at the web address below. Please note: The methods are not downloadable from the web site. Use of these methods requires installation and training from Promega automation staff.
www.promega.com/autodifferex/

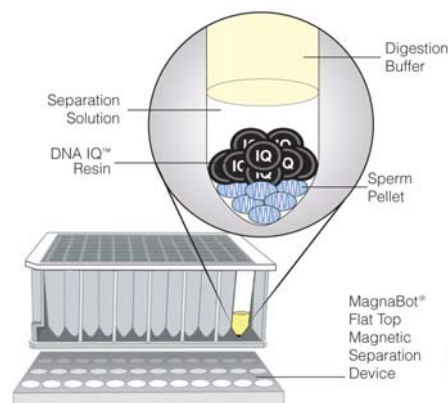


Figure 1. The automated Differex™ method uses DNA IQ™ Resin to cap the sperm pellet after differential lysis and centrifugation. The MagnaBot® Flat Top Magnetic Separation Device immobilizes the DNA IQ™ resin, holding the sperm pellet in place during automated wash steps. The Separation Solution helps remove any remaining digestion buffer and epithelial DNA from the sperm pellet.

Plexor® HY Instrument Compatibility

The Plexor® HY System is compatible with Stratagene MX3000® and MX3005P®, as well as Applied Biosystems 7500 and 7500 FAST instruments. New protocols are now available for the Corbett Rotor-Gene 6000 Series Detection System and Bio-Rad iQ™5 Real-Time PCR Detection System. The technical manuals dedicated to these instruments (#TM299 for the Corbett instrument and #TM296 for the Bio-Rad instrument) include all of the details for PCR setup, data export and data import. The

Spotlight

Cell Line DNA is not Suitable for the Optimization of Amplification Reactions

We provide cell line DNA samples, such as 9947A, 9948 or K562, with all of our PowerPlex® Systems because we recommend performing positive controls with every PCR run. We noticed, however, that some of the PowerPlex® users misuse cell line DNA samples to optimize amplification reactions. K562 cells are derived from a female human subject with chronic myelogenous leukemia, whereas 9947A and 9948 cells are immortal lymphoid cell lines. Cell lines may contain additional copies of one allele and additionally may not always have a regular diploid complement of chromosomes. Consequently STR profiles obtained with cell line DNA may display tri-allelic patterns and severe peak imbalance. These extra peaks or peak imbalances are the result of an abnormal number of chromosomes present in the sample rather than a problem with the PCR. For example, K562 has a three-allele pattern at the D21S11 locus (29; 30; 31), whereas 9948 DNA displays three alleles at the CSF1PO locus (10; 11; 12). We also noticed that the peak height for allele 12 is much lower than those for alleles 10 and 11. In summary, cell lines may show imbalanced heterozygous alleles, imbalance between STR loci and even multiple peaks per locus. As such, cell line DNA does not always reveal a normal balance of chromosomal material as seen in healthy individuals. For this reason we advise against using cell line DNA for the PCR optimization process.

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latest version of the Plexor® Analysis Software is necessary for the correct import function. Other protocols for existing instruments are being developed to allow customers access to all of the advantages of Plexor® HY on the instrument they prefer. Please contact your local Promega contact for more details, and visit the Promega web site at: www.promega.com/plexorhy for more information.

Meetings and Workshops

Week of Forensic Genetics in Prague (CODIS Users Meeting, EDNAP, ENFSI, Forensica 2008)

The week of Forensic Genetics took place in Prague from April 22nd to 26th, 2008. It started with a CODIS users meeting, EDNAP (European DNA Profiling Group) and continued with the ENFSI meeting organized by the Institute of Criminalistics in Prague. The Forensica 2008 conference, organized by the Czechoslovak Society for Forensic Genetics, closed the scientific meetings on Saturday.

Promega not only exhibited, showing technologies for forensic laboratories, including the new product PowerPlex® S5, and also gave two presentations. M. Lindner described a tool for simultaneous quantitation of human autosomal and male DNA, the Plexor® HY System, and showed validation data and the Plexor® Analysis software. M. Vokurková Chocová presented a new screening tool, PowerPlex® S5, describing the features, technical details and performance, and highlighting the sensitivity and robustness of the system.

Before the conference itself, a half-day workshop was organized on DNA typing of bone samples.

During the social programme participants could experience a boat trip on Vltava River, taste traditional Czech dishes while watching Moravian dancers in national costumes, spend an evening at the reception quarters of the Department of Home Affairs or taste wine at the Prague Castle.

Promega Genetic Identity Workshops and Seminars

Promega is continuously conducting trainings and seminars at customers' facilities.

The picture below shows scientists at the Ankara Forensic Police Laboratory along with Promega attendees and representatives of the local Promega distributor during a Plexor® HY and Maxwell® 16 workshop.

If you would like to host a similar workshop in your area, please contact your Promega branch office or distributor to organize a training session specifically designed for your laboratory.



19th International Symposium on Human Identification

The 19th International Symposium on Human Identification will take place October 13–16, 2008, at the Renaissance Hollywood Hotel in Hollywood, California. Promega is proud to sponsor the International Symposium on Human Identification to facilitate the dissemination of information that impacts the forensic community. The landscape of forensic science continues to change and evolve. New technologies are enabling scientists to discover information previously considered unknowable. The annual international symposium on human identification continues to provide a venue for educating both seasoned analysts and new initiates to the field of DNA typing. For further information, please contact Carol Bingham at: carol.bingham@promega.com or go to the web site:

www.promega.com/geneticsymp19/

Announcement of the Promega 10th European STR Working Group Meeting

Promega is pleased to inform you that the 10th Meeting of the European STR Working Group will be held in Mannheim on November 25–27, 2008. This year we are very pleased to announce Prof. Dr. Walthar Parson as our key note speaker. He will hold an Educational Session "Forensic mtDNA analysis – new developments".

Additional topics will include:

- Automation, including high-throughput solutions for DNA extraction and differential extraction
- Mini STRs
- Real-Time PCR quantitation – advantages of new technologies

We are also keen to include presentations on:

- Interesting and difficult cases
- PowerPlex® user experiences

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