



Promega










DNA

GENETIC
IDENTITY
PRODUCT CATALOG



Promega Corp., Feynman Center, Manufacturing and Research Facility, Madison, Wisconsin

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1. Each sample, each case is different

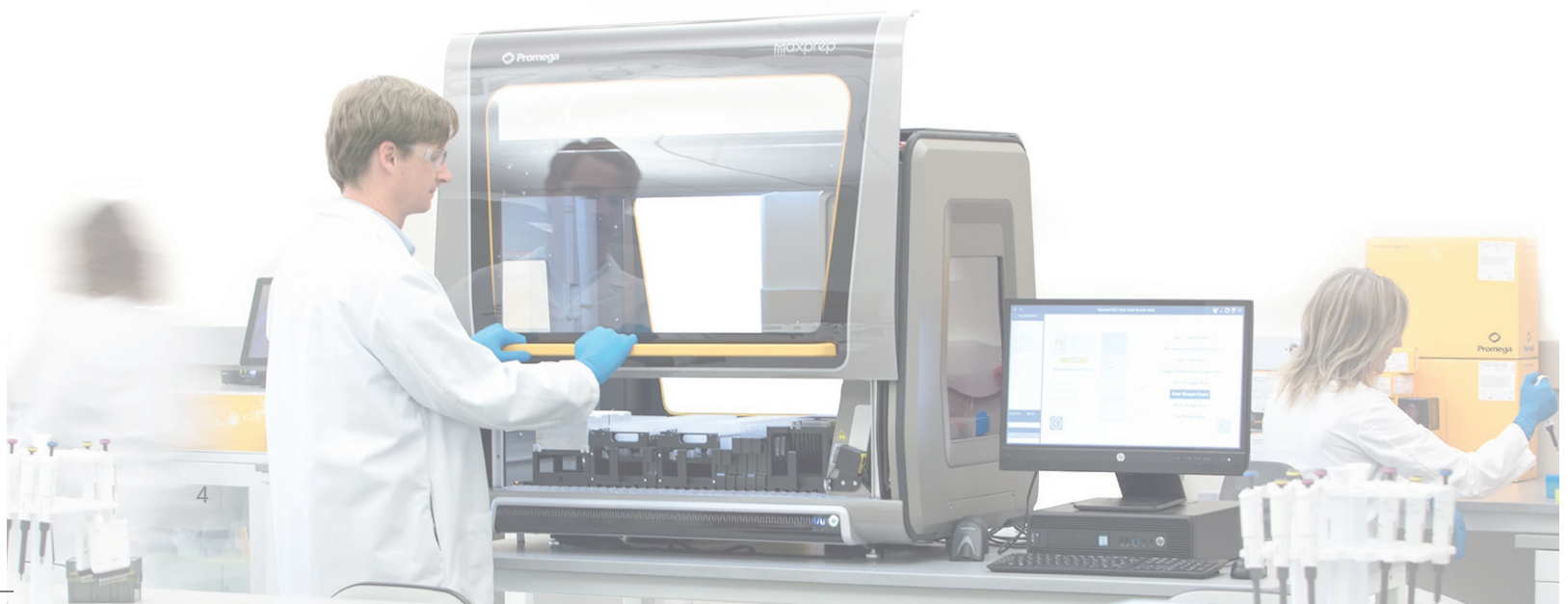
Promega is the most recognized source of complete solutions for DNA typing, from sample preparation through STR amplification and detection. The Promega portfolio of products lets you decide when to employ manual processing or high-throughput automation. Optimized and validated solutions that best fit your laboratory's needs are supported by renowned customer-oriented technical support and training. Based on nearly three decades of innovative global leadership in forensics, Promega continues to expand your power to solve each unique case—from sample to analysis.

The Power of Innovation

As pioneers in the field of genetic identity, Promega scientists provide advanced tools and technology to improve process efficiency, sensitivity and robustness of test results. The Promega history of innovation includes being the first company to provide:

- A single-amplification STR system that includes the 13 CODIS loci or 16 recommended ENFSI loci
- The first STR multiplex to enable casework *and* direct amplification in a single kit
- The fastest STR multiplex (PowerPlex® ESI and ESX Fast Systems) that produces results in 45 minutes
- A multiplex qPCR system for total human and male chromosomal DNA
- Support of automated extraction, DNA quantification and PCR setup on liquid-handling platforms
- A compact 16-sample benchtop DNA extraction instrument capable of processing reference and casework samples
- An 8-color multiplex that includes autosomal and YSTR loci to improve success rates with challenging samples

Promega is the first company to be ISO 18385 compliant and the first to be third-party accredited for this standard.



The Power of Support

For over two decades, Promega has taken an active role in supporting the work and education of forensic scientists worldwide. Unparalleled technical and customer service teams continue to provide support to forensic, databasing and paternity customers by:

- Maintaining a highly qualified staff of Technical Services Scientists dedicated to answering customer inquiries by phone, online chat and e-mail. In addition, field personnel who specialize in DNA-typing technologies are available for consultation on a wide range of issues affecting your lab, including validation support.
- Providing comprehensive product validation. Promega validates products internally in cooperation with the forensic community and assists with validation efforts in customer laboratories.
- Creating customized products tailored to the specific needs of your laboratory. Would your lab prefer a kit with bulk quantities of specific reagents? Need just a few kit components? Promega can provide a solution tailored just for you.
- Sponsoring the annual International Symposium on Human Identification. Customers value this premier meeting in the field of human identification, where hundreds of participants from around the globe learn and exchange information on new DNA technologies and advancements.
- Offering training workshops, free of charge seminars and educational forums at multiple venues, including Promega facilities located throughout the world.
- Providing a comprehensive set of educational webinars, troubleshooting guides and our *Profiles in DNA* magazine that offer solutions to forensic laboratories' most complex challenges
- Delivering consistent, high-quality products. The Promega ISO 9001, ISO 13485 and ISO 18385 certifications assure that quality systems are implemented in all phases of product development, production, shipping and support operations.

Get Fast, Accurate Answers from Scientists

The Promega worldwide Technical Services Group, Forensic Regional Account Managers and Distributors are committed to providing you with the highest quality service available. Each group has an extensive scientific background, hands-on experience with Promega products and training in problem solving. Additionally, the full resources of our R&D, Quality Assurance and Production Scientists are available to increase your productivity.

Contact Promega Technical Services directly at: genetic@promega.com



Forensic Grade

Many of the products highlighted in this catalog are designated as Forensic Grade—manufactured in alignment with the ISO 18385 standard—and are suitable for use with forensic casework, with minimized risk of human DNA contamination.

We treat plastics for our forensic product line, such as primary packaging materials and consumables, with ethylene oxide to mitigate the impact of possible human DNA contamination. Products that are manufactured in alignment with ISO 18385 are clearly labeled with a blue forensic grade logo.

2. Preprocessing

Workflows used in human identification begin with methods to obtain DNA from biological samples that can vary in nature from a buccal swab from a suspect to a few skin cells left on an object found at a crime scene.

These products are used to preprocess various forensic sample types to remove inhibitors and prepare for downstream PCR. They are used to pretreat swabs and storage card punches prior to direct amplification, to preprocess challenging casework samples, and to separate sperm and epithelial cells from mixed samples.





Differex™ System

Easy separation of sperm and epithelial fractions

- Allows a forensic laboratory to automate every step of differential extraction workflow
- Offers recovery like that of most used differential extraction method
- Integrates into both manual and large-scale automation workflows

Ordering Information

Product Name	Pack Size	Catalog Number
Differex™ System	200 samples	DC6800
Differex™ System	50 samples	DC6801

Related Products

Product Name	Pack Size	Catalog Number
Proteinase K	100mg	V3021
ClickFit Microtube, 1.5ml	100/pack	V4745
DNA IQ™ Spin Baskets	50/pack	V1225
Manual Differex™ Magnet	1 each	V1591



Casework Extraction Kit

Preprocessing reagents designed to help extract DNA from challenging forensic casework samples

- Delivers high DNA extraction success from all casework samples and substrates (bones excluded)
- Works in tandem with DNA IQ™ chemistry to provide high-quality, high-purity DNA eluates suitable for all downstream assays
- Integrates into both manual and large-scale automation workflows



Ordering Information

Product Name	Pack Size	Catalog Number
Casework Extraction Kit	100 reactions	DC6745

Related Products

Product Name	Pack Size	Catalog Number
ClickFit Microtube, 1.5ml	100/pack	V4745
DNA IQ™ Spin Baskets	50/pack	V1225



Bone DNA Extraction Kit

Preprocessing reagents to help improve DNA extraction from skeletal remains

- Allows extraction of DNA from bones of all ages
- Works with manual and Maxwell® DNA IQ™ chemistry to deliver high-purity eluates suitable for all downstream assays
- Yields DNA free of inhibitors and compatible with downstream STR assays

Ordering Information

Product Name	Pack Size	Catalog Number
Bone DNA Extraction Kit	100 reactions	DC6051

Related Products

Product Name	Pack Size	Catalog Number
DNA IQ™ System	400 reactions	DC6700
	100 reactions	DC6701
PolyAtract® System 1000 Magnetic Separation Stand	1 each	Z5410
MagneSphere® Magnetic Technology Stand, Two Position, 1.5ml tube size	1 each	Z5332
MagneSphere® Magnetic Technology Stand, Twelve Position, 1.5ml tube size	1 each	Z5342
Maxwell® FSC DNA IQ™ Casework Kit	48 preps	AS1550
Maxwell® FSC Instrument	1 each	AS4600
Maxwell® RSC 48 Instrument	1 each	AS8500
FSC Plungers	50/pack	AS7151





SwabSolution™ Kit

Rapid processing of swabs for STR analysis using PowerPlex® Systems

- Swab to result in 2.5 hours with no loss of DNA
- Enables long term storage of SwabSolution™ extracts for future analysis
- Integrates into both manual and large-scale automation workflows
- Compatible with all Promega downstream assays



PunchSolution™ Kit

Rapid processing of punches from non-FTA® storage cards (S&S 903, Bode Buccal Collector™ device, etc.) for STR analysis using PowerPlex® Systems

- Punch to result in 2.5 hours
- Allows easier punch handling than other pretreatment products
- Integrates into both manual and large-scale automation workflows
- Compatible with all Promega downstream assays



5X AmpSolution™ Reagent

Preprocessing reagents to help improve DNA extraction from skeletal remains

- Streamlines the processing of swabs and punches for PowerPlex® STR analysis and PowerSeq® MPS analysis
- Enables direct amplification of DNA from unwashed treated collection cards, non-FTA® punches and swabs in 2 hours

Ordering Information

Product Name	Pack Size	Catalog Number
SwabSolution™ Kit	100 preps	DC8271
PunchSolution™ Kit	100 preps	DC9271
5X AmpSolution™ Reagent	500 ml	DM1231

3. DNA Extraction

Extraction of high-quality DNA is a critical step in the forensics workflow. Promega offers a selection of cost-effective and optimal solutions for the sample types typically processed in forensic casework laboratories, including bone, blood stains, semen stains, hairs, cigarette butts, tissues and trace DNA samples. Consistent and reliable extraction ensures that high-quality DNA is obtained for downstream applications, such as quantification and short tandem repeat (STR) analysis.

Increasing demands to process a higher number of casework samples in less time have also amplified the need for optimal and streamlined forensic laboratory workflows. Our extraction solutions can help meet those demands, whatever your throughput needs.



	Sample Type	Preprocessing		Purification	
		Reagents	Accessories	Reagents	Accessories
DNA IQ™ Manual	Swabs/ Cutting	Casework Extraction Kit (DC6745)	Spin Basket (V1225) ClickFit Tube (V4745)	DNA IQ™ System (DC6700)	MagneSphere® Magnetic Stand (Z5341)
	Trace	Casework Direct System (DC4560)			
	SAK	Differex™ System (DC6800)			
	Bone	Bone DNA Extraction Kit (AX6780)	ClickFit Tube (V4745)		



	Sample Type	Preprocessing		Purification		
		Reagents	Accessories	Cartridge Set up	Maxwell® FSC	Maxwell® RSC 48
DNA IQ™ Maxwell®	Swabs/ Cutting	Casework Extraction Kit (DC6745)	Spin Basket (V1225) ClickFit Tube (V4745)	Manual/ Maxprep™ Cartridge Setup	Maxwell® FSC DNA IQ™ Casework Kit (AS1550)	Maxwell® FSC DNA IQ™ Casework Kit (AS1550)
	Trace	Casework Direct System (DC4560)				
	SAK	Differex™ System (DC6800)				
	Bone	Bone DNA Extraction Kit (AX6780)	ClickFit Tube (V4745)			

	Sample Type	Preprocessing		Purification			
		Reagents	Accessories	Plastics/ Accessories	TECAN	Hamilton	Beckman Coulter
DNA IQ™ Large Platform	Swabs/ Cutting	Casework Extraction Kit (DC6745)	Spin Basket (V1225) ClickFit Tube (V4745)	tips, buffer troughs (platform- dependent)	DNA IQ™ System (DC6700)	DNA IQ™ System (DC6700)	DNA IQ™ System (DC6700)
	Trace	Casework Direct System (DC4560)					
	SAK	Differex™ System (DC6800)					



DNA IQ™ System

The DNA IQ™ System is a scalable DNA purification system that is available in manual and automated formats to suit varying throughput needs

- Works in conjunction with the appropriate preprocessing kits to deliver high-quality, high-purity DNA from all casework sample types and substrates
- Uses no harmful organic solvents

Ordering Information

Product Name	Pack Size	Catalog Number
DNA IQ™ System	100 reactions	DC6701
	400 reactions	DC6700

Related Products

Product Name	Pack Size	Catalog Number
ClickFit Microtube, 1.5 ml	100/pack	V4745
DNA IQ™ Spin Baskets	50/pack	V1225
MagneSphere® Technology Magnetic Separation Stand, Two-position, 1.5 ml	1 each	Z5332
MagneSphere® Technology Magnetic Separation Stand, Twelve-position, 1.5 ml	1 each	Z5342



Maxwell® FSC DNA IQ™ Casework Kit

Designed for optimal DNA extraction from forensic casework samples, the kit contains the same trusted reagents used in the DNA IQ™ System in a convenient, prefilled cartridge format for use on the Maxwell® FSC or RSC 48 Instruments

- Minimizes cross contamination with the included spin baskets, which do not require transfer of the swabs
- Provides high yields of DNA from blood stains, semen stains, hairs, cigarette butts, tissue samples and trace DNA samples

Ordering Information

Product Name	Pack Size	Catalog Number
Maxwell® FSC Instrument	1 each	AS4600
Maxwell® RSC 48 Instrument	1 each	AS8500
Maxwell® FSC DNA IQ™ Casework Kit	48 preps	AS1550

Related Products

Product Name	Pack Size	Catalog Number
Casework Extraction Kit	100 reactions	DC6745
CW Spin Baskets	50/pack	AS8101
CW Microfuge Tubes, 1.5ml	50/pack	AS8201
ClickFit Microtube, 1.5ml	100/pack	V4745

Maxwell® FSC Instrument

A compact, plug and play instrument for automated DNA extraction from up to 16 samples at one time

- Automates the most labor-intensive and repetitive steps of the DNA purification process to deliver consistent and reliable results
- Saves laboratories time and labor costs and frees staff to work on casework analysis
- Includes intuitive software and touch screen interface
- Works in tandem with the Maxprep™ Liquid Handler to fully automate workflow
- Validated for forensic use

Maxwell® RSC 48 Instrument

Compact, automated nucleic acid purification instrument that processes up to 48 samples simultaneously

- Validated for forensic use
- Minimizes steps and hands-on time
- Eliminates deck tray set up errors with vision detection system

Maxprep™ Liquid Handler

A liquid handler that comes with preloaded protocols for nucleic acid purification as well as postextraction sample preparation for quantification, normalization and amplification set up, and CE set up

- Designed to streamline the workflow using Promega chemistries such as the DNA IQ™ System (DNA isolation), PowerQuant® and Plexor® HY Systems (quantification), and our PowerPlex® STR systems (normalization and amplification set up of STR reactions)
- Works in tandem with other instruments in the lab using Portal Software

Ordering Information

Product Name	Pack Size	Catalog Number
Maxprep™ Liquid Handler w/RSC Carriers	1 each	AS9100
Maxprep™ Liquid Handler w/RSC 48 Carriers	1 each	AS9200
Maxprep™ Liquid Handler w/RSC Carriers and UV Light	1 each	AS9101
Maxprep™ Liquid Handler w/RSC 48 Carriers and UV Light	1 each	AS9201



Casework Direct System

Rapid screening of sexual assault evidence and preprocessing of touch DNA samples prior to quantification of human DNA

- Maximizes chance of recovering DNA from trace samples
- Quickly generates lysates that are compatible with PowerQuant®, Plexor® HY, and PowerPlex® Systems
- Minimizes potential loss of DNA from samples

Ordering Information

Product Name	Pack Size	Catalog Number
Casework Direct System	100ml	DC4560
	10ml	DC4561

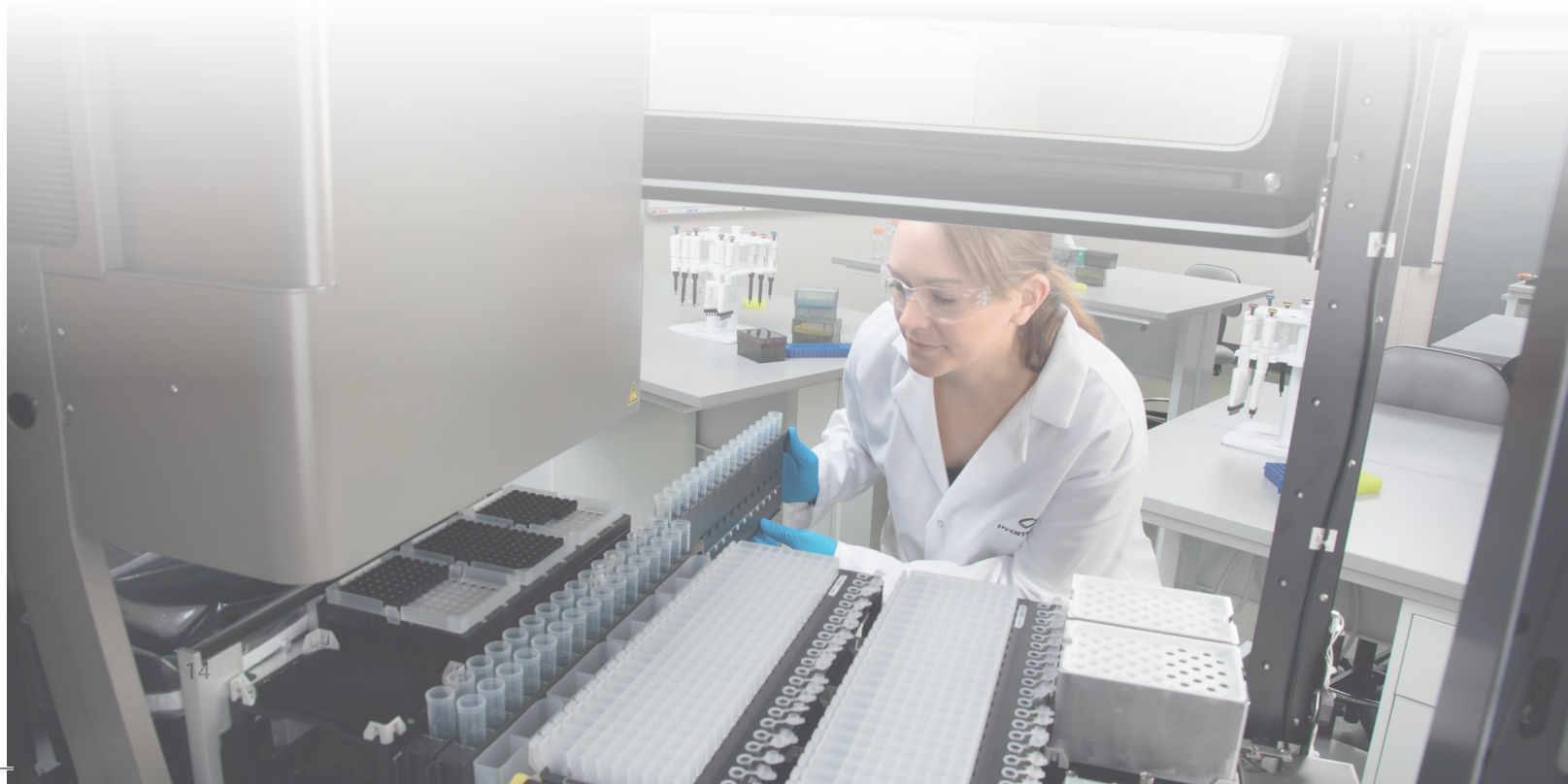
4. Human-Specific DNA Quantitation

Accurate quantification of human DNA extracted from evidentiary items is essential for an efficient forensic STR analysis workflow. Measured DNA concentrations are used to normalize the amount of DNA template to an optimal range for STR amplification reactions, ensuring STR profiles are in the linear range of the capillary electrophoresis instrument with minimal artifacts and stochastic effects.

In addition to the total human DNA and total human male DNA concentrations in a sample, data from the degradation target and internal PCR control (IPC) provide a forensic DNA analyst meaningful information about the quality of the isolated human DNA. It also identifies the presence of PCR inhibitors in the sample, enabling determination of the most effective workflow and assisting downstream interpretation.

Promega provides qPCR-based DNA quantification systems to determine total human and male DNA concentration prior to STR amplification, to assess DNA integrity, and to detect PCR inhibitors.

For those laboratories that require a higher-throughput process for quantification, Promega offers setup protocols for various liquid handlers, including the Maxprep™ Liquid Handler.





Plexor® HY System

Quantitative PCR assay to determine the concentration of total human DNA and male human DNA simultaneously in one reaction

- Routinely detects down to 6.4pg of DNA
- Contains an internal PCR control (IPC) to test for false-negative results
- Utilizes melt curve function to confirm that the correct product was amplified
- Zero means zero—if the Plexor® HY System detects no DNA, you can be confident that there is no DNA to continue with analysis

Ordering Information

Product Name	Pack Size	Catalog Number
Plexor® HY System	200 reactions	DC1001
	800 reactions	DC1000
Plexor® Calibration Kit, Set A	1 each	DC1500



PowerQuant® System

A 5-dye, 4 target hydrolysis probe based quantitative PCR assay for assessing total human and male DNA concentrations, degradation levels, and the presence of inhibitors

- Assesses DNA integrity of your sample
- Provides reliable quantification results with more consistent auto/Y ratios
- Shortens time to result with a faster cycling time of approximately 1 hour

Ordering Information

Product Name	Pack Size	Catalog Number
PowerQuant® System	200 reactions	PQ5002
	800 reactions	PQ5008
PowerQuant® Calibration Kit	1 each	DS1221

5. STR Amplification

STR technology has become globally established as the foundation for human identification. Promega offers STR amplification systems for forensic, paternity and relationship-testing applications that meet global and regional database requirements.

PowerPlex® STR kits provide direct-amplification protocols and rapid cycling capabilities to reduce processing time for all samples. They have high inhibitor tolerance and sensitivity for casework samples. To improve laboratory workflow efficiency, the majority of our PowerPlex® Systems are designed for use with casework samples as well as reference and database samples.

You have many options when choosing STR analysis kits, so we've made it easy for you to find the right PowerPlex® System for your needs.



PowerPlex® STR Systems

You have many options when choosing DNA typing reagents, so we've made it easy for you to find the right STR analysis kit for your needs. There are STR amplification systems for your forensic, paternity and relationship-testing applications that meet global and regional database requirements, including European Standard Set (ESS), CODIS and other relevant loci.

		PowerPlex® 35GY System – available in 2022	PowerPlex® Fusion 6C System	PowerPlex® Fusion System	PowerPlex® ESJ Fast and ESX Fast Systems	PowerPlex® 21 System	PowerPlex® 18D System	PowerPlex® Y23 System
		35 loci	27 loci	24 loci	16 or 17 loci	21 loci	18 loci	23 loci
ESS/CODIS Loci	D1S1656	•	•	•	•	•		
	D2S441	•	•	•	•			
	D2S1338	•	•	•	•		•	
	D3S1358	•	•	•	•	•	•	
	D8S1179	•	•	•	•	•	•	
	D10S1248	•	•	•	•			
	D12S391	•	•	•	•	•		
	D16S539	•	•	•	•	•	•	
	D18S51	•	•	•	•	•	•	
	D19S433	•	•	•	•	•	•	
	D21S11	•	•	•	•	•	•	
	D22S1045	•	•	•	•			
	FGA	•	•	•	•	•	•	
	TH01	•	•	•	•	•	•	
vWA	•	•	•	•	•	•		
CODIS Loci	D5S818	•	•	•		•	•	
	D7S820	•	•	•		•	•	
	D13S317	•	•	•		•	•	
	CSF1PO	•	•	•		•	•	
	TPOX	•	•	•		•	•	
Other Loci	Amelogenin	•	•	•	•	•	•	
	Penta D	•	•	•		•	•	
	Penta E	•	•	•		•	•	
	SE33	•	•		ESI/ESX 17 only			
	D6S1043					•		
Y-STR Loci	DYS19							•
	DYS385a/b	•						•
	DYS389I							•
	DYS389II							•
	DYS390	•						•
	DYS391	•	•	•				•
	DYS392							•
	DYS393							•
	DYS437							•
	DYS438	•						•
	DYS439							•
	DYS448	•						•
	DYS456	•						•
	DYS458	•						•
	DYS481	•						•
	DYS533							•
	DYS549							•
	DYS570		•					•
	DYS576		•					•
	DYS635	•						•
DYS643	•						•	
Y-GATA-H4							•	

PowerPlex® System Specifications

		Fusion 6C	Fusion	ESX & ESI Fast	21	18D	Y23
Number of Loci		27	24	16/17	21	18	23
Number of Colors		6	5	5	5	5	5
Probably of Identity (N=1036)**		2.30×10^{-32}	6.58×10^{-29}	2.80×10^{-20} 1.85×10^{-22}	6.77×10^{-27}	8.92×10^{-22}	N/A
Capillary Electrophoresis Instrument Compatibility	ABI31XX	yes	yes	yes	yes	yes	yes
	ABI35XX	yes	yes	yes	yes	yes	yes
	Spectrum CE	yes	yes	yes	yes	yes	yes
	Spectrum Compact CE	yes	yes	yes	yes	yes	yes
Matrix		DG4900	DG4850	DG4850	DG4850	DG4850	DG4850
Direct Amp Compatible		yes	yes	yes	yes	yes	yes
Optimal Number* of PCR Cycles for Direct Amplification		1 punch in 12.5µl reaction/ 25 cycles*	1–2 punches/ 25–28 cycles	1–2 punches/ 25–27 cycles	1–2 punches/ 24–27 cycles	1–2 punches/ 26–29 cycles	1–2 punches/ 25–29 cycles
		2µl Swab extract in 12.5µl reaction/ 25 cycles*	2µl Swab extract/ 25–28 cycles	2µl Swab extract/ 25–27 cycles	2µl Swab extract/ 24–27 cycles	2µl Swab extract/ 26–28 cycles	2µl Swab extract/ 26* cycles
Optimal Amount of Template DNA in 25µl reaction		1ng/ 29 cycles	0.5ng/ 30 cycles	0.5ng/ 30 cycles	0.5ng/ 30 cycles	Direct Amplification Only	0.5ng/ 30 cycles
Maximum Volume of Sample in 25µl reaction		15µl	15µl	17.5µl	15µl	15µl	17.5µl
Thermal Cycler***	9700	Max	Max	Max	Max	9600	Max
	Veriti	100%	100%	100%	100%	100%	100%
	ProFlex	9700	9700	9700	9700	9700	9700
Ramp Speed given in "Mode"		Max Mode 100% (Veriti)	Max Mode	Max Mode	Max Mode	9600 Mode	Max Mode
Ramp Speed in °C per second		5	5	5	5	1	5
Approximate Amp Time	Direct Amp	55 min	80 min	45 min	85 min	90 min	95 min
	Casework	60 min	85 min	50 min	90 min	N/A	100 min
Kit Sizes		50 rxn (100 direct amp) 200 rxn (400 direct amp)	200 rxn 800 rxn	100 rxn 400 rxn	200 rxn 800 rxn	200 rxn 800 rxn	50 rxn 200 rxn

* May require optimization.

** Reference:Butler, J.M., Hill, C.R. and Coble, M.D. Variability of new STR loci and kits in US population groups. Profiles in DNA <https://www.promega.com/resources/profiles-in-dna/2012/variability-of-new-str-loci-and-kits-in-us-population-groups/> Published 2012. Accessed April, 2012.

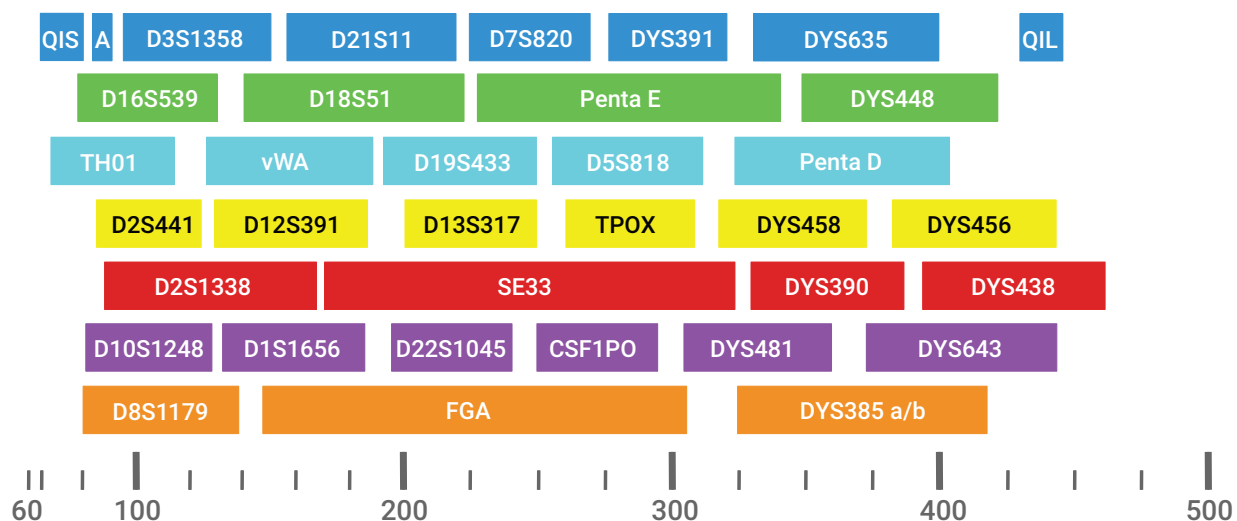
*** Applied Biosystems Veriti Thermal Cycler, Applied Biosystems ProFlex PCR System, GeneAmp® PCR System 9700



PowerPlex® 35GY System (coming in 2022)

An eight-color multiplex containing autosomal and Y-STR loci designed for use on the Spectrum CE System. With the two additional colors for detection, there are a total of 15 autosomal STR loci smaller than 250 bp, which benefits the analysis of challenging samples.

- Includes two Quality Indicators (QIS and QIL) to assist in determining if a sample is degraded or inhibited
- Allows smaller amplicon sizes for the most informative loci
- Contains ten Y-STR loci to assist with challenging casework samples and enable familial searching
- Includes Penta D, Penta E and SE33 loci to improve discrimination and allow searching of databases that contain profiles with these loci



Configuration of the PowerPlex® 35GY System. The PowerPlex® 35GY System allows co-amplification and detection of 35 loci, 24 autosomal, and 11 Y-STR loci (represented by lighter shades): CSF1PO, D3S1358, D5S818, D7S820, D8S1179, D13S317, D16S539, D18S51, D21S11, FGA, TH01, TPOX, vWA, D1S1656, D2S441, D2S1338, D10S1248, D12S391, D19S433 and D22S1045, SE33, Penta D, Penta E and Amelogenin; DYS391, DYS385a/b, DYS390, DYS438, DYS448, DYS456, DYS458, DYS481, DYS635 and DYS643.



PowerPlex® Fusion 6C System

A rapid 27-loci, six-color system, including SE33 and 3 YSTR loci, suitable for casework, databasing and paternity testing

- Produces complete STR profiles from as little as 125pg of human DNA
- Reduces processing time for all samples with rapid cycling conditions
- Enables direct amplification with 12.5µl reactions from numerous sample types, saving time and budget
- Includes two rapidly mutating Y-STR markers to provide information on the minimum number of contributors to a profile. This feature assists with complex mixture interpretation without the need for a separate Y-STR analysis, thus saving the laboratory both time and money.
- Provides the highest power of discrimination



PowerPlex® Fusion System

A rapid 24-loci, 5-color system suitable for casework, paternity and database testing

- Does not include SE33
- Minimizes the need to re-amplify samples generally thought to be too challenging to run
- Allows direct amplification from FTA® card punches, swabs and non-FTA® punch cards

Ordering Information

Product Name	Pack Size	Catalog Number
PowerPlex® Fusion 6C System	50 (or 100 direct-amp) reactions	DC2705
	200 (or 400 direct-amp) reactions	DC2720
	800 (or 1600 direct-amp) reactions	DC2780
PowerPlex® Fusion System	200 reactions	DC2402
	800 reactions	DC2408





PowerPlex® ESX and ESI Fast Systems

Rapid human identification STR assays that meet ENSFI recommendations for DNA profile sharing across Europe by laboratories involved in casework, paternity and database testing

- Available in multiple formats, including the option to detect SE33, to accommodate various requirements or preferences
- Complementary kit design (ESI and ESX) allows amplification of all markers as mini-STRs

Ordering Information

Product Name	Pack Size	Catalog Number
PowerPlex® ESX Fast System	100 reactions	DC1711
	400 reactions	DC1710
PowerPlex® ESI Fast System	100 reactions	DC1721
	400 reactions	DC1720
PowerPlex® ESX/ESI System Bundle	100 reactions	DC1731
	400 reactions	DC1730



PowerPlex® Y23 System

Male-specific STR genotyping kit with 23 Y-STR loci; includes protocols for both casework and databasing

- Works well with extracted DNA samples, including low amounts of template and male/female DNA mixtures
- High inhibitor tolerance, male specificity and sensitivity make this the optimal Y-STR kit for challenging casework samples
- Provides the highest sensitivity in the presence of female DNA
- Direct-amplification compatible

Ordering Information

Product Name	Pack Size	Catalog Number
PowerPlex® Y23 System	50 reactions	DC2305
	200 reactions	DC2320
Stabilizer Reagent	500 preps	DM6571

Related Products

Product Name	Pack Size	Catalog Number
5C Matrix Standard	5 preps	DG4850
6C Matrix Standard	5 preps	DG4900
SwabSolution™ Kit	100 preps	DC8271
PunchSolution™ Kit	100 preps	DC9271
5X AmpSolution™ Reagent	500 ml	DM1231
2800M Control DNA	25 µl	DD7101
	500 µl	DD7251

6. CE Analysis

The vast majority of the human genome is identical among diverse individuals. However, there are small regions of variation, especially in areas with repetitive sequences. One example is STRs that can vary in length among individuals, with each repeat consisting of three to five nucleotides of DNA. Analysis of these repeats reveals a characteristic pattern for each individual that is inherited from paternal and maternal DNA. Forensic DNA databases use these patterns of STRs for human identification, and each national database has requirements for specific STR loci that are included.

To characterize these STR patterns, or DNA profiles, human genomic DNA is amplified using the polymerase chain reaction (PCR) with sets of primers for each STR being tested. The primers are labeled with fluorescent dyes, and the amplified products are separated according to size by capillary electrophoresis (CE). Fluorescence imaging by the CE instrument results in a set of peaks for each dye channel, which together constitute an electropherogram that serves as a DNA “profile” for that individual. Statistical analysis of the DNA profile and comparison to reference databases can predict whether the individual matches a known DNA profile, with a high power of discrimination.

Our CE instruments and software are designed to offer you more efficient STR analysis and better results from inhibited, degraded, or variable samples. They are suitable for both high and low throughput needs.



To learn more, visit
www.promega.com/ce-analysis

Spectrum CE System

Spectrum Compact CE System



General Features		
Colors Detected	8	6
Positions	4 Plates	1 Tray
Position Accessibility	Continuous (Plate)	When run is complete (Tray)
Sample Vessel Type	96-well plates	8-well strip tubes
Capillary Array Length	36cm	36cm
Consumable Bar Code Detection	3D	2D
Application Support	Fragment analysis	Sanger sequencing, fragment analysis
Consumables		
Buffer	Prefilled cartridges	Prefilled cartridges
Polymer	Prefilled pouch	Prefilled pouch
Wash	Prefilled pouch	Prefilled
Array	Framed	Framed
Tracking	RFID	2D barcoding
Polymer Type	Polymer4	Polymer4, Polymer7
Software		
Export File Type (STR)	.promega, .fsa	.fsa, .ab1
Compatible STR Analysis Software	GeneMapper™ ID-X and GeneMarker®HID Software for Spectrum CE Systems (GMHID-Spectrum)	GeneMapper™ ID-X and GeneMarker®HID Software for Spectrum CE Systems (GMHID-Spectrum)
Technical Specifications		
Polymer Delivery	Syringe injection	Syringe injection
Oven Temperature Range	45–70°C	45–70°C (±1°C)
Electrophoresis Voltage	Up to 20kV	Up to 18kV

Spectrum Compact CE System

Benchtop, four-capillary electrophoresis instrument capable of fragment analysis and Sanger sequencing

- Compatible with commercially available sequencing and STR kits
- Uses four 8-well strip tubes for up to 32 samples
- Polymer4 and Polymer7 provide optimal results for every application
- Hardware and software simplify implementation and routine usage

Ordering Information

Product Name	Pack Size	Catalog Number
Spectrum Compact CE System	1 each	CE1304
Spectrum Compact Starter Kit	1 each	CE1307
Spectrum Compact Starter Kit with Service	1 each	CE1305
Spectrum Compact Buffer Cartridges	2 pair	CE2300
Spectrum Compact Cathode Septa Mat	10 each	CE2301
Spectrum Compact Cathode Retainer	4 each	CE2302
Spectrum Compact Polymer4	4 each	CE2304
Spectrum Compact Polymer7	4 each	CE2307
Spectrum Compact Strip Septa Mat	24 each	CE2308
Spectrum Compact Strip Base and Retainer	4 each	CE2332
Spectrum Compact Capillary Cartridge	1 each	CE2340
Spectrum Compact Capillary Preservation Buffer	10ml	CE2399



Spectrum CE System

Developed at Promega, this eight-capillary electrophoresis system combines state of the art STR analysis with increased run flexibility and four-plate capacity

- Offers more scheduling flexibility, while maintaining productivity and assuring no efficiency loss with partial plate runs
- The first CE system to support the next generation of PowerPlex® 8-dye STR Systems

Ordering Information

Product Name	Catalog Number
Spectrum CE System, 8-capillary	CE1008
Spectrum CE Starter Kit, 8-capillary	CE1108
Spectrum CE System Training, Onsite, 1-day	S3115
Spectrum Buffer	CE2001
Spectrum Cathode Septa Mat	CE2002
Spectrum Buffer and Cathode Septa Mat Bundle (CE2001, CE2002)	CE2012
Spectrum Capillary Array, 8-Capillary	CE2008
Spectrum Polymer4, 384 Wells	CE2048
Spectrum Polymer4, 960 Wells	CE2040
Spectrum Wash Solution	CE2099
Spectrum Plate Base & Retainer, 96-Well	CE5004

GeneMarker®HID for Spectrum Software

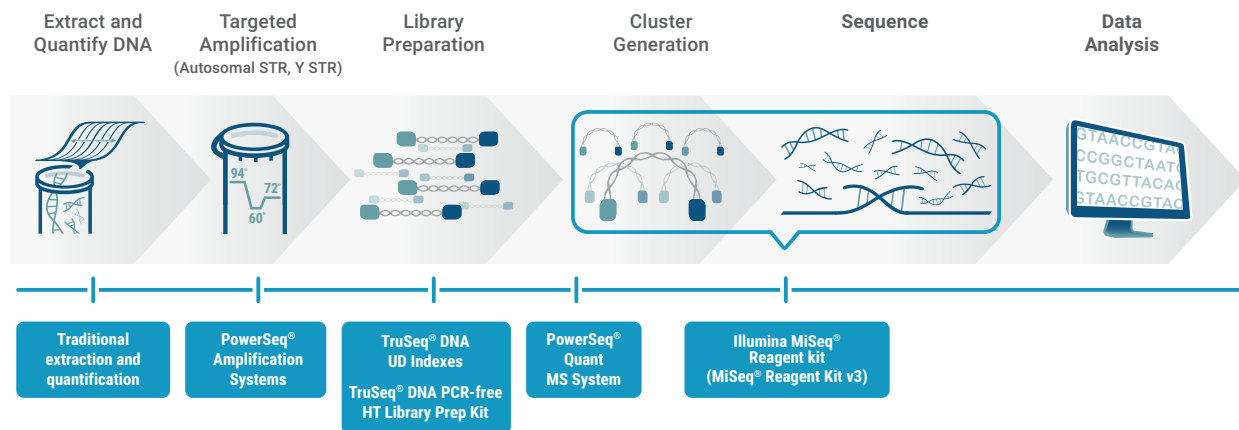
A powerful, full-featured analysis software to interpret the results from Spectrum CE System

- Designed for human identification and forensics applications
- Includes “expert system” functionality—delivering accurate STR sizing and allele calling in both user-mediated and fully automated expert system analysis approaches

Contact your local Promega representative to place an order.

7. Massively Parallel Sequencing

Promega offers solutions for forensic DNA analysis using a massively parallel sequencing (MPS) workflow. We provide preprocessing reagents and automation-friendly DNA isolation systems for processing casework samples in a streamlined workflow. PowerSeq® products allow targeted amplification of STRs for MPS analysis of both Y-chromosome and autosomal DNA, as well as for preparation of Illumina® sequencing libraries for mitochondrial control region DNA.



PowerSeq® 46GY System

Amplification of autosomal and Y-STR loci in a single multiplex for MPS

- The combination of these STR loci and Amelogenin makes this multiplex an effective tool for human identification using MPS and maintains compatibility with existing databases worldwide
- Works with all sample types typically encountered by forensic casework and database laboratories
- Offers superior sensitivity, inhibitor tolerance and inter-locus balance to maximize success with difficult casework samples

PowerSeq® CRM Nested System, Custom

Amplification and library preparation of mitochondrial control region for MPS

- Target amplification and library creation in one step in a single tube
- Combines primers needed for amplifying the targeted sequences with primers that contain unique indexing and adapter sequences for sequencing on the MiSeq® instrument
- Simplifies library preparation by saving time, decreasing sample loss and reducing data variability

To learn more, visit
[www.promega.com/
mps](http://www.promega.com/mps)

PowerSeq® Quant MS System

Quantification of prepared MPS libraries for Illumina platforms, enabling efficient pooling and flow cell representation

Ordering Information

Product Name	Pack Size	Catalog Number
PowerSeq® 46GY System	100 reactions	PS4600
PowerSeq® CRM Nested System, Custom	1 each	AX5810
PowerSeq® Quant MS System	500 reactions	PS5000

8. Identity Automation™

Laboratories like yours are discovering that automation can lead to higher sample throughput, greater consistency of results, reduction in errors and fewer reworked samples.

With laboratory automation, one size does not fit all. With Promega, you choose the level of automation that fits your laboratory workload. For large-platform automation, choose Identity Automation™ packages that help control multiple processes across a variety of robotic workstations. Determine where our automated solutions fit into your workflow and manage your workload more effectively.

Discover automation that works with you to integrate Promega chemistries for DNA isolation, quantification, normalization and STR analysis. Our combined chemistry expertise and automation experience ensures that your automated process performs to the same standards as your manual process. The result is a flexible automated process optimized for human identification by those who know the chemistry best.

Identity Automation™ solutions consist of complete packages for each step in your DNA-typing workflow. Each package includes expert-tested robotic methods, professional installation, staff training and post-installation technical support.


Contact your local
Promega representative
to learn more.

9. Validation Services


Our team of knowledgeable former practitioners use their experience and expertise to design a customized validation solution to fit your laboratory's needs and preferred scope of work.


Service Option	STR Amplification		Quantification	DNA Extraction
	Casework	Databasing		
Consultation with laboratory to understand validation need	X	X	X	X
Defined scope of work agreement	X	X	X	X
Detailed data analysis	X	X	X	X
Validation report (electronic)	X	X	X	X
Teach-back training & support (remote or on-site)	X	X	X	X
Services Include:				
Precision study	X	X	X	X
Sensitivity study	X	X	X	X
Analytical threshold	X	X		
Stochastic study	X	X	X	
Reproducibility study	X	X	X	X
Contamination study	X	X	X	X
Mixture study	X	X	X	X
Concordance study	X	X		
Known and non-probative sample study	X	X	X	X

If you would like to discuss how our Validation Services team may assist your laboratory, please contact your local Promega representative or visit our website at www.promega.com/ValidationServices to fill out a request form.



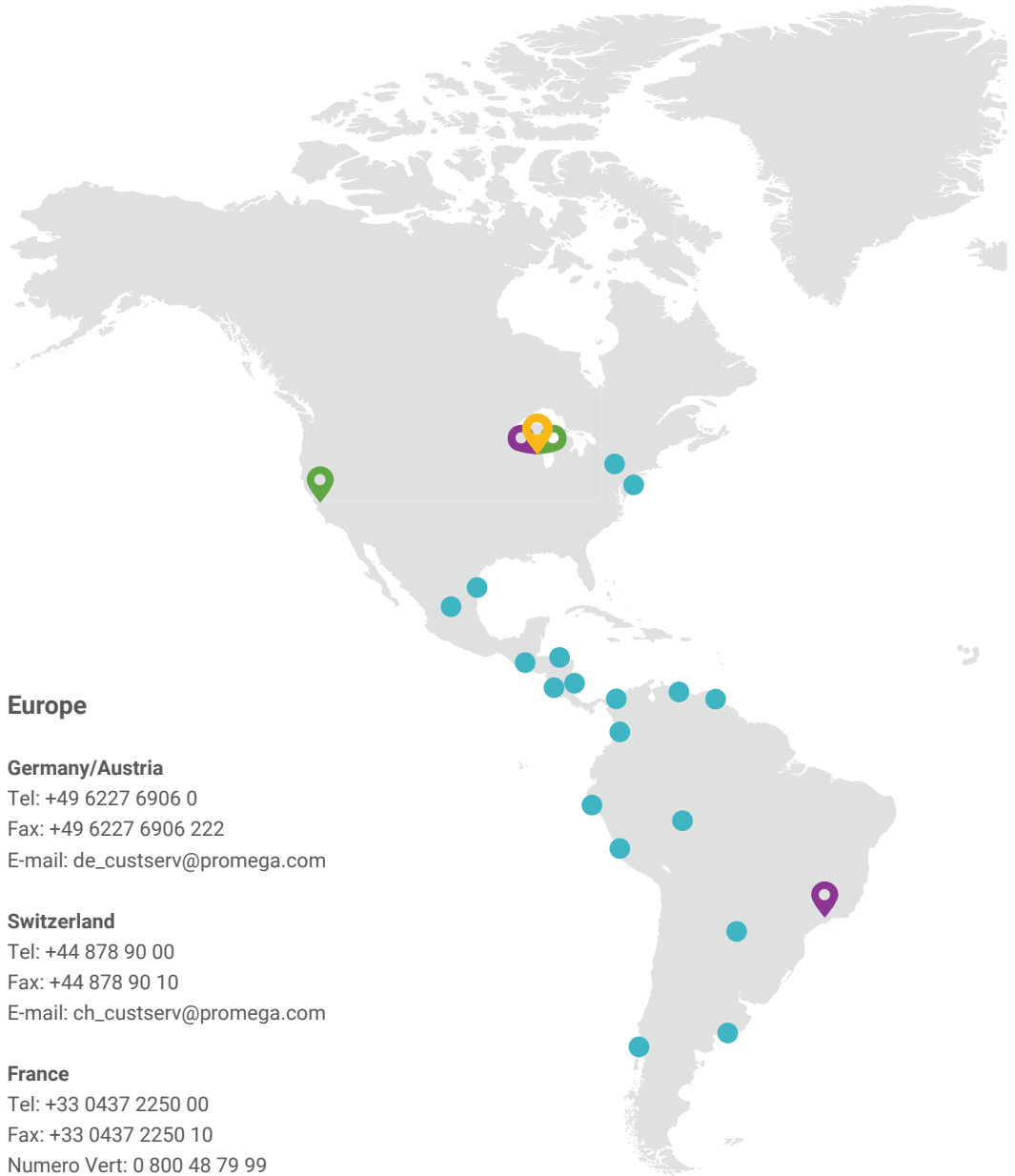
Contact your local
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DNA

GENETIC IDENTITY

PRODUCT CATALOG

