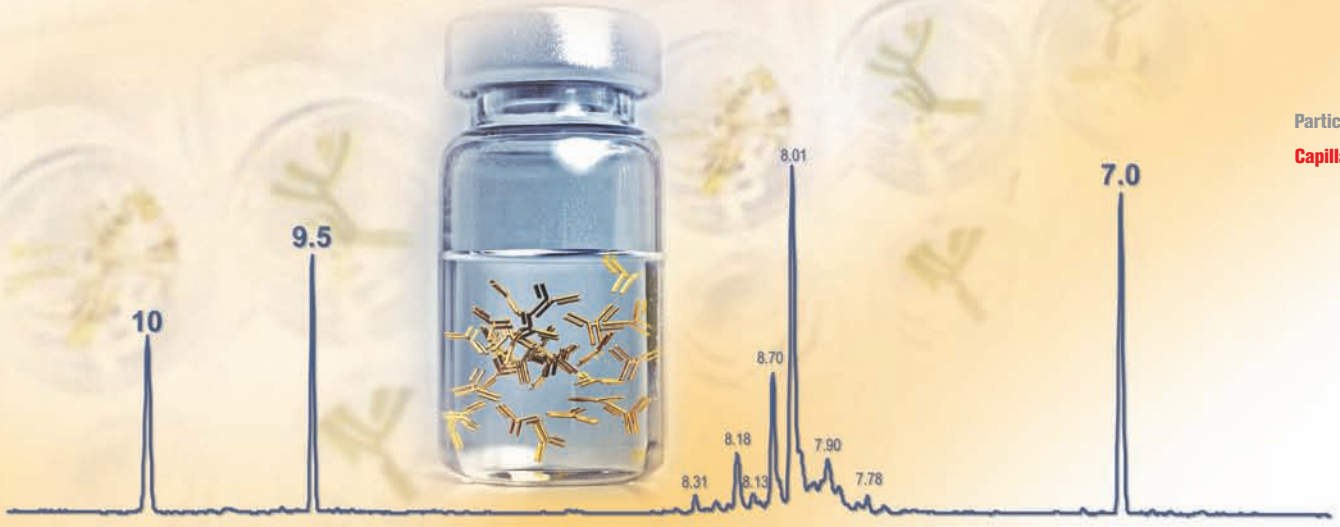
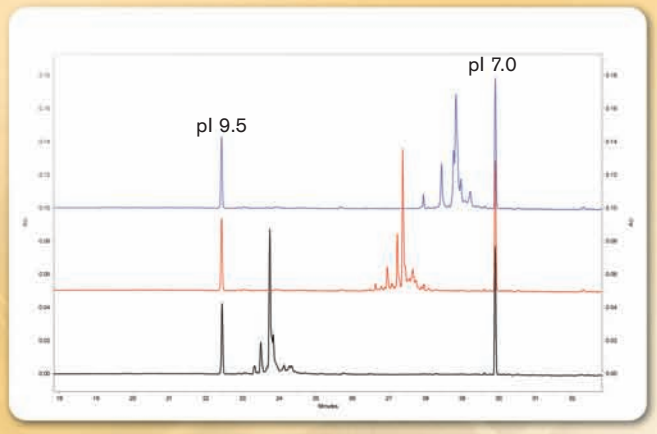
The power of precision.

cIEF pI Marker Kit

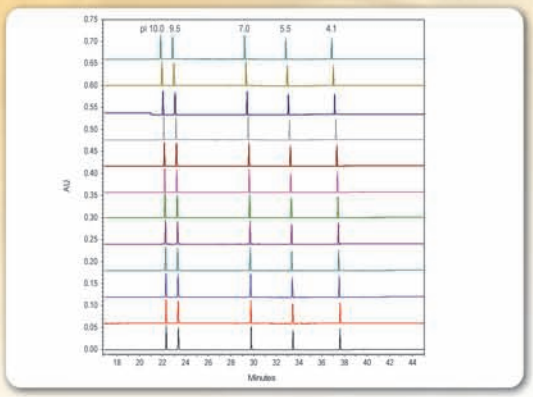


A Single Separation Method for Many Proteins



Separation of three different therapeutic monoclonal antibodies by cIEF. All three MAbs have a pI between 7.0 and 10.

Reproducibility



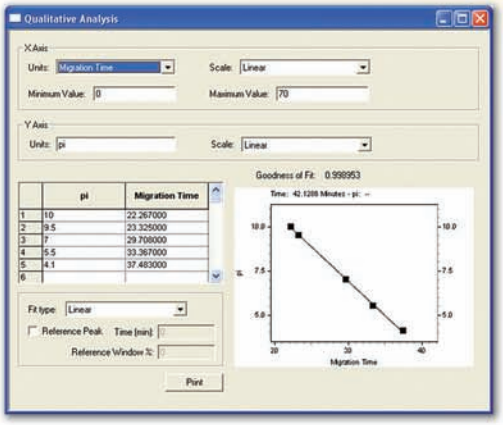
A set of five pI markers was separated by cIEF. These data illustrate reproducibility of this separation over 12 consecutive runs.

Capillary Isoelectric Focusing (cIEF) is a powerful technique allowing separation of proteins based on their isoelectric point. While various elements of this separation can be optimized, pI accuracy is a critical factor in the precision of cIEF. (For further information, see AIB A-11634A, "Identification of System Parameters Critical for High-Performance cIEF.")

It is important to use an appropriate set of pI markers to generate a linear relationship on which to base assessment of pI. Protein pI markers are subject to degradation or modification, which may alter their actual pI relative to theoretical pI value. The use of peptides for determining pI minimizes the likelihood of pI variation and allows for more accurate assessment of pI.

Beckman Coulter offers a set of five peptide pI markers with the following values: 4.1, 5.5, 7.0, 9.5 and 10.0, for use with cIEF methods on the PA 800 *plus* Pharmaceutical Analysis System.

pI Linearity



At left: A plot of pI values versus detection time generated for the separation of five synthetic peptides. The mobilization of the pI markers fits a linear model with a correlation coefficient of 0.99, indicating that the mobilized pH gradient is highly linear.

pI Markers -- %RSD Detection Time and Area

	pI 10.0	pI 9.5	pI 7.0	pI 5.5	pI 4.1	pI 10.0	pI 9.5	pI 7.0	pI 5.5	pI 4.1
pI Markers	Time/(min)	Time/(min)	Time/(min)	Time/(min)	Time/(min)	Area	Area	Area	Area	Area
Injection 1	21.833	22.892	29.225	32.842	36.883	275469	272226	237655	219847	202542
Injection 2	21.942	23.000	29.342	32.967	37.025	275444	272744	238706	218951	204476
Injection 3	22.042	23.100	29.433	33.067	37.133	274401	270486	236338	218485	204759
Injection 4	22.117	23.175	29.525	33.167	37.242	272878	271245	236050	217135	205020
Injection 5	22.158	23.225	29.592	33.242	37.333	272279	269952	234948	217421	205664
Injection 6	22.192	23.250	29.617	33.275	37.375	273866	270389	236258	218168	205269
Injection 7	22.225	23.283	29.658	33.317	37.433	274832	272049	235831	217798	205999
Injection 8	22.258	23.317	29.692	33.350	37.467	275976	274272	236433	219248	208284
Injection 9	22.267	23.325	29.708	33.367	37.483	274490	271586	237327	218617	207423
Injection 10	22.300	23.358	29.750	33.417	37.542	275849	270337	235219	219550	208664
Injection 11	22.308	23.375	29.775	33.442	37.617	276735	269873	236694	220932	209053
Injection 12	22.325	23.392	29.800	33.467	37.608	278119	270477	236666	221408	208467
%RSD	**0.70**	**0.68**	**0.61**	**0.59**	**0.62**	**0.59**	**0.49**	**0.44**	**0.60**	**0.99**

cIEF Peptide Marker Kit (A58481)

Contents: Five synthetic peptide markers with pI values of 4.1, 5.5, 7.0, 9.5, 10.0. Each vial contains 240 µL of peptide. The kit volume enables 100 cIEF samples.

Advanced cIEF Starter Kit (A80976)

Contents: cIEF Peptide Marker Kit, Neutral Capillary cIEF Gel

Application Information Bulletins available on www.CELeader.com:

"Identification of System Parameters Critical for High-Performance cIEF" (A-11634A)
"A Robust cIEF Method: Intermediate Precision for the pH 5-7 Range" (A-12015A)
"High-Resolution cIEF of Therapeutic Monoclonal Antibodies: A Platform Method Covering pH 4-10" (A-12026A)

For laboratory use only; not for use in diagnostic procedures.

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All on one platform

GenomeLab GeXP Genetic Analysis System

SNP Analysis

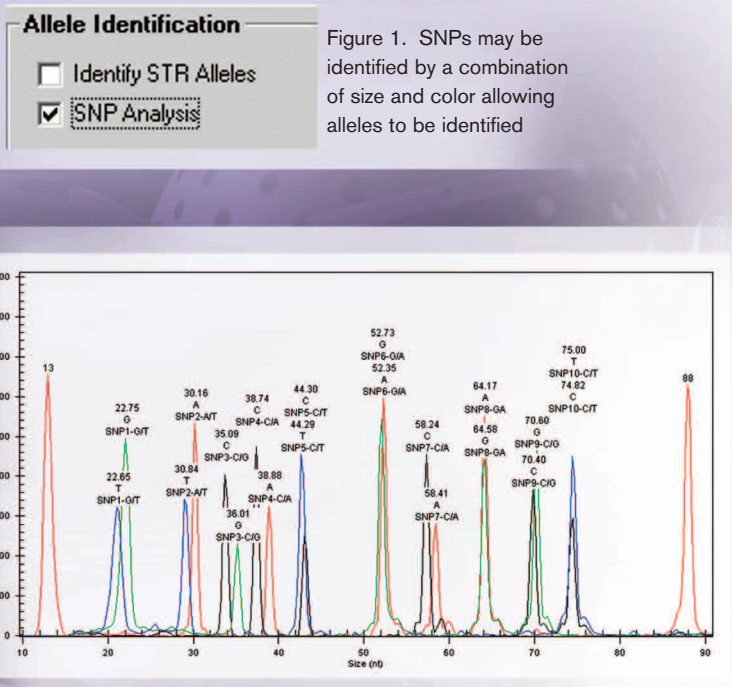

Figure 1. SNPs may be identified by a combination of size and color allowing alleles to be identified

Figure 2. Multiplex SNPs scoring analysis using the GenomeLab SNPStart Primer Extension Kit

Single nucleotide polymorphisms (SNPs) are major contributors to genetic variation, making up approximately 80% of all known polymorphisms. The GenomeLab GeXP provides automated sequencing for SNP discovery and fragment sizing with size/color allele identification for single or multiplexed SNP scoring. The analyzed SNP genotypes are summarized and reported in fragment lists.

SNP Scoring by Primer Extension

The GeXP System allows simultaneous analysis of SNPs at multiple sites of a template (or different templates). The GenomeLab SNPStart Kit provides a fast, simple and ready-to-use solution for scoring DNA sequence variations using Single Base Extension technology (Figure 3).

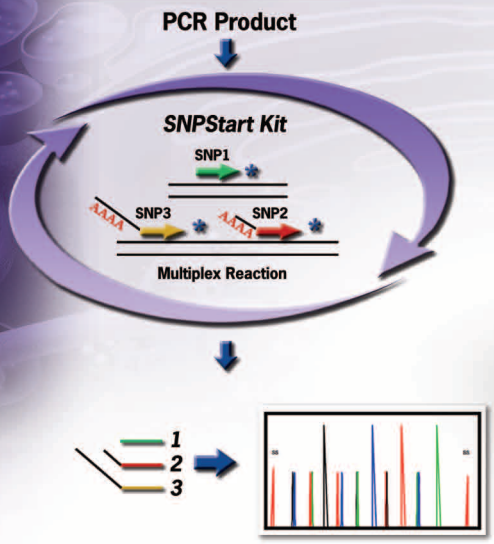

Figure 3. SNP Scoring

GenomeLab SNPStart Primer Extension Kit

SNP Discovery by Sequencing

Ordering Information

DNA sequencing is the primary method available to discover previously unknown alleles. The GeXP Genetic Analysis System provides an efficient and robust DNA sequencing protocol using dye-terminator cycle sequencing. The sequences of the unknown samples are aligned with the reference sequence and the loci with SNPs are identified (Figure 4).

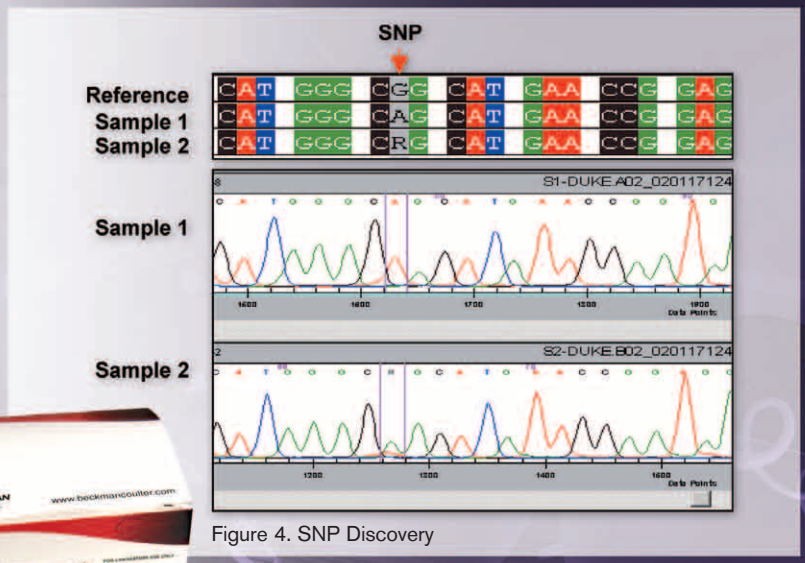

Figure 4. SNP Discovery

GenomeLab Methods Development Kit

Instruments

A26572 GenomeLab GeXP Genetic Analysis System, Dual Plate Format
A62684 GenomeLab GeXP Genetic Analysis System, Single Plate Format

Chemistries and Kits

GenomeLab SNPStart Primer Extension Kit
A23201 GenomeLab SNPStart Primer Extension Kit

GenomeLab Human STR Primer Set
A20100 GenomeLab Human STR Primer Set

GenomeLab DNA Size Standard Kit
608098 GenomeLab DNA Size Standard Kit – 400
608095 GenomeLab DNA Size Standard Kit – 600
608395 GenomeLab DNA Size Standard Kit – 80

GenomeLab Test Sample
608105 GenomeLab Fragment Analysis Test Sample

GenomeLab Methods Development Kit
608000 GenomeLab Methods Development Kit

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Simplify reaction setup for dye terminator cycle sequencing

GenomeLab DTCS Quick Start Kit

TABLE 1

Sample	# of Bases	Accuracy
pUC18 50fmol	500	99.12%
	550	99.18%
	600	99.27%
	700	99.24%
pUC18 100fmol	500	99.30%
	550	99.36%
	600	99.41%
	700	99.33%

TABLE 2

Sample	# of Bases	Accuracy
pUC18 1/2 reaction	500	99.49%
	550	99.53%
	600	99.56%
	700	99.38%
pUC18 1/4 reaction	500	99.34%
	550	99.22%
	600	99.05%
	700	98.61%

Dye terminator cycle sequencing (DTCS) reactions incorporate many components, including DNA polymerase, pyrophosphatase, buffer, dNTPs, dye terminators, DNA templates and primers. The stepwise addition of so many components is time consuming, and if done manually, can introduce errors associated with pipetting small volumes and viscous solutions.

The GenomeLab DTCS Quick Start Kit simplifies this process by using a master-mix of many of the components, thereby reducing the number of pipetting steps from ten to four while using larger transfer volumes to reduce pipetting error. Each kit provides enough reagents to complete 100 sequencing reactions.

Performance for the GenomeLab GeXP Genetic Analysis System, using the Quick Start Kit, is comparable to that achieved with the standard DTCS chemistry using the LFR-1 method. Table 1 represents an average of 24 individual samples run using this chemistry and summarizes the percent accuracy calculated at 500, 550, 600 and 700 bases. Accuracy is calculated using a call threshhold setting of zero, which disallows all ambiguous calls (N), providing a more accurate yet conservative estimate of read length. Table 2 represents the same analysis using 1/2 X and 1/4 X reactions*.

** Beckman Coulter recommends using full reaction concentrations to achieve the best system performance over a wide array of sample templates.*

GenomeLab DTCS Quick Start Kit

Specifications

Contains volumes required for 100 reactions:

- Quick Start Mix ..... 880 µL
  - -dATP, dCTP, dTTP, dITP
  - -ddUTP, ddGTP, ddCTP, ddATP (WellRED label)
  - -Tris-HCl, $MgCl_2$ reaction buffer - pH 8.9
  - -Thermo Sequenase DNA Polymerase I
  - -Pyrophosphatase
- (-) 47 Sequencing Primer ..... 240 µL
- pUC18 Control Template ..... 20 µL
- Glycogen ..... 110 µL
- Mineral oil ..... 5 mL
- Sample Loading Solution (SLS) ..... 6 mL

For more information about the GenomeLab product line, visit www.beckmancoulter.com/genomelab

Ordering Information

Kit

608120	GenomeLab DTCS Quick Start Kit

Instrument

A26572	GenomeLab GeXP Genetic Analysis System, Dual Plate
A62684	GenomeLab GeXP Genetic Analysis System, Single Plate

Automated Nucleic Acid Sample Preparation

Agencourt sample preparation reagents, coupled with our Biomek Series automated workstations, provide a top-notch solution for a variety of applications.

Based on the patented SPRI technology, the Agencourt CleanSEQ system is ideal for post reaction purification of sequencing products. Its simple protocol requires no centrifugation or filtration and efficiently purifies sequencing products to deliver superior sequencing data. The Agencourt CleanSEQ kit is easy to use, flexible, and automation-compatible. It is the preferred purification system of many genomic research facilities. For more information, visit www.beckmangenomics.com

This process can be performed manually or fully-automated on the Biomek Series automated workstations.

For more information about the Biomek Series automated workstations, visit www.beckmancoulter.com.

Ordering Information

A29151	Agencourt CleanSEQ Kit (8 mL) 800 / 1,600 Preps
A29154	Agencourt CleanSEQ Kit (50 mL) 5,000 / 10,000 Preps
A29161	Agencourt CleanSEQ Kit (500 mL)
A29166	Direct Inject Plate (384-Well Plate)
A29173	Direct Inject Plate (96-Well Plate)

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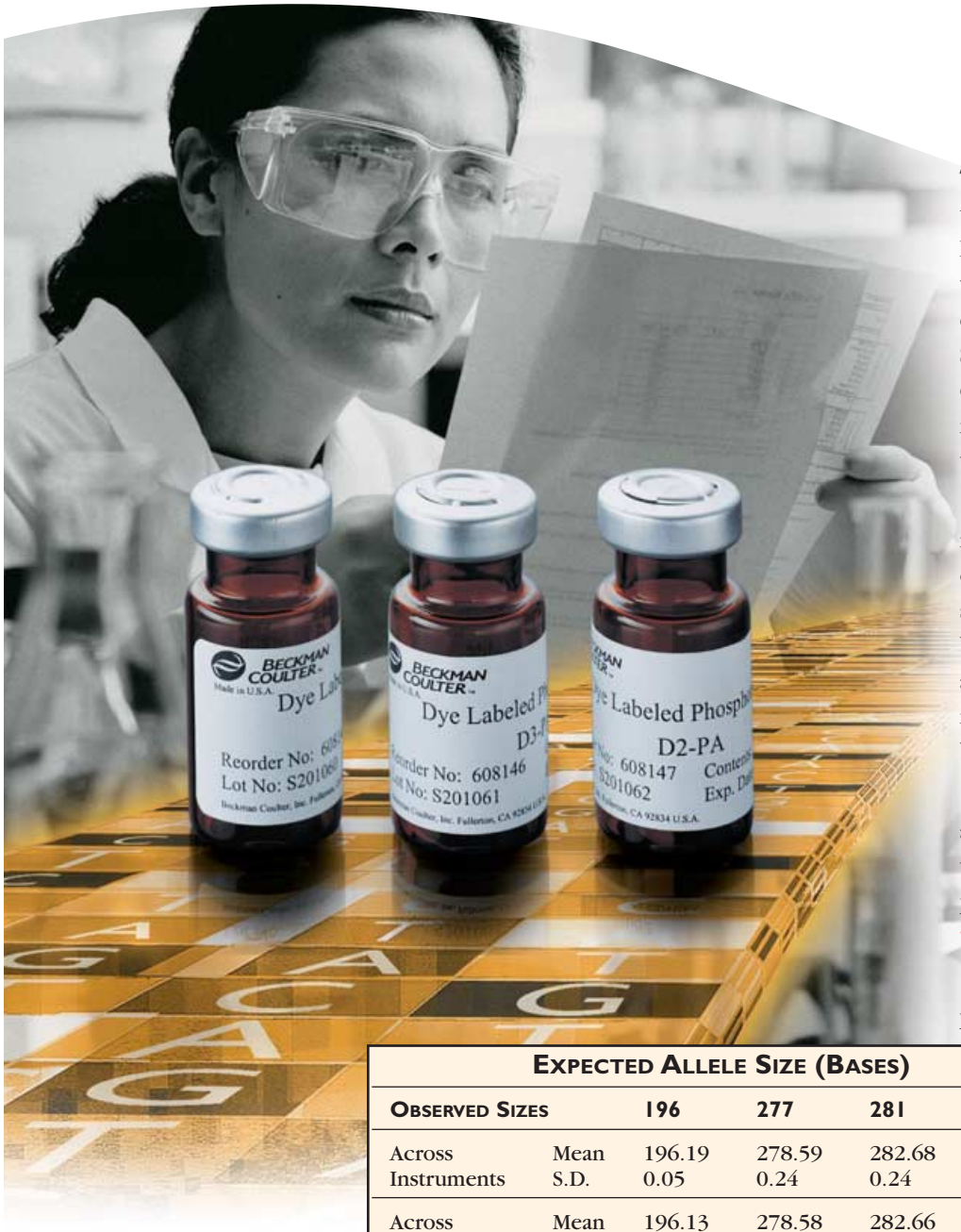
Designed specifically for use with the CEQ™ Series Genetic Analysis System

WellRED

Dye-Labelled Phosphoramidites



The WellRED Dye-Labeled Phosphoramidites use cyanine-based fluorescent dyes with high extinction coefficients that absorb in the near infrared region. These dyes were designed specifically for use with the CEQ™ Series Genetic Analysis systems, and are excited to fluoresce using diode lasers. This method is much more stable and cost-effective than traditional argon ion lasers.

The WellRED Dye-Labeled Phosphoramidites are easily coupled to the 5' end of oligonucleotides using commercial DNA synthesizers. These oligonucleotides may be used for direct hybridization or in PCR* amplification processes. DNA fragments may be detected, quantitated and sized by the CEQ 8000 genetic analysis system.

The protocol describing the synthesis and purification of oligonucleotides using these dye-labeled phosphoramidites has been published on the Beckman Coulter website – ***www.beckmancoulter.com/dnanews.***

The CEQ 8000 genetic analysis system provides both high accuracy and high precision sizing of DNA fragments. The low background noise ensures very high sensitivity detection. Table 1 provides an example of the typical precision obtained even across different gels, arrays and instruments.

Expected Allele Size (Bases)					
Observed Sizes		**196**	**277**	**281**	**403**
Across Instruments	Mean	196.19	278.59	282.68	402.47
	S.D.	0.05	0.24	0.24	0.21
Across Arrays	Mean	196.13	278.58	282.66	402.4
	S.D.	0.18	0.19	0.19	0.15
Across Gels	Mean	195.98	278.54	282.62	402.13
	S.D.	0.08	0.15	0.15	0.27
Across All Variables	Mean	196.1	278.57	282.65	402.33
	S.D.	0.12	0.20	0.20	0.26

Table 1

Specifications

Spectral Data

Dye	Absorbance Maximum	Emission Maximum	Phosphoramidite MW
D2	750 nm	770 nm	829.95
D3	685 nm	706 nm	863.97
D4	650 nm	670 nm	763.85

Ordering Information

Part No.	Description	Quantity
608147	D2PA	100mg
608146	D3PA	100mg
608145	D4PA	100mg

Handling Information

Shipping Conditions: Lyophilized, shipped on dry ice

Storage Conditions: -20°C non frost-free freezer

* *The PCR process is covered by patents owned by Roche Molecular Systems, Inc., and F Hoffmann-La Roche, Ltd.*

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Efficient, robust analyses through capillary electrophoresis.

Anion and Cation Analysis Kits

PA800 Plus

When capillary electrophoresis (CE) was first introduced, it was seen as a revolutionary technique. Now, it is fulfilling a role as a well-established technique in analytical laboratories worldwide. CE offers highly efficient separations, short analysis times, and minimal solvent and reagent consumption, when compared with other separation techniques. In fact, CE should be considered first when dealing with highly polar, charged or chiral analytes.

Anions and cations (eg. organic acids and aliphatic amines) are charged polar species that lend themselves well to the CE format. The most robust ion analysis CE methods use bare fused-silica capillaries with a dynamic coating technology to modulate the electro-osmotic flow. Since many small molecules do not absorb UV light, the primary mode of detection is indirect, in which a UV-absorbing chromophore is added to the background electrolyte, the displacement of which provides the basis for detection.

Whether you apply capillary electrophoresis to counter-ion, beverage or industrial applications, you will find that CE with our ion analysis kits provides robust analyses even when handling diverse sample matrices. Only a small sample amount is needed and generally little sample preparation is required. Separations are fast and efficient.

Typical advantages of our ion kits include routine detection of more ions, shorter run times, and less sample preparation time prior to each analysis. These kits are generic in nature, resulting in less method development time, which improves the economy of ion application solutions.

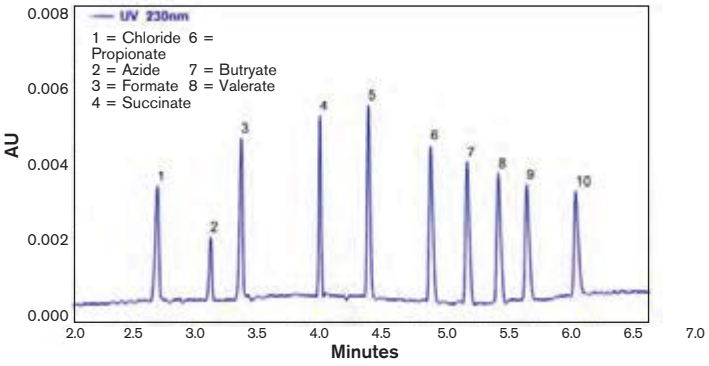
In the discovery phase of pharmaceutical development, one of the most important pieces of data is the correct assignment of molecular mass to the compound to be tested. The formula weight of most drugs cannot be accurately determined without first quantifying the drug counter-ion. Basic drugs may have an inorganic salt or organic acid as counter-ions, whereas acidic drugs may have a metal cation. Regulatory agencies like the U.S. Food and Drug Administration (FDA) and European Medicines Agency (EMEA) require that the active and inactive ingredients of pharmaceutical products be tested for identity, strength, quality and purity. Hence, counter-ion analysis is an important part of the purity determination of a drug.

Our kits allow the analysis of compounds over a wide range of polarities, and compound libraries can be processed for counter-ion content in the absence of solubility data.

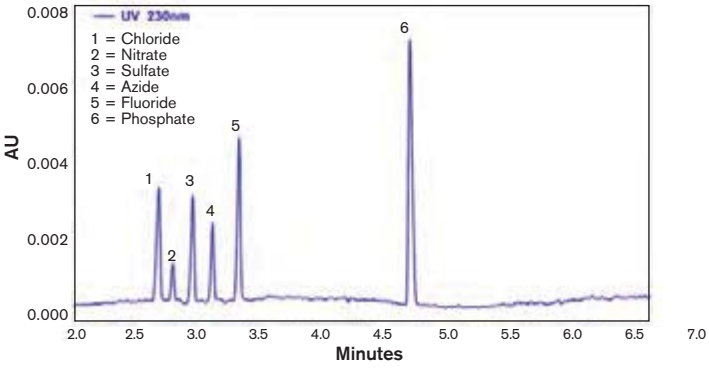
Our Anion and Cation Analysis Kits are specifically formulated for P/ACE MDQ CE systems configured with a UV detector.

Ion Analysis for Capillary Electrophoresis

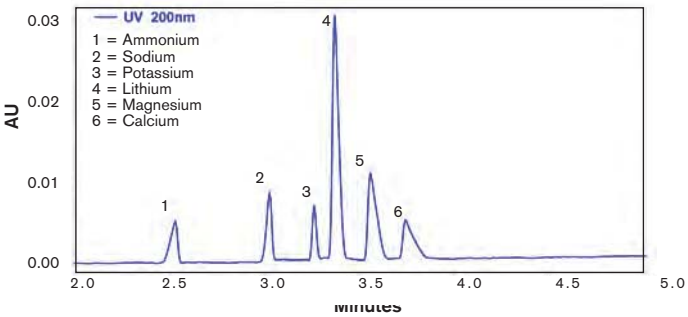
Organic Anions Test Mixture



Inorganic Anions Test Mixture



Cations Test Mixture



Our ion analysis test kits are designed for ion concentrations in the 1-100 ppm range. Sensitivities below that are possible under special conditions only. Typically a %CV of 1% or less is expected for migration time.

The Beckman Coulter Ion Analysis Kits contain the supplies necessary for separation and quantitation of cations, using the P/ACE MDQ Capillary Electrophoresis system. Each kit yields approximately 500 tests.

Anion Analysis Kit (A53537)
Analysis of inorganic ions and organic acids.

Component	Quantity
Anion Coating	1
Anion Separation Buffer	1
Conditioner — Na	1
Anion Acid Rinse	1
Anion Internal Standard	1
Anion Organic Test Mix	1
Anion Inorganic Test Mix	1
Capillary, 50 cm, 75 ìm I.D.	3 pieces
Rinse Solution	1

Cation Analysis Kit (A53540)
Analysis of small inorganic cations and aliphatic amines.

Component	Quantity
Cation Coating A	1
Cation Coating B	1
Cation Separation Buffer	1
Conditioner — Na	1
Conditioner — Li	1
Cation Internal Standard	1
Cation Test Mix	1
Capillary, 50 cm, 75 ìm I.D.	3 pieces
Rinse Solution	2
Ion Analysis Insert	1

A P/ACE MDQ CE system with liquid capillary cooling and UV detection is recommended for ion analysis with our dynamic coating kits. The P/ACE MDQ CE system comes with a variety of sampling formats, including a 96-well plate, which allows this system to be compatible with many forms of laboratory automation. The P/ACE MDQ can also be used for chiral analysis, basic drugs, pKa determination, nucleic acid purity analysis and more.

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