

Comprehensive Solutions For Next Generation Biopharma

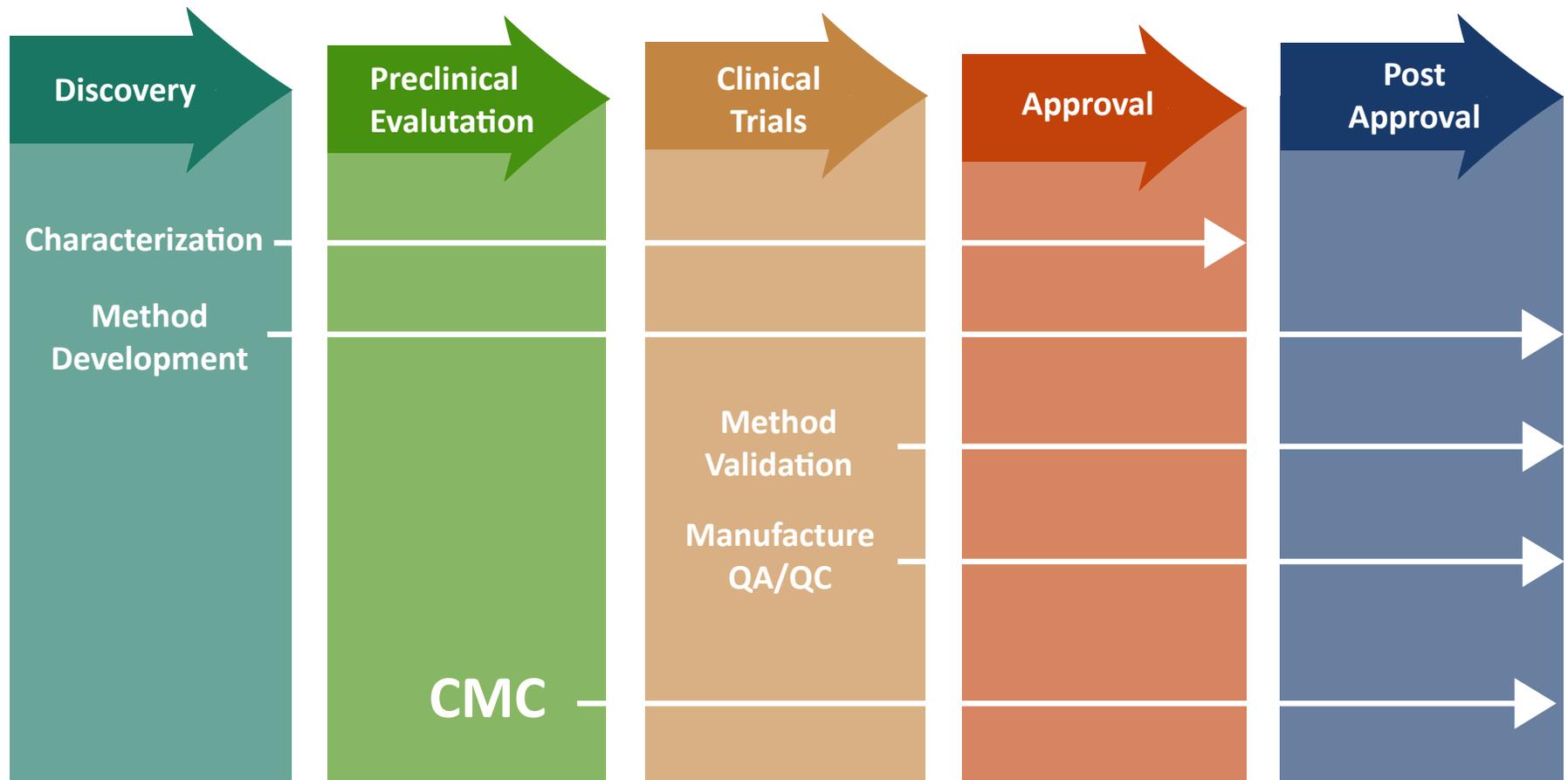


Innovations
Make Breakthrough
Solutions

Questions

- 1.** Do you need the iCIEF fractionation and preparation of protein charged variants ?
- 2.** At the same time you want to realize the direct connection of iCIEF to mass spectrometry detection ?
- 3.** You are looking for the more subtle characterization of extreme complex protein and the related bio-vesicles with ultra-high resolution ampholytes?

AES provides total solutions from drug discovery to post approval



AES Comprehensive Portfolio



CEinfinite multifunction iCIEF platform



Cartridges

The proprietary high-performance iCIEF cartridges with hydrophobic fluorocarbon or hydrophilic coating.



pI Markers

High performance and reliable pI markers, most comprehensive, from 2.85 to 12.



AESlytes

Next generation carrier ampholytes with unparalleled QC for high and consistent performance.



Reagents

These solutions are manufactured under strict quality control standards.



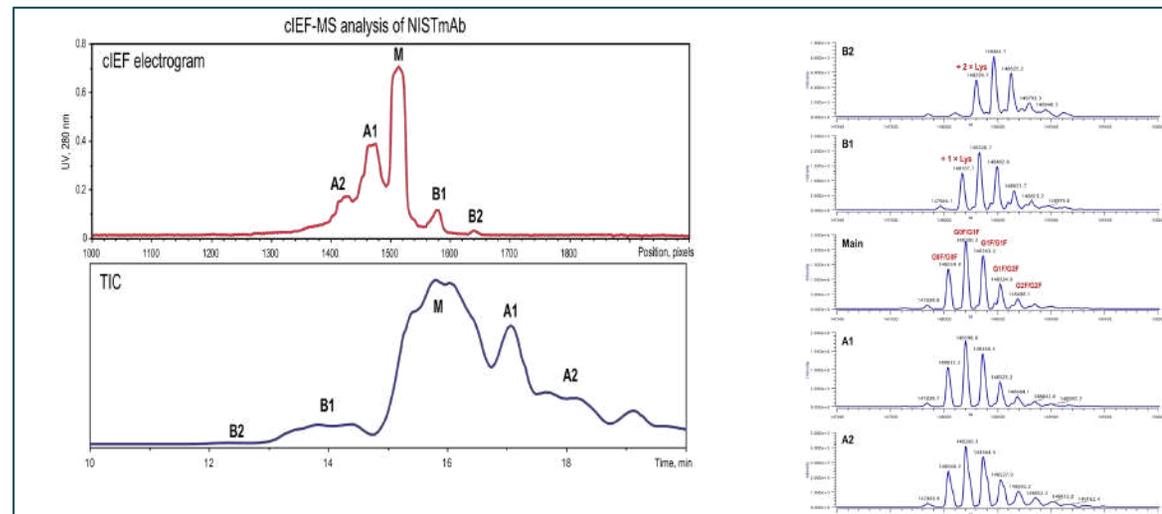
Services

From custom reagent development to method development services and support, AES ensures customer success.

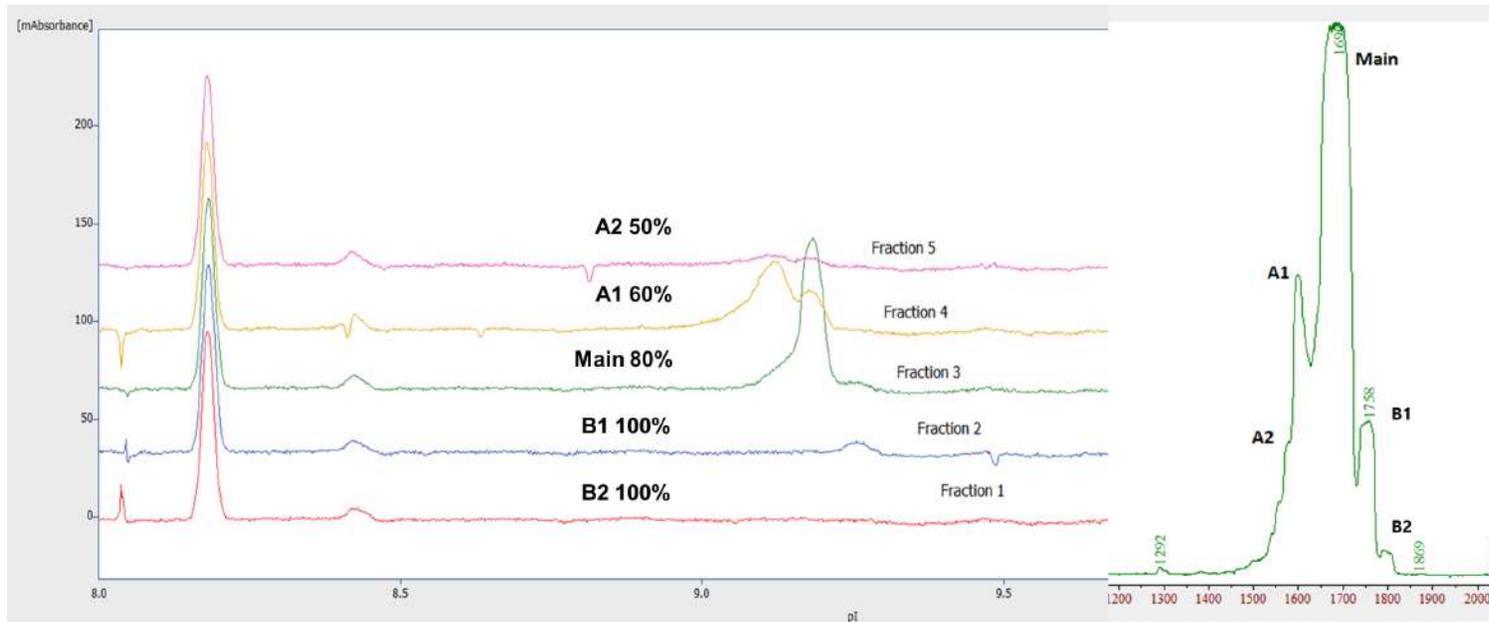
Only platform for both online iCIEF-MS and offline preparative iCIEF

iCIEF-MS online coupling mode

- High throughput, fast method development.
- Directly couple with major brands of MS.
- Unique coatings and chemicals to accelerate the drug development process.
- Provides significant information about the quality of the drug substance within an hour.



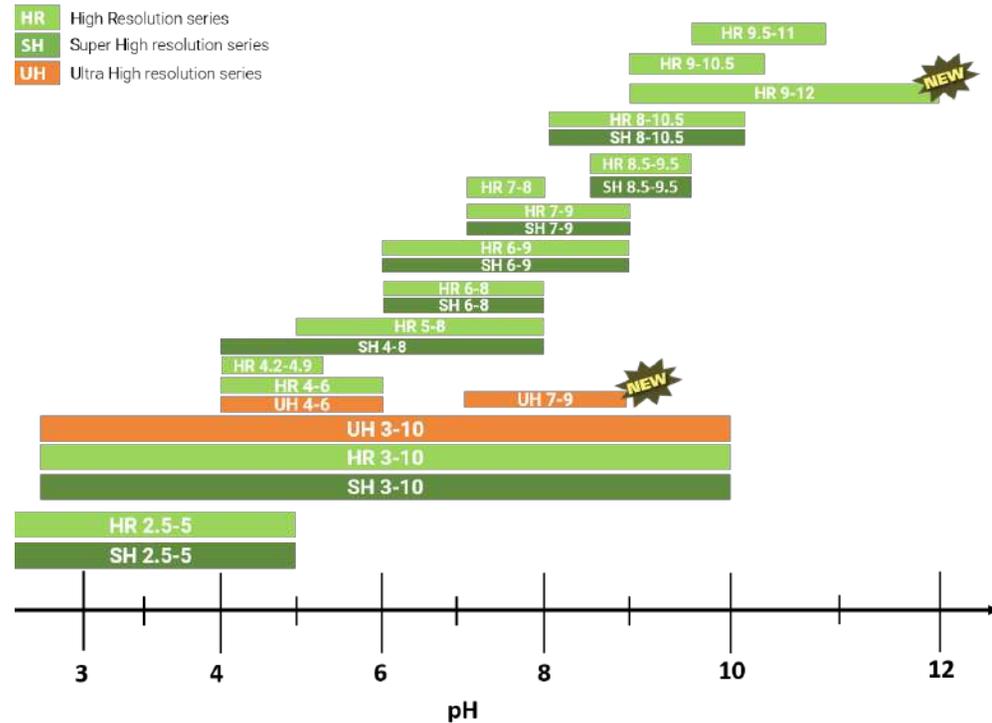
Offline preparative mode



- ◆ Enables in-depth analysis of modifications such as deamidation at the peptide map level.
- ◆ Preparation sensitivity <math><0.1\text{ pl}</math> difference. Typical automated one run is <math><60\text{ min}</math>.
- ◆ A fully automated system allows Up to 96 fractions per run, ~100 μg collections per day under temperature controlled environment.
- ◆ Achieve as high as 90% purity. Get as high as 8 μg isomer per run.
- ◆ Fast method adoption and development with comprehensive ampholytes support.
- ◆ One platform for both online and off-line preparative iCIEF-MS to do cross verification and jointly conduct comprehensive and in-depth research on charge isomers.

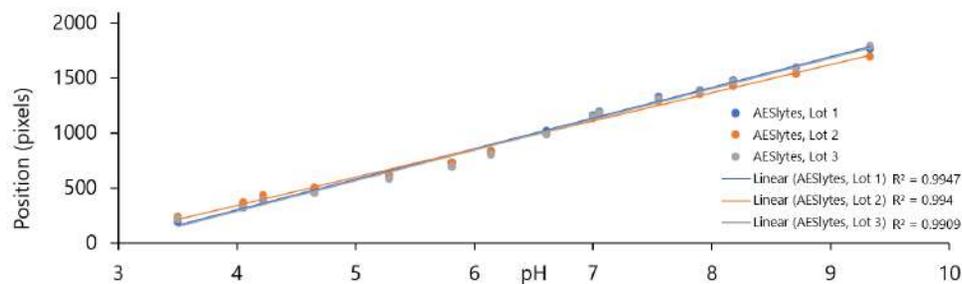
Unparallel ampholytes

AESlyte product line



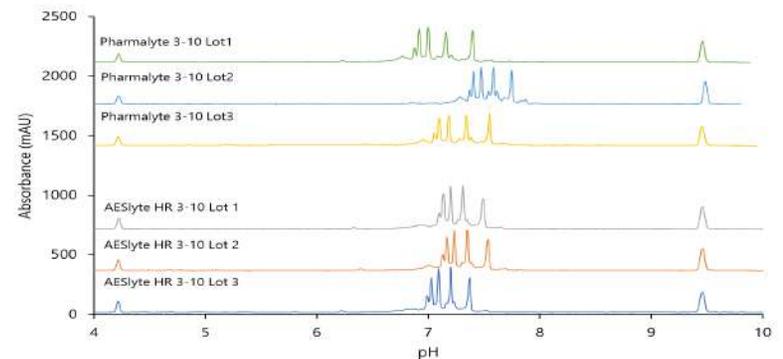
Good pH gradient linearity

pH Linearity of AESlyte HR 3-10



Good lot to lot sample egram consistency

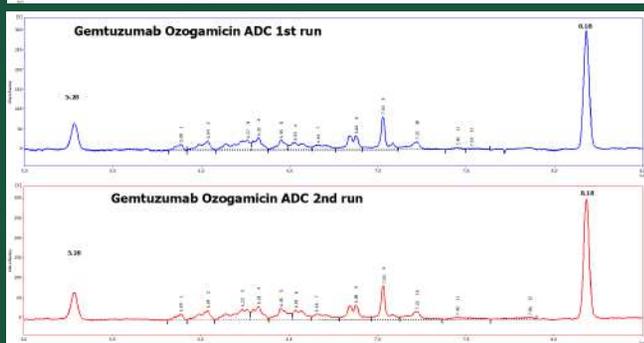
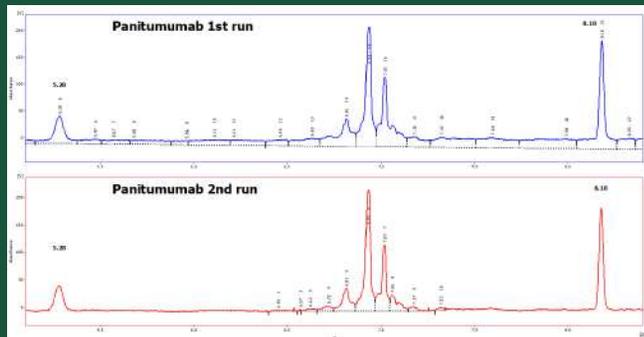
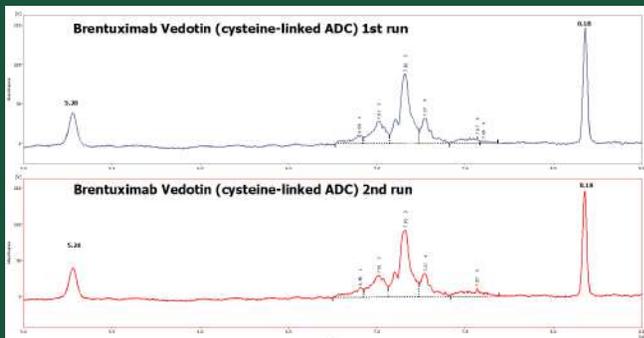
ICIEF of AFSC Hemoglobin to Compare the Lot-to-Lot Consistency of AESlytes HR 3-10 and Pharmalyte 3-10



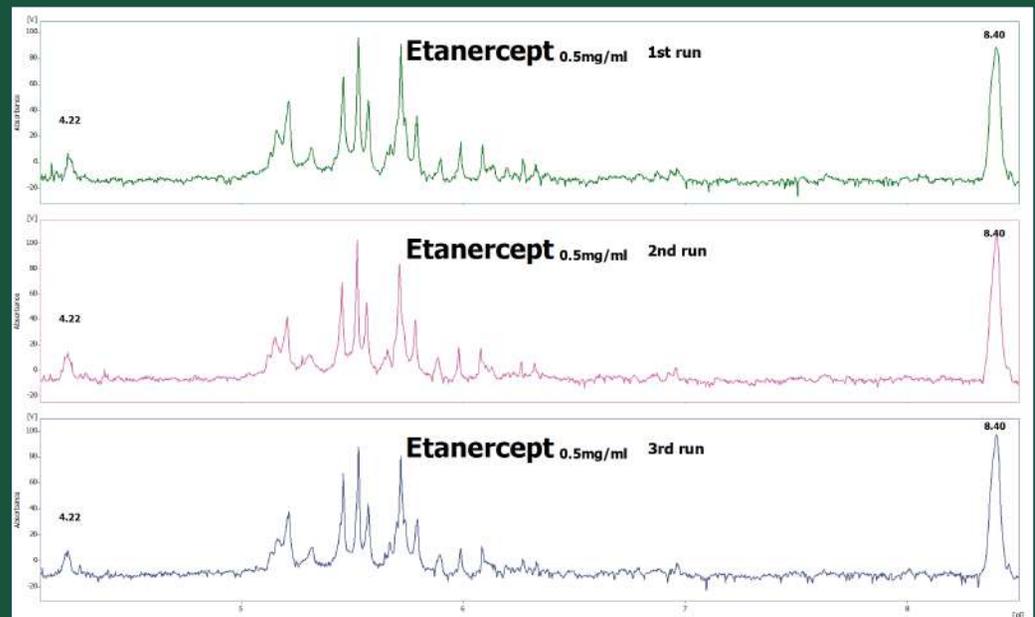
AES critical reagent service brings your QA/QC to another level

- Carrier ampholyte customizations.
- QC using customers' criteria.
- Existing iCIEF profile matching.
- Guaranteed lot to lot consistency.
- Re-supply service.
- Help to succeed in regulation filing.

Superior performance iCIEF for Next Generation Therapeutics:



- *Gene Therapy*
- *Cell Therapy*
- *Enzyme*
- *mRNA*
- *Lentivirus vector*
- *AAV*
- *mAbs*
- *ADCs*
- *Fusion proteins*
- *BsAbs*
- *LNP*



Specifications

	Analytical Manual.	Analytical Auto.	Preparative Auto.
Detection mode	Whole column iCIEF		
Detector noise	Less than 0.001 AU, 280 nm		
Operation mode	Manual	Automatic	Automatic
Sample capacity	Single	84+3 vial tray, 96 well plate	
Sample tray temperature	-	4 - 10 °C	
Detection dynamic range	250 (0.004 – 1.0 AU, 280nm)		
Sample throughput	Up to 20 Injections per hour	Up to 12 injections per hour	-
Resolution	0.03 pI (3-10 ampholyte)		
Fractionation capability	N/A	N/A	<0.1 pI difference
Minimum load volume	2ul	10ul	20ul
pI CV	<1 %	<1 %	<1 %
Peak area CV	<4%	<4%	<4%
Typical run time (one run)	10 mins	14 mins	<1 Hour
Fractionation efficiency	N/A		Up to 99% Purity
Fractionation amount	N/A		~ 8 µg isomer/run ~ 100 µg /day
High voltage range	0 – 3000 volts (continuously adjustable)		
Exposure time	0.02 – 99.9 ms		
ADC maximum	16386 AU		
Separation pH range	2.1 – 12		
Electrical requirement	100/240 VAC, 50 - 60 Hz		
Weight	25 kg	35kg	40kg



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