

# Fast Separations for Aggregates and Fragments

Agilent AdvanceBio SEC 200 Å 1.9 µm columns



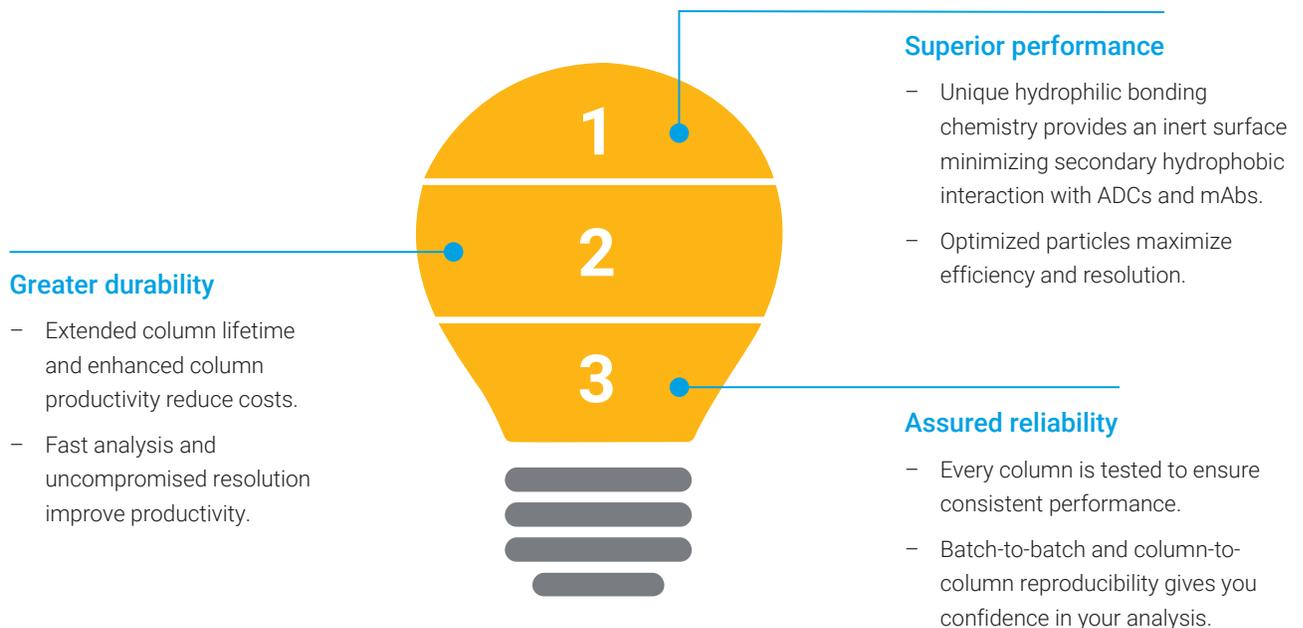


# Boost Your Productivity with Fast Aggregate and Fragment Analysis

Size exclusion chromatography (SEC) is a reference method for the qualitative and quantitative analysis of protein aggregates, such as monoclonal antibodies (mAbs) and antibody drug conjugates (ADCs). Aggregates are critical quality attributes (CQAs) because they may alter biotherapeutic efficacy or immunogenicity.

AdvanceBio SEC 200 Å 1.9 µm columns are suitable for UHPLC and HPLC instruments. They are designed to improve resolution and deliver faster separation of mAb aggregates and lower molecular weight protein fragments.

**Optimized sub-2-micron particles give you the following advantages:**



# Superior Performance for mAb and ADC Characterization

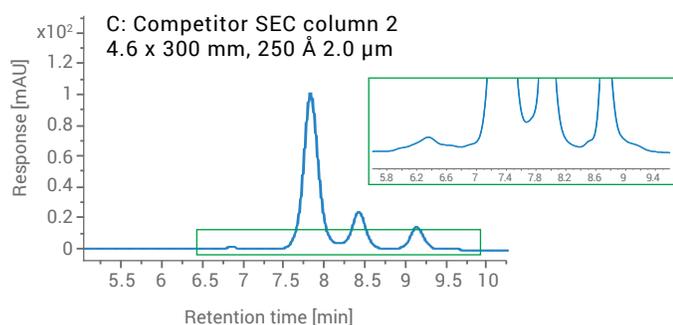
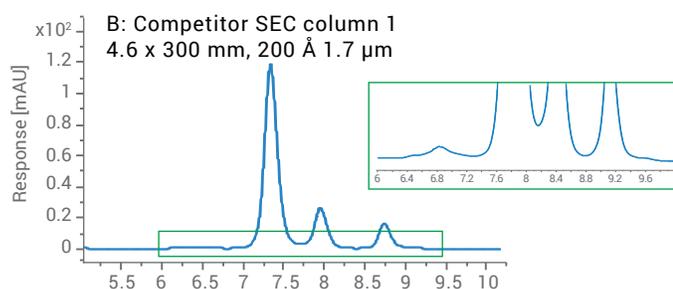
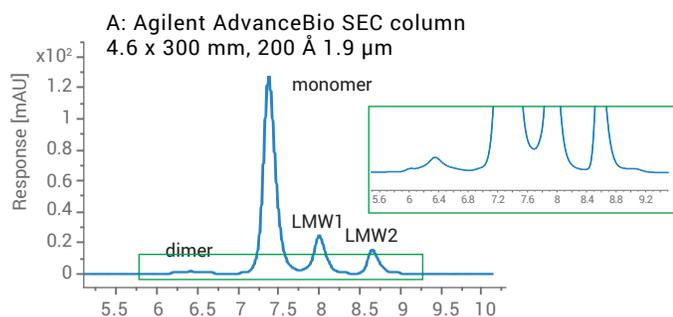


## High resolution, high-efficiency separations, and an inert surface

The 1.9  $\mu\text{m}$  silica particles modified by unique Agilent hydrophilic bonding chemistry ensure high resolution and separation efficiency. In addition, they minimize secondary interactions with mAbs, ADCs, and other proteins.

## Optimized sub-2 $\mu\text{m}$ particles provide high resolution and efficient separation

AdvanceBio SEC columns demonstrate better resolution and separation efficiency, compared to competitive columns.



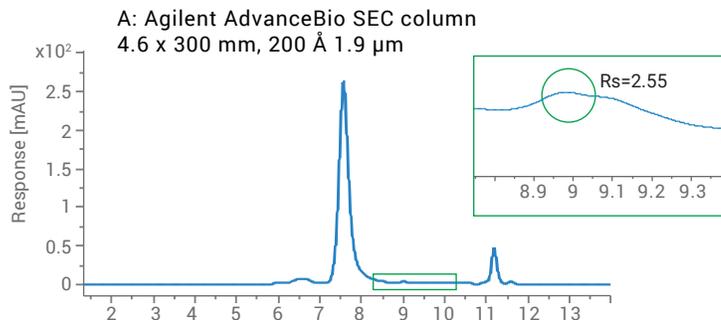
<b>Instrument:</b>	Agilent 1260 Infinity II Bio-inert LC system
<b>Software:</b>	Agilent OpenLab CDS
<b>Flow rate:</b>	0.35 mL/min
<b>Eluent:</b>	50 mM sodium phosphate, 200 mM NaCl, pH 7.0
<b>Temperature:</b>	25 $^{\circ}\text{C}$
<b>Injection volume:</b>	1 $\mu\text{L}$
<b>Detection:</b>	UV, 220 nm

	Peak Width 50%			Resolution		Back Pressure (bar)
	monomer	LMW1	LMW2	dimer/monomer	monomer/LMW1	
Agilent AdvanceBio SEC 1.9 $\mu\text{m}$	0.159	0.154	0.148	2.79	2.28	340
Competitor SEC column 1	0.172	0.166	0.160	2.46	2.09	354
Competitor SEC column 2	0.194	0.182	0.169	2.49	1.83	260

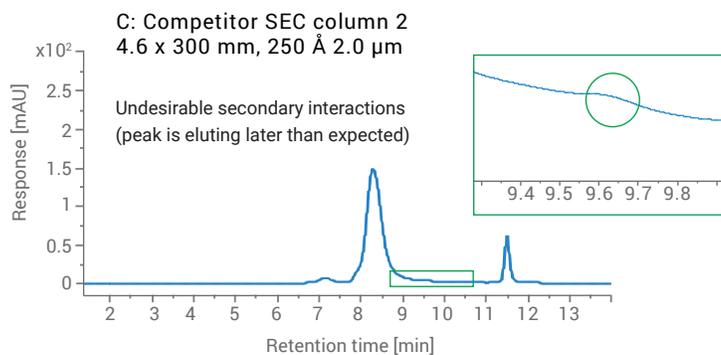
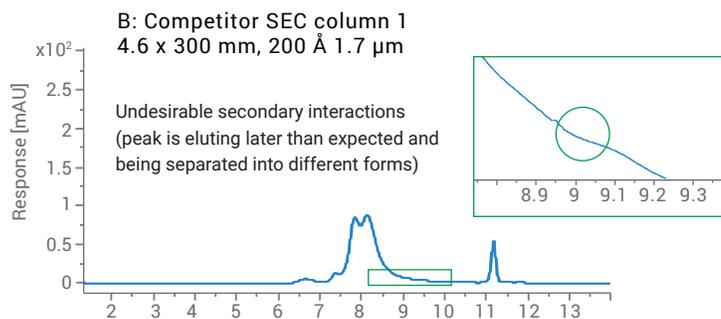
Size exclusion chromatograms of SigmaMAb mixed with LMW1 and LMW2 fragments.

## Inert surface contributes to good peak shape and prevents secondary interactions

AdvanceBio SEC 1.9  $\mu\text{m}$  columns minimize secondary nonspecific interactions with sticky ADCs, and demonstrate better peak shape than the competition. Other manufacturers' columns have undesirable secondary interactions, showing late sample elution and different separation forms.



**Instrument:** Agilent 1260 Infinity II Bio-inert LC system  
**Software:** Agilent OpenLab CDS  
**Flow rate:** 0.35 mL/min  
**Eluent:** 50 mM sodium phosphate, 200 mM NaCl, pH 7.0  
**Temperature:** 25  $^{\circ}\text{C}$   
**Injection volume:** 2  $\mu\text{L}$   
**Detection:** UV, 220 nm



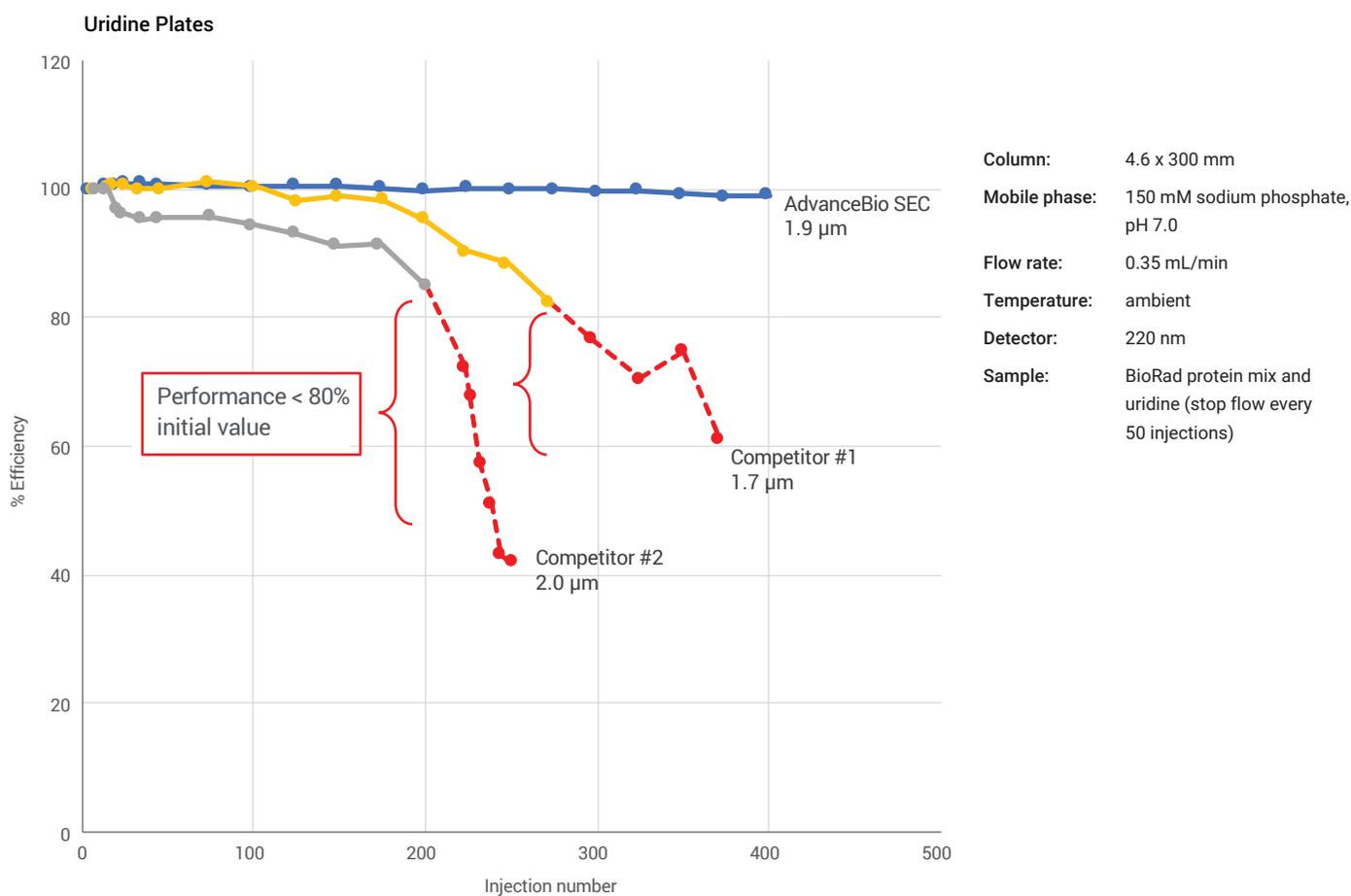
Size exclusion chromatograms of SigmaMAb ADC.

# Save Time and Reduce Costs

## Extended lifetime helps your lab keep costs in check

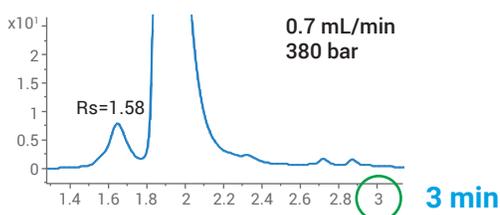
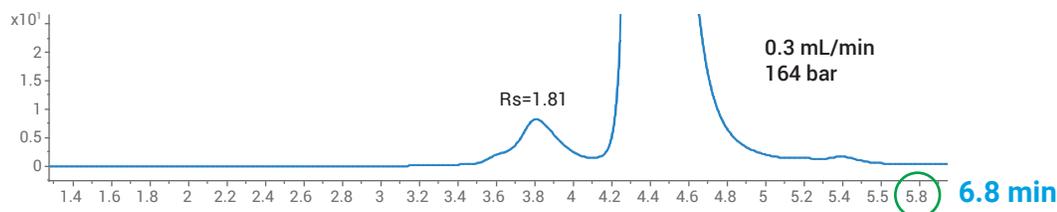
We engineered our 1.9  $\mu\text{m}$  monodisperse silica particles for best-in-class mechanical strength and improved column lifetime. During development, columns were tested using a flow stop/start procedure, which is designed to mimic typical use in demanding laboratory environments.

**AdvanceBio SEC 200 Å 1.9  $\mu\text{m}$  columns showed less than 2% drop in plate number over 400 injections, confirming excellent mechanical stability**



## Greater productivity through unsurpassed speed and resolution

Fast analysis and extended column lifetime make AdvanceBio SEC 200 Å 1.9 µm columns an economically valuable addition to your laboratory. The excellent stability and high resolution at 0.7 mL/min will boost your productivity.



Size exclusion chromatograms of SigmaMAb using an Agilent AdvanceBio SEC 200 Å 1.9 µm 4.6 x 150 mm column.

### Analysis of SigmaMAb

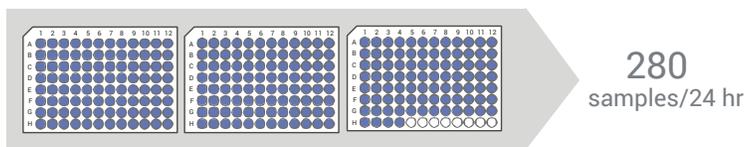
Fast analysis can be achieved by increasing flow rates, without affecting resolution or stability.

AdvanceBio SEC 1.9 µm columns enable fast throughput analysis and retain the high resolution. A 150 mm column running at 0.7 mL/min demonstrates the ability to analyze 480 samples in 24 hours, while the column resolution at 0.3 mL/min is similar to 0.7 mL/min.

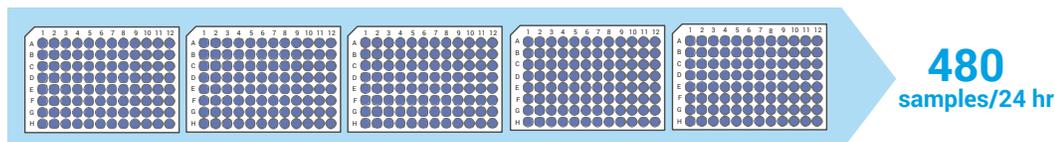
### Old technology column



### AdvanceBio SEC 2.7 µm column



### AdvanceBio SEC 1.9 µm column



The fast analysis of the AdvanceBio SEC 1.9 µm column allows you to run more samples than ever before.

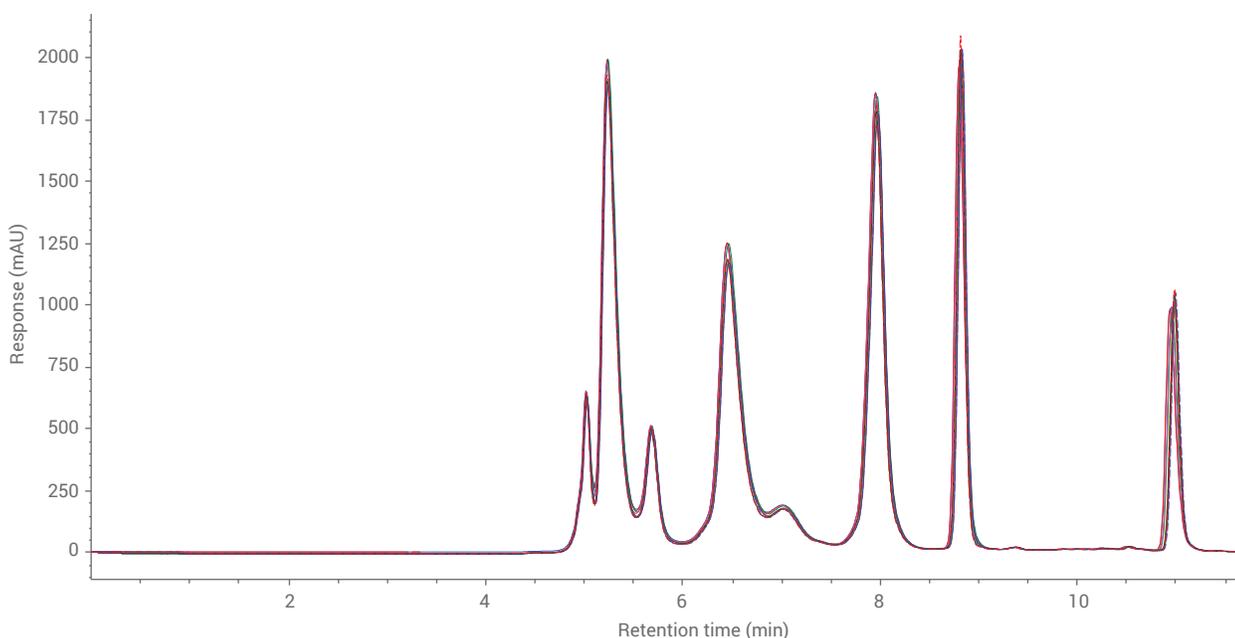


## Assured Reliability to Meet Your Quality Control Needs

### Consistency of column performance enables confidence in your results

Developed and manufactured by Agilent R&D scientists to exacting criteria, AdvanceBio SEC 200 Å 1.9 µm columns are tested during each process step. You can be confident in the quality, robustness, and performance—essential for fast and accurate separations.

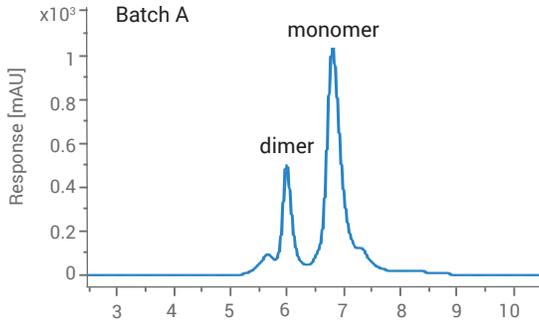
### Achieve reproducible performance, injection to injection and run to run



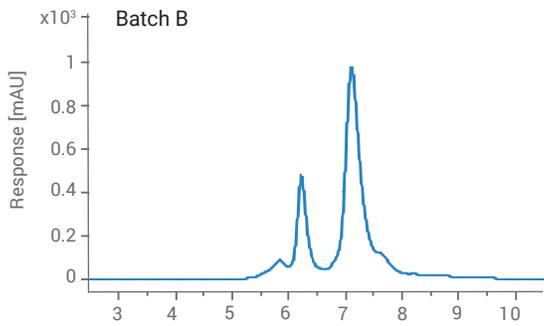
Overlay of eight Bio-Rad protein standard chromatograms for 400 injections at an interval of 50 runs.

## Proven performance is ensured with a QC test of every batch

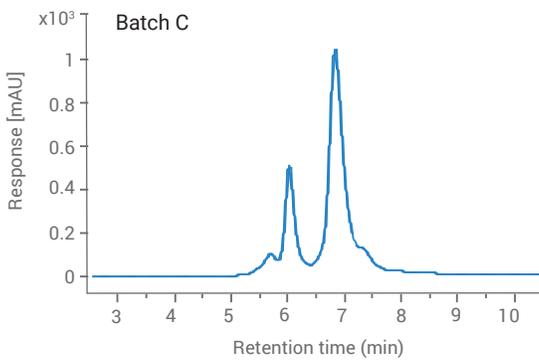
Every batch of Agilent AdvanceBio SEC 200 Å 1.9 µm media is tested using protein standards, as well as an IgG reference sample before release.



**Instrument:** Agilent 1260 Infinity II Bio-inert LC system  
**Software:** Agilent OpenLab CDS  
**Column:** 4.6 x 300 mm  
**Flow rate:** 0.35 mL/min  
**Eluent:** 150 mM sodium phosphate, pH 7.0  
**Temperature:** 25 °C  
**Detection:** UV, 220 nm



	Resolution (dimer/monomer)	Retention Time (monomer)
Batch A	2.25	6.781
Batch B	2.37	7.086
Batch C	2.23	6.815
% RSD	3.3	2.4



QC test of three production batches.

# Ordering Information

Description	Part Number
AdvanceBio SEC 200 Å, 1.9 µm, 4.6 x 300 mm	PL1580-5201
AdvanceBio SEC 200 Å, 1.9 µm, 4.6 x 150 mm	PL1580-3201
AdvanceBio SEC 200 Å, 1.9 µm guard, 4.6 x 30 mm	PL1580-1201

Download the AdvanceBio SEC 1.9 µm column user guide at [www.agilent.com/chem/advancebiosec](http://www.agilent.com/chem/advancebiosec)



## Maximize efficiency at each step in your workflow

AdvanceBio columns are part of the Agilent InfinityLab family—an optimized portfolio of LC instruments, MS detectors, columns, and supplies that work together in perfect harmony.

- The Agilent 1260 Infinity II Bio-inert LC system, together with AdvanceBio columns, gives you unmatched bioseparation power.
- Agilent InfinityLab Bio-inert supplies optimize performance and deliver the highest efficiency for your biomolecule analysis.

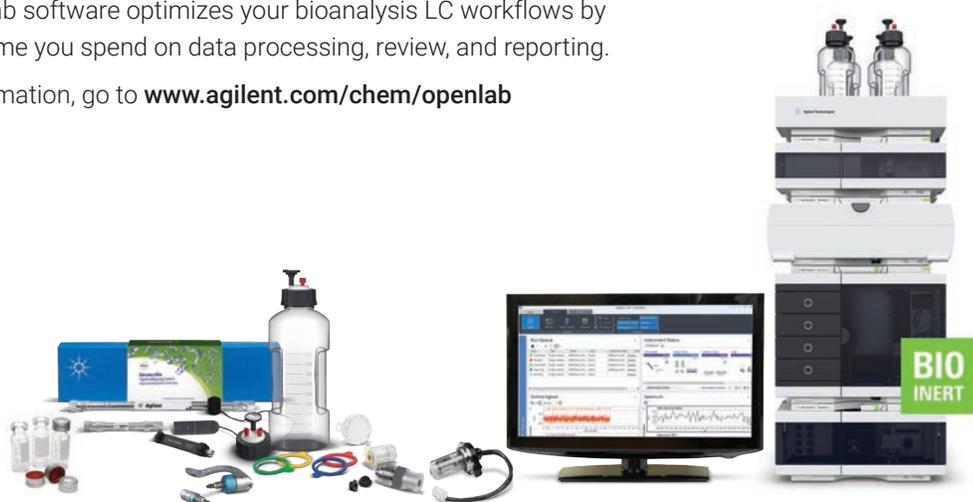
For more information, go to [www.agilent.com/chem/infinitylab](http://www.agilent.com/chem/infinitylab)



## Transform analytical data into meaningful results

Agilent OpenLab software optimizes your bioanalysis LC workflows by reducing the time you spend on data processing, review, and reporting.

For more information, go to [www.agilent.com/chem/openlab](http://www.agilent.com/chem/openlab)





### **Agilent CrossLab: real insight, real outcomes**

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