



File Properties

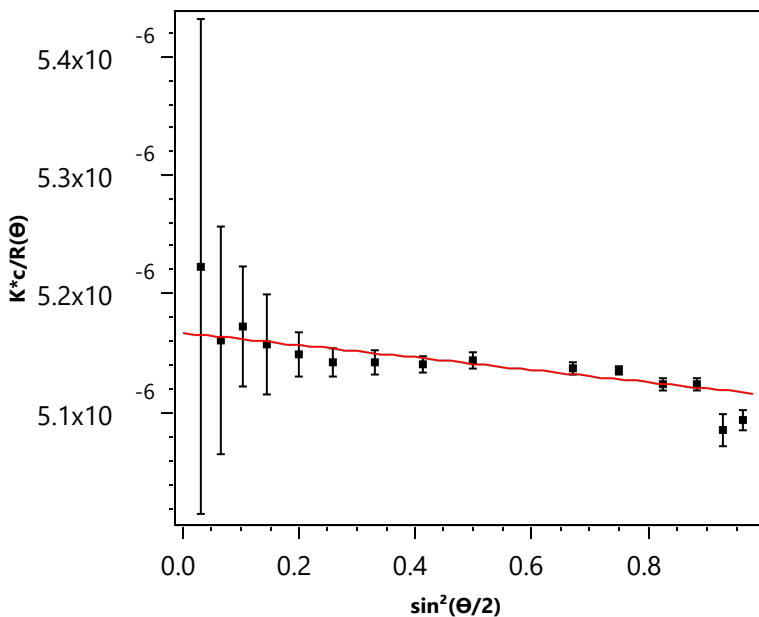
File Name: D:\GoogleDrive\LBNL\SIBYLS_Group\MALS and DLS Data\Sequences\Plate15-18\NSP12_8_7 +fullRNA[062520_Seq1].afe7
 Created: June 25, 2020 19:37:28.811

Sample: NSP12_8_7 +fullRNA

dn/dc: 0.1750 mL/g

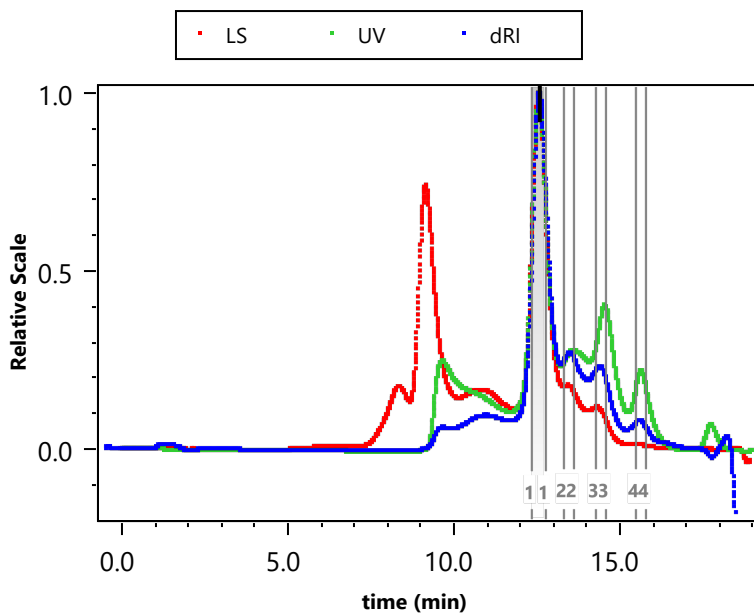
Concentration: 2.000 mg/mL

results graph



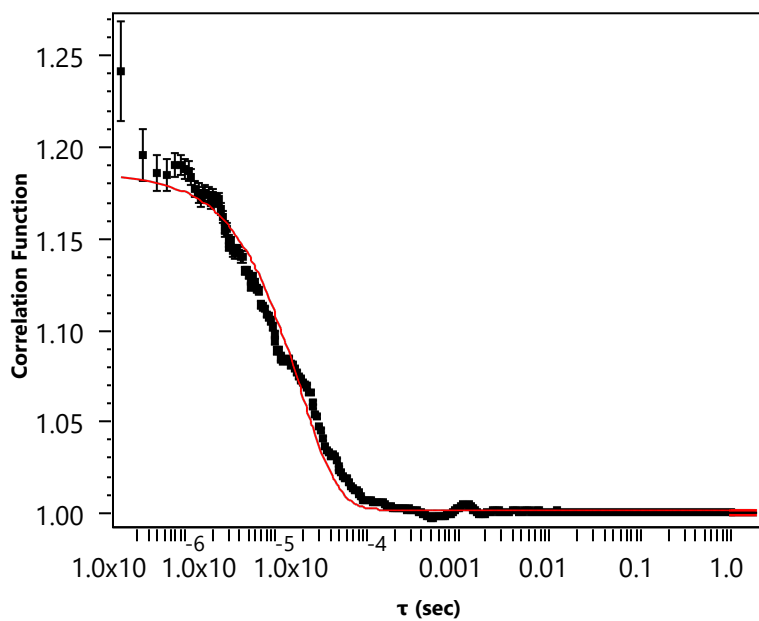
Fit $R^2=0.6687$

control graph



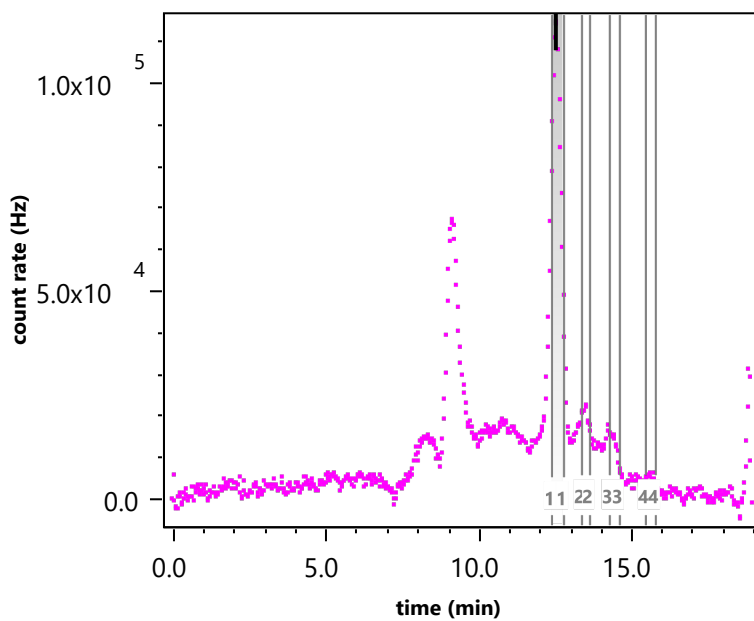
Index = 12.571 min

Correlation Function



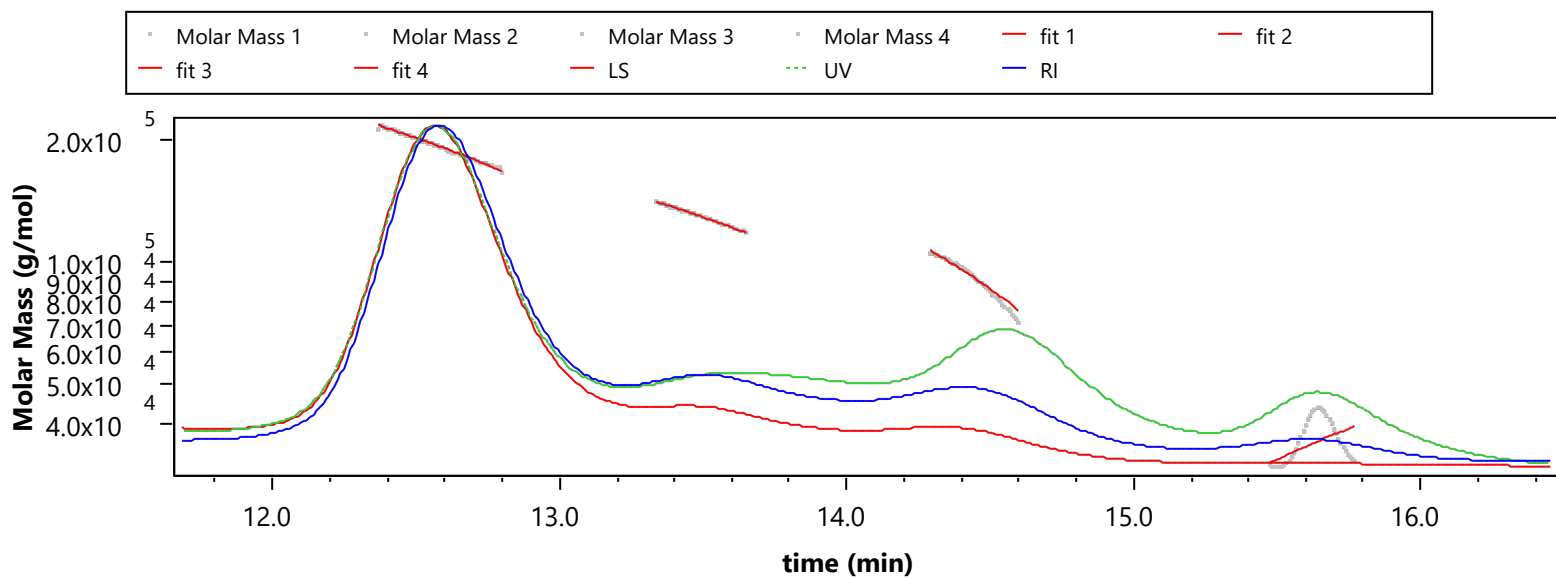
Fit $R^2=0.9811$

control graph



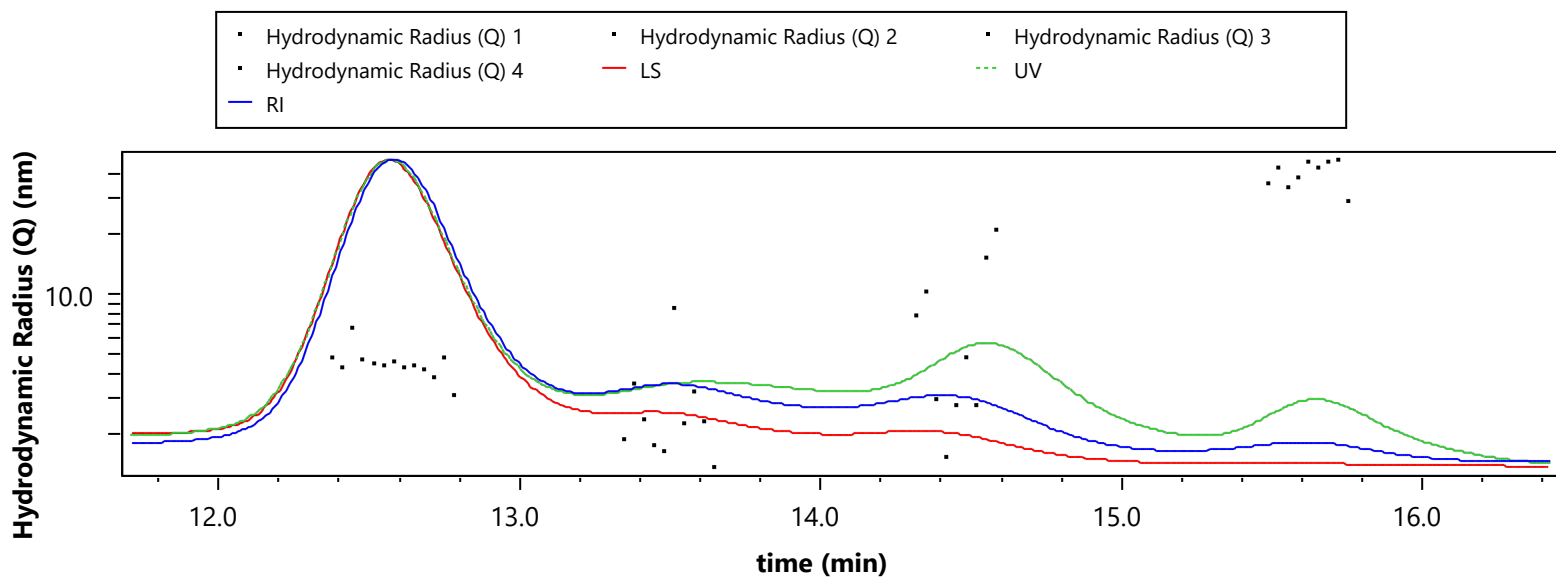
Index = 12.547 min

Results Fitting

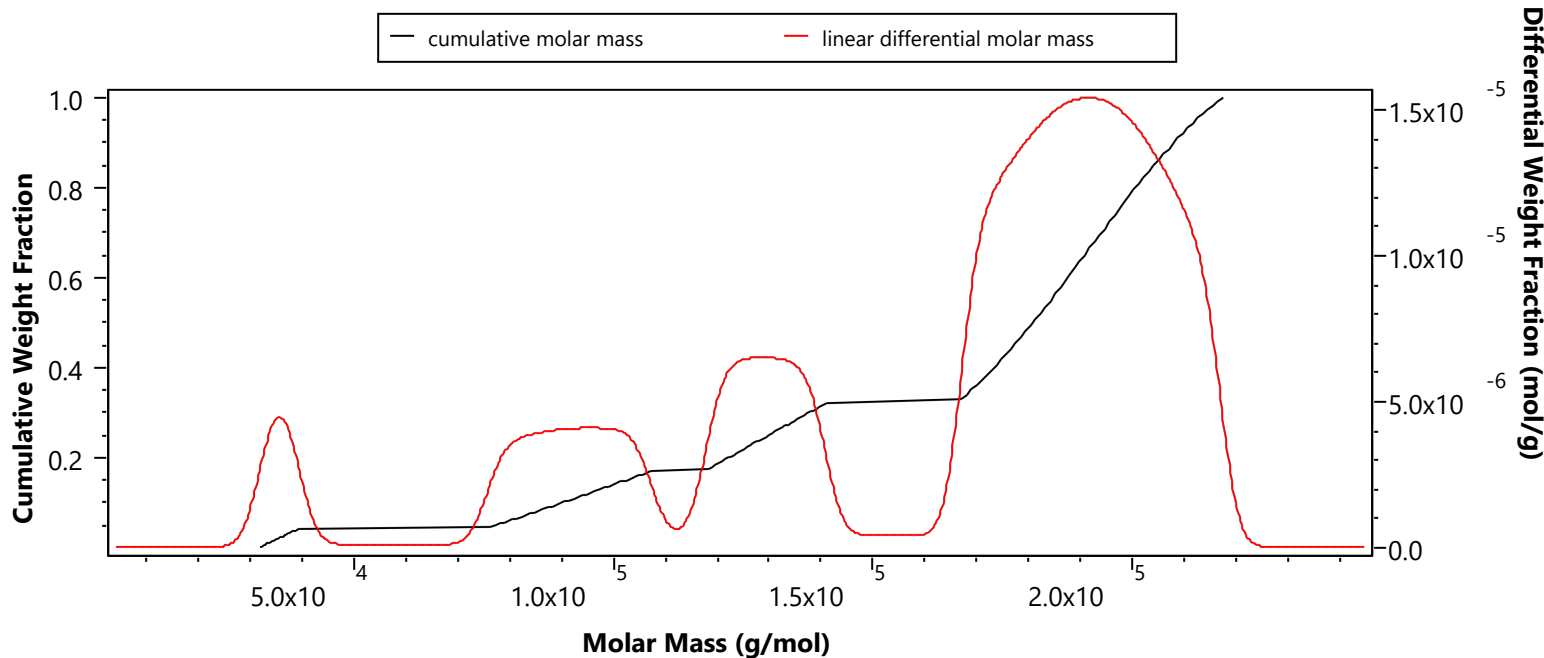


Peak 1 Fit Adjusted $R^2=0.9949$; Peak 2 Fit Adjusted $R^2=0.9996$; Peak 3 Fit Adjusted $R^2=0.9700$; Peak 4 Fit Adjusted $R^2=0.2791$

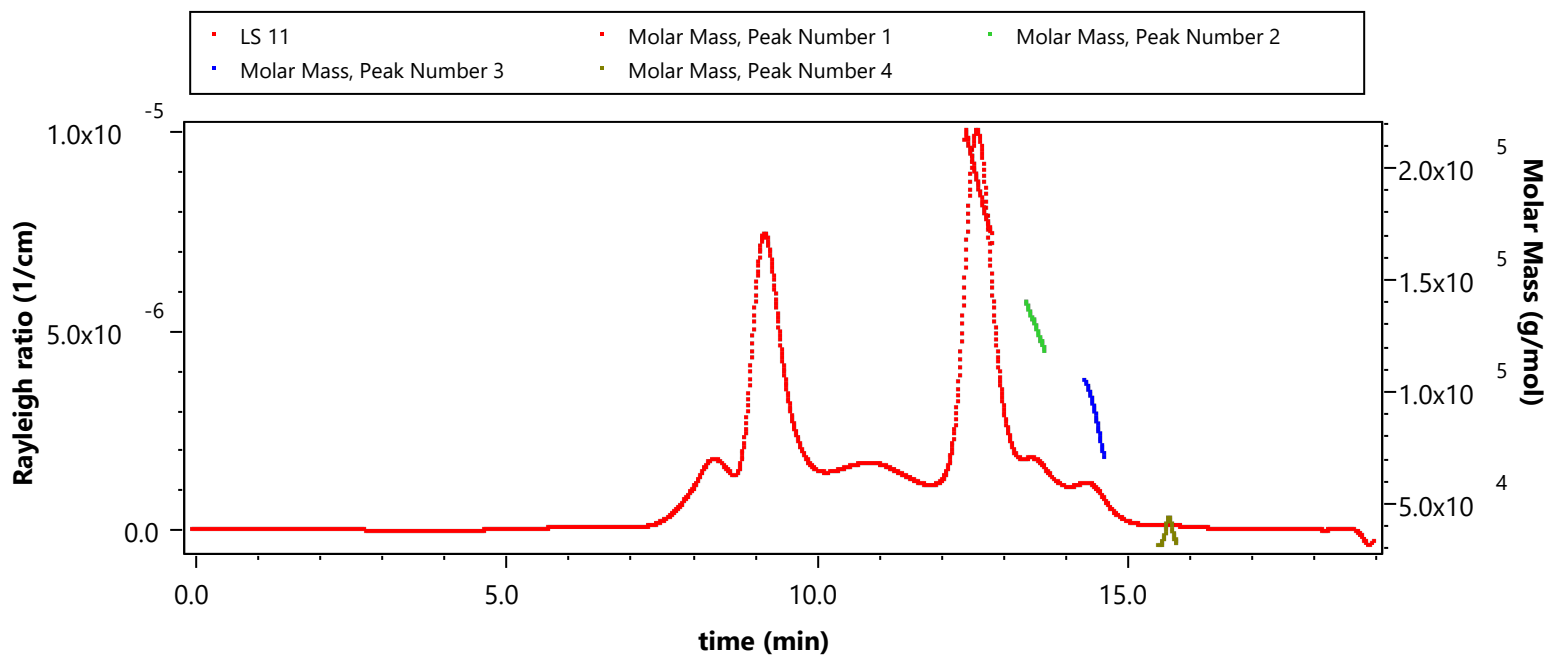
Results Fitting



Distribution Analysis



masses vs volume



Configuration

Abscissa Units: min
 Concentration Source: RI
 Flow Rate: 0.500 mL/min
 Pulse Correction Enabled: yes

Light Scattering Instrument: DAWN HELEOS
 Cell Type: Fused Silica
 Wavelength: 660.0 nm
 Calibration Constant: 3.3316×10^{-5} 1/(V cm)

RI Instrument: Optilab T-rEX
 Wavelength: 658.0 nm

UV Instrument: Generic UV

Solvent: PBS, Aqueous

Refractive Index: 1.331

Fluid Connections

Source Instrument	Destination Instrument	Delay Volume (mL)
Generic Pump	Injector	0.000
Injector	Generic UV Instrument	0.000
Generic UV Instrument	DAWN HELEOS	0.026
DAWN HELEOS	Optilab rEX	0.222

Aux Connections

Source Instrument	Destination Instrument	Source Aux Channel	Destination Aux Channel	Calibration Constant
Generic UV Instrument	DAWN HELEOS		2	1.000
Generic UV Instrument	DAWN HELEOS	2	3	1.000

Autoinject Connections

Source Instrument	Destination Instrument
autoinject	DAWN HELEOS

Processing

Collection Operator: MICHAELFARADAY\Michael Faraday (MICHAELFARADAY\Michael Faraday (Michael Faraday))

Collection Time: Thursday, June 25, 2020 19:18:57 PM

Collection Version: 7.1.4.8

Processing Operator: ALAN-TURING\Alan Turing (Alan Turing)

Processing Time: Sunday, June 28, 2020 13:47:10 PM

Despiking Level: Heavy

Peak settings:

Peak Name	Peak 1	Peak 2	Peak 3	Peak 4
Peak Limits (min)	12.365 - 12.801	13.339 - 13.654	14.284 - 14.609	15.471 - 15.777
Light Scattering Model	Zimm	Zimm	Zimm	Zimm
Fit Degree	1	1	1	1
dn/dc (mL/g)	0.1600	0.1600	0.1600	0.1600
dn/dc Ref. Temp. (°C)	25.000	25.000	25.000	25.000
Modifier dn/dc (mL/g)	0.0000	0.0000	0.0000	0.0000
Modifier dn/dc Ref. Temp. (°C)	25.000	25.000	25.000	25.000
A2 (mol mL/g ²)	0.000	0.000	0.000	0.000
UV Ext. Coef. (mL/(mg cm))	0.667	0.667	0.667	0.667
UV Ext. Coef. Ref. Temp. (°C)	25.000	25.000	25.000	25.000
Modifier UV Ext. Coef. (mL/(mg cm))	0.000	0.000	0.000	0.000
Modifier UV Ext. Coef. Ref. Temp. (°C)	25.000	25.000	25.000	25.000
Real Refractive Index	0	0	0	0
Imaginary Refractive Index	0	0	0	0
Shell Thickness (nm)	0.000	0.000	0.000	0.000
Shell Real Refractive Index	0	0	0	0
Shell Imaginary Refractive Index	0	0	0	0
Rod radius (nm)	0.000	0.000	0.000	0.000
Molecular Standard	n/a	n/a	n/a	n/a
Concentration (mg/mL)	2.000	2.000	2.000	2.000
Concentration Ref. Temp. (°C)	25.000	25.000	25.000	25.000
Mn (g/mol)	0.000	0.000	0.000	0.000
Mw (g/mol)	0.000	0.000	0.000	0.000
Mp (g/mol)	0.000	0.000	0.000	0.000
Intrinsic Viscosity (mL/g)	0.000	0.000	0.000	0.000
Intrinsic Viscosity Ref. Temp. (°C)	25.000	25.000	25.000	25.000
Mark-Houwink-Sakurada K (mL/g)	0.000	0.000	0.000	0.000
Mark-Houwink-Sakurada a	0	0	0	0
Flory-Fox Equation Phi Parameter	0	0	0	0
Ptitsyn-Eizner Equation Epsilon Parameter	0	0	0	0
Viscometry Model	Huggins	Huggins	Huggins	Huggins
Huggins Equation Parameter	0	0	0	0
Kraemers Equation Parameter	0	0	0	0
radius (nm)	3.480	3.480	3.480	3.480
Radius Type	rms	rms	rms	rms

Molar Mass & Radius from LS:

Peak Name: Peak 1
Molar Mass: (1.935 ± 0.004) e+5 g/mol
rms radius: 0.0 ± 0.0 nm
Light Scattering Model: Zimm
Fit Degree: 1
Concentration: (3.278 ± 0.001) e-1 mg/mL
dn/dc: 0.161 mL/g
Slice Index: 1542
Abscissa Position: 12.571 min

Fit R²: 0.6687

Enabled Detectors: 3 4 5 6 7 8 9 10 11 13 14 15 16 17 18

rh from QELS:

Use Disabled Slices: no

Prefilter Correlation Function before Averaging: yes

Minimum Delay for Fit: 2.000×10⁻⁷ sec

Maximum Delay for Fit: 1.0 sec

Minimum Radius Threshold: 1.00 nm

Maximum Radius Threshold: 300.00 nm

Suppress Distribution Peaks Below: 0.50 nm

Suppress Distribution Peaks Above: 10000.000 nm

Results Fitting Procedure:

Data	Fit Model	Degree	R ²	Extrapolation
Molar Mass	Polynomial	1	0.994917	none

Results

Peak Results

	Peak 1	Peak 2	Peak 3	Peak 4
Hydrodynamic radius (Q) moments (nm)				
rh(Q)n	4.445 (±3.278%)	2.873 (±12.268%)	7.677 (±19.687%)	40.181 (±21.515%)
Std Dev rh(Q)n	0.758	2.006	6.349	5.597
rh(Q)w	4.475 (±3.292%)	2.875 (±12.253%)	7.374 (±19.558%)	40.242 (±21.543%)
Std Dev rh(Q)w	0.767	1.999	6.074	5.704
rh(Q)z	4.505 (±3.307%)	2.875 (±12.237%)	7.115 (±19.446%)	40.293 (±21.570%)
Std Dev rh(Q)z	0.768	1.999	6.079	5.704
rh(Q)(avg)	4.247 (±0.899%)	1.898 (±3.916%)	2.321 (±6.611%)	38.502 (±7.227%)
General (mL/(mg cm))				
UV Ext. Coef. (mL/(mg cm))	2.051	2.035	3.346	5.422
Masses				
Injected Mass (µg)	100.00	100.00	100.00	100.00
Calculated Mass (µg)	61.06	13.66	11.85	3.85
Mass Recovery (%)	61.1	13.7	11.8	3.9
Mass Fraction (%)	67.5	15.1	13.1	4.3
Concentration (mg/mL)				
Average concentration	0.284 (±0.000%)	0.087 (±0.000%)	0.073 (±0.000%)	0.025 (±0.000%)
Molar mass moments (g/mol)				
Mn	1.907×10 ⁵ (±0.440%)	1.289×10 ⁵ (±0.356%)	9.077×10 ⁴ (±0.703%)	3.545×10 ⁴ (±4.239%)
Mp	1.916×10 ⁵ (±0.137%)	1.298×10 ⁵ (±0.243%)	9.552×10 ⁴ (±0.354%)	3.524×10 ⁴ (±3.154%)
Mv	n/a	n/a	n/a	n/a
Mw	1.917×10 ⁵ (±0.426%)	1.292×10 ⁵ (±0.361%)	9.172×10 ⁴ (±0.633%)	3.559×10 ⁴ (±4.337%)
Mz	1.927×10 ⁵ (±0.941%)	1.296×10 ⁵ (±0.812%)	9.265×10 ⁴ (±1.360%)	3.573×10 ⁴ (±9.794%)
Mz+1	1.937×10 ⁵ (±1.495%)	1.299×10 ⁵ (±1.315%)	9.356×10 ⁴ (±2.078%)	3.586×10 ⁴ (±15.909%)
M(avg)	1.934×10 ⁵ (±0.036%)	1.276×10 ⁵ (±0.049%)	9.650×10 ⁴ (±0.076%)	3.484×10 ⁴ (±0.647%)
Polydispersity				
Mw/Mn	1.005 (±0.612%)	1.003 (±0.507%)	1.010 (±0.946%)	1.004 (±6.065%)
Mz/Mn	1.010 (±1.039%)	1.005 (±0.887%)	1.021 (±1.531%)	1.008 (±10.672%)
rms radius moments (nm)				
rn	n/a	13.3 (±29.7%)	n/a	36.5 (±47.4%)
Std Dev rn	n/a	11.373	n/a	33.852
rw	n/a	13.6 (±28.9%)	n/a	36.3 (±48.7%)
Std Dev rw	n/a	11.362	n/a	34.213
rz	n/a	13.8 (±28.2%)	n/a	35.9 (±50.2%)
Std Dev rz	n/a	11.341	n/a	34.565
r(avg)	8.1 (±19.7%)	12.5 (±4.4%)	15.9 (±4.1%)	39.2 (±6.6%)
Light scattering peak statistics				
Peak Area (1/cm min)	3.714×10 ⁻⁶	1.536×10 ⁻⁶	1.100×10 ⁻⁶	1.465×10 ⁻⁷
Peak Height (1/cm)	1.005×10 ⁻⁵	1.843×10 ⁻⁶	1.219×10 ⁻⁶	1.820×10 ⁻⁷
Retention Time (min)	12.553	13.417	14.317	15.641
Peak Width at Half-Height (min)	0.000	0.000	0.000	0.000

	Peak 1	Peak 2	Peak 3	Peak 4				
Peak Width at Quarter-Height (min)	0.000	0.000	0.000	0.000				
Peak Width at Tenth-Height (min)	0.000	0.000	0.000	0.000				
Peak Width at User-Specified-Height (4.4%, min)	0.000	0.000	0.000	0.000				
Asymmetry Factor	0.000	0.000	0.000	0.000				
Tailing Factor	0.000	0.000	0.000	0.000				
Column Plate Count	0.000	0.000	0.000	0.000				
Mean (min)	12.577	13.492	14.432	15.627				
Standard Deviation (min)	0.119	0.091	0.089	0.081				
Skew	2.994	7.164	28.067	-21.301				
Peak Area (%)	57.173	23.637	16.936	2.254				
Resolution Relative to Peak 2	0.000	n/a	0.000	0.000				
Refractive index peak statistics								
Peak Area (RIU min)	1.954×10 ⁻⁵	4.371×10 ⁻⁶	3.791×10 ⁻⁶	1.232×10 ⁻⁶				
Peak Height (RIU)	5.262×10 ⁻⁵	1.422×10 ⁻⁵	1.225×10 ⁻⁵	4.269×10 ⁻⁶				
Retention Time (min)	12.582	13.500	14.406	15.603				
Peak Width at Half-Height (min)	0.000	0.000	0.000	0.000				
Peak Width at Quarter-Height (min)	0.000	0.000	0.000	0.000				
Peak Width at Tenth-Height (min)	0.000	0.000	0.000	0.000				
Peak Width at User-Specified-Height (4.4%, min)	0.000	0.000	0.000	0.000				
Asymmetry Factor	0.000	0.000	0.000	0.000				
Tailing Factor	0.000	0.000	0.000	0.000				
Column Plate Count	0.000	0.000	0.000	0.000				
Mean (min)	12.584	13.498	14.446	15.623				
Standard Deviation (min)	0.116	0.090	0.092	0.086				
Skew	-0.350	-0.022	2.360	3.082				
Peak Area (%)	67.532	15.106	13.103	4.259				
Resolution Relative to Peak 2	0.000	n/a	0.000	0.000				
UV peak statistics								
Peak Area (channel 1) (AU min)	2.505×10 ⁻¹	5.560×10 ⁻²	7.928×10 ⁻²	4.176×10 ⁻²				
Peak Area (channel 2) (AU min)	0.000	0.000	0.000	0.000				
Peak Height (channel 1) (AU)	6.700×10 ⁻¹	1.854×10 ⁻¹	2.702×10 ⁻¹	1.471×10 ⁻¹				
Peak Height (channel 2) (AU)	0.000	0.000	0.000	0.000				
Retention Time (channel 1) (min)	12.569	13.610	14.551	15.644				
Retention Time (channel 2) (min)	12.865	13.383	14.674	15.560				
Peak Width at Half-Height (channel 1) (min)	0.000	0.000	0.000	0.000				
Peak Width at Half-Height (channel 2) (min)	0.000	0.000	0.000	0.000				
Peak Width at Quarter-Height (channel 1) (min)	0.000	0.000	0.000	0.000				
Peak Width at Quarter-Height (channel 2) (min)	0.000	0.000	0.000	0.000				
Peak Width at Tenth-Height (channel 1) (min)	0.000	0.000	0.000	0.000				
Peak Width at Tenth-Height (channel 2) (min)	0.000	0.000	0.000	0.000				
Peak Width at User-Specified-Height (channel 1) (4.4%, min)	0.000	0.000	0.000	0.000				
Peak Width at User-Specified-Height (channel 2) (4.4%, min)	0.000	0.000	0.000	0.000				
Asymmetry Factor (channel 1)	0.000	0.000	0.000	0.000				
Asymmetry Factor (channel 2)	0.000	0.000	0.000	0.000				
Column Plate Count (channel 1)	0.000	0.000	0.000	0.000				
Column Plate Count (channel 2)	0.000	0.000	0.000	0.000				
Tailing Factor (channel 1)	0.000	0.000	0.000	0.000				
Tailing Factor (channel 2)	0.000	0.000	0.000	0.000				
Mean (channel 1) (min)	12.581	13.499	14.456	15.629				
Mean (channel 2) (min)	12.595	13.495	14.455	15.612				
Standard Deviation (channel 1) (min)	0.118	0.089	0.093	0.087				
Standard Deviation (channel 2) (min)	0.125	0.090	0.094	0.086				
Skew (channel 1)	0.004	-0.017	-0.042	-0.019				
Skew (channel 2)	-0.923	0.115	-1.033	1.813				
Peak Area % (channel 1) (%)	58.648	13.015	18.560	9.777				
Peak Area % (channel 2) (%)	31.405	22.980	23.875	21.740				
Resolution Relative to Peak 2	0.000	0.000	n/a	n/a	0.000	0.000	0.000	0.000
Translational diffusion coefficient moments (cm²/sec)								
Dt(n)	7.37×10 ⁻⁷ (±3.25%)	1.44×10 ⁻⁶ (±11.57%)	8.15×10 ⁻⁷ (±15.66%)	8.12×10 ⁻⁸ (±21.60%)				
Dt(w)	7.32×10 ⁻⁷ (±3.26%)	1.44×10 ⁻⁶ (±11.55%)	8.28×10 ⁻⁷ (±15.62%)	8.12×10 ⁻⁸ (±21.64%)				

	Peak 1	Peak 2	Peak 3	Peak 4
Dt(z)	7.27×10 ⁻⁷ (±3.27%)	1.43×10 ⁻⁶ (±11.53%)	8.37×10 ⁻⁷ (±15.60%)	8.12×10 ⁻⁸ (±21.67%)
Dt(avg)	7.06×10 ⁻⁷ (±0.90%)	8.20×10 ⁻⁷ (±4.47%)	2.92×10 ⁻⁷ (±7.46%)	7.78×10 ⁻⁸ (±7.21%)

laser monitor average: 0.999 V

Forward Monitor Average: 0.938 V

laser current average: 0.156 amps

laser voltage average: -225749.131 V

rms conformation plot slope: -0.87 (±6.28%) log(nm)/log(g/mol)

rms Conformation Plot y-intercept: 5.622 (±4.854%) log(nm)

rh(Q) conformation plot slope: -0.557 (±6.226%) log(nm)/log(g/mol)

rh(Q) Conformation Plot y-intercept: 3.566 (±5.112%) log(nm)

rms radius vs. rh(Q) plot slope: 0.631 (±1.622%) rms radius vs. rh(Q) plot slope

rms radius vs. rh(Q) Plot y-intercept: 7.296 (±2.776%) log(nm)