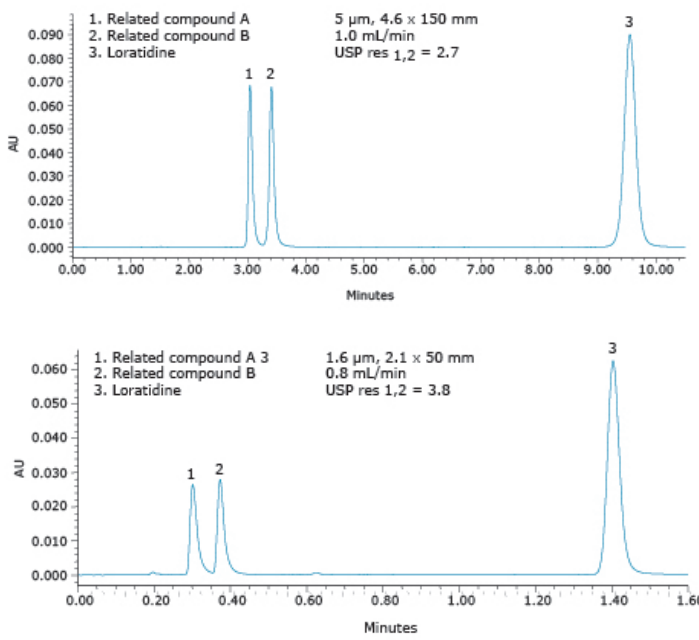
Reduce Overall Cost, Time, and Environmental Impact by Scaling Down Using Comparable L/d_p

Green Chemistry means using less harmful resources that can negatively impact the environment and human health. Reducing solvent usage by scaling from HPLC to UPLC is a relatively simple way to decrease your environmental impact. It can also provide cost and time savings for your lab. When scaling down, it's important to use columns that have equivalent length to particle size (L/d_p) ratio to prevent loss in resolution.

Savings Table	5 µm x 150 mm	3.5 µm x 100 mm*	2.X µm x 75 mm*	<2 µm x 50 mm
Flow Rate (min)	1.00	0.60	0.85	0.60
Solvent Used (mL)	10.40	2.91	2.21	0.96
Solvent Reduction	-	72%	79%	91%
Run Time (min)	10.40	4.85	2.60	1.60
Time Reduction	-	53%	75%	85%
Sustainability Score**				

*Theoretical values based on Column Calculator data
**Sustainability Score based on solvent usage and time savings



To convert an HPLC method to a UPLC™ or UHPLC method with no loss in retention, select columns that have equivalent length to particle size (L/dp) ratio. Example: $\frac{150\text{ mm}}{5\text{ µm}} = \frac{150.000\text{ mm}}{5\text{ µm}} = 30{,}000$

L/d_p			Column Length (mm)			
			150	100	75	50
Particle Size (µm)	Fully Porous	5	30,000	20,000	15,000	10,000
		3.5	42,900	28,600	21,400	14,300
		2.5	60,000	40,000	30,000	20,000
		1.7	88,200	58,800	44,100	29,400
	Solid-Core*	1.6	125,000	83,300	62,500	41,700
		2.7	74,100	49,400	37,000	24,700

*L/d_p based on the efficiency of CORTECS™ Solid-Core Particles