

# APPLICATION

## Low Molecular Weight (MW) Biomolecule Separation with a Yarra™ 1.8 μm SEC-X150 Column

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### Simon Lomas

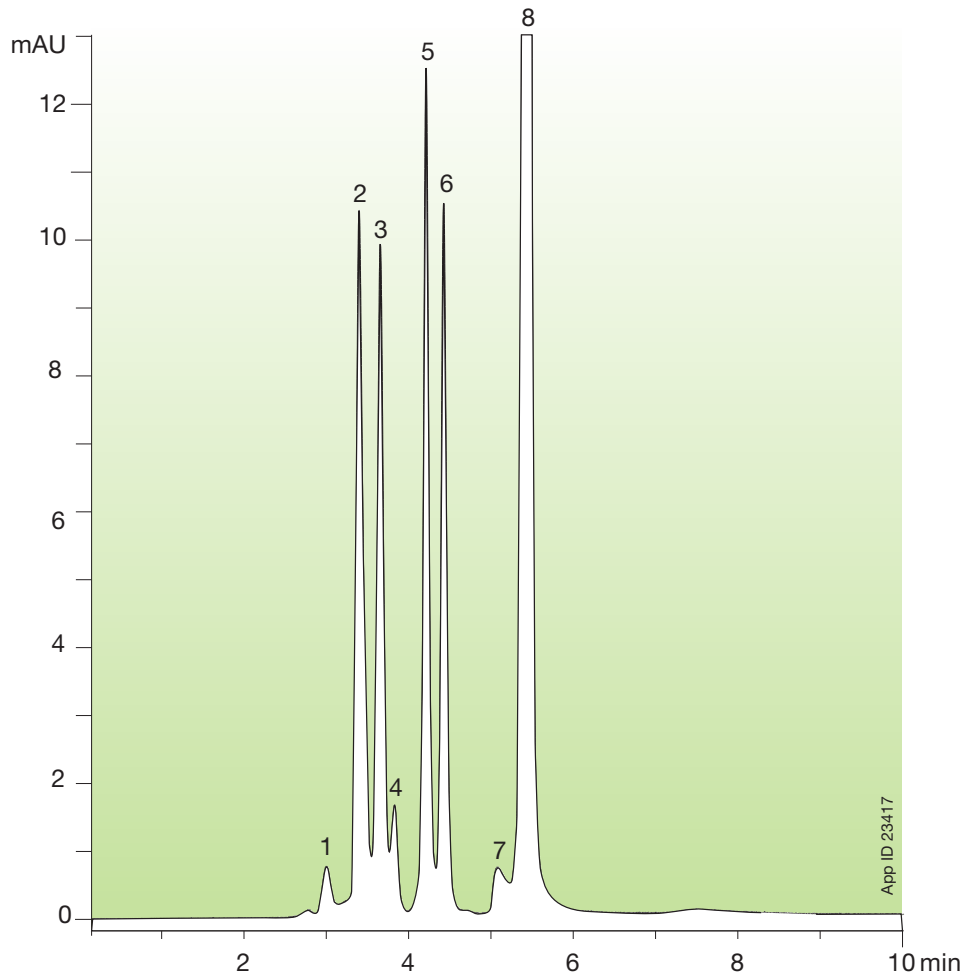
Simon Lomas is an avid futbol fan. He once took a futbol extravaganza trip to England and saw numerous EPL, Champions League, and WC qualifying matches.

### Overview

With large particle size exclusion chromatography (SEC) columns, separation of compounds with similar MW can be difficult to achieve. Typically these low efficiency columns require much slower flow rates and numerous columns in series to acquire the needed resolution. If successful, the resulting run times may be extremely long and further complications can arise from compound interaction with non-inert stainless hardware and media. To alleviate these problems, a new bio-compatible Yarra 1.8 μm size exclusion particle was developed and released. As a result the high efficiency and large separation range (1K – 450 kDa) of each Yarra 1.8 μm SEC-X150 column make it an excellent tool for biomolecule mixtures. In addition, the bio-inert hardware used for every Yarra SEC-X150 column helps ensure that compound adsorption is greatly minimized.

### GFC/UV Conditions

**Column:** Yarra 1.8 μm SEC-X150  
**Dimensions:** 150 x 4.6 mm  
**Part No.:** 00F-4631-E0  
**Mobile Phase:** 100 mM Sodium Phosphate in Water pH 6.8 + 0.03 % Na<sub>2</sub>S  
**Flow Rate:** 0.35 mL/min  
**Temperature:** Ambient  
**System:** Agilent® 1260 UHPLC  
**Detection:** UV @ 280 nm  
**Sample:** 1. BSA Dimer (132 kDa)  
 2. BSA (66 kDa)  
 3. Ovalbumin (44 kDa)  
 4. Myoglobin Dimer (34 kDa)  
 5. Myoglobin (17 kDa)  
 6. Ribonuclease A (13.7 kDa)  
 7. Insulin (5800 Da)  
 8. Uridine (244 Da)



App ID 23417



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## Yarra Ordering Information and Column Specifications

	SEC-X150	SEC-X300	SEC-2000	SEC-3000	SEC-4000
<b>Resin Type</b>	Silica	Silica	Silica	Silica	Silica
<b>Particle Size (µm)</b>	1.8	1.8	3	3	3
<b>Pore Size (Å)</b>	150	300	145	290	500
<b>MW Range (Da)</b>	1K-450K	10K-700K	1K-300K	5K-700K	15K-1500K
<b>pH Range</b>	1.5 - 8.5	1.5 - 8.5	2.5 - 7.5	2.5 - 7.5	2.5 - 7.5
<b>Typical Backpressure (psi)</b>	3,250	3,250	1,300	1,300	1,000
<b>Max Backpressure (psi)</b>	7,000	7,000	3,000	3,000	1,700
<b>Typical Efficiency</b>	> 30,000 (150 x 4.6 mm)	> 30,000 (150 x 4.6 mm)	48,000 (300 x 7.8 mm)	48,000 (300 x 7.8 mm)	38,000 (300 x 7.8 mm)
<b>Max. Flow Rate (mL/min)</b>	0.4	0.4	0.4	1.5	1.2

## NEW Yarra 1.8 µm SEC Columns Bio-Inert Columns (mm)

	Analytical	Analytical
<b>Phases</b>	<b>150 x 4.6</b>	<b>300 x 4.6</b>
<b>Yarra 1.8 µm SEC-X150</b>	00F-4631-E0	00H-4631-E0
<b>Yarra 1.8 µm SEC-X300</b>	00F-4743-E0	00H-4743-E0

## NEW Stainless Steel Columns (mm)

	Analytical	Analytical	SecurityGuard™ ULTRA Cartridges***
<b>Phases</b>	<b>150 x 4.6</b>	<b>300 x 4.6</b>	<b>3/pk</b>
<b>Yarra 1.8 µm SEC-X150</b>	00F-4631-E0-SS	00H-4631-E0-SS	AJO-9512
<b>Yarra 1.8 µm SEC-X300</b>	00F-4743-E0-SS	00H-4743-E0-SS	AJO-9513

\*\*\*SecurityGuard ULTRA cartridges require holder, Part No.: KJO-9000

For Stainless Steel Only

## Yarra 3 µm SEC Columns (mm)

	Narrow Bore	Analytical	Analytical	SecurityGuard™ Cartridges (mm)
<b>Phases</b>	<b>300 x 4.6</b>	<b>150 x 7.8</b>	<b>300 x 7.8</b>	<b>4 x 3.0*</b>
				/10 pk
<b>Yarra 3 µm SEC-2000</b>	00H-4512-E0	00F-4512-K0	00H-4512-K0	AJO-4487
<b>Yarra 3 µm SEC-3000</b>	00H-4513-E0	00F-4513-K0	00H-4513-K0	AJO-4488
<b>Yarra 3 µm SEC-4000</b>	00H-4514-E0	—	00H-4514-K0	AJO-4489

\*SecurityGuard Analytical cartridges require holder, Part No.: KJO-4282

for ID 4.6-7.8 mm

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