

Scalability, Reproducibility, and Increased Separation Power of Luna® Omega C18 (1.6 and 3 µm)

Zeshan Aqeel, Sandra Huynh, Dr. Phil Koerner, and Dr. Bryan Tackett
Phenomenex, Inc., 411 Madrid Ave., Torrance, CA 90501 USA

Overview

The analysis of a degraded pharmaceutical sample was used to assess the scalability and reproducibility for three different batches of Luna Omega 1.6 µm C18 in comparison to multiple batches of ACQUITY® 1.7 µm C18 and ZORBAX® 1.8 µm SB-C18, as well as three different batches of Luna Omega 3 µm C18 in comparison to multiple batches of XBridge 3.5 µm C18 and ZORBAX 3.5 µm SB-C18 columns.

The Luna Omega 1.6 µm C18 columns provided excellent reproducibility between batches when compared to the ACQUITY 1.7 µm C18 and the ZORBAX 1.8 µm SB-C18. The overall separation of this complex sample, with narrower peak widths, was increased with the Luna Omega 1.6 µm C18 column as compared to the other two columns packed with sub-2 µm fully porous particles.

The same excellent batch-to-batch reproducibility was seen with the Luna Omega 3 µm C18 column that was observed with the Luna Omega 1.6 µm C18 column. This column also exhibited increased peak separation when compared to the XBridge 3.5 µm C18 and the ZORBAX 3.5 µm SB-C18 columns.

The data presented here also shows the particle size scalability of the Luna Omega C18 columns. The same peak separation and shape are seen on both the 1.6 µm UHPLC and 3 µm HPLC columns.

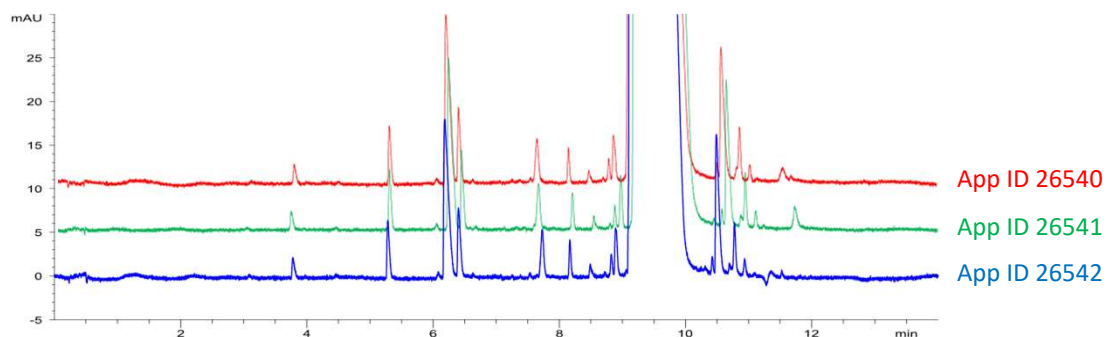
LC-UV Conditions

Column:	Luna Omega 1.6 µm C18 Agilent® ZORBAX RRHD 1.8 µm SB-C18 Waters® ACQUITY BEH™ 1.7 µm C18 Luna Omega 3 µm C18 Agilent ZORBAX 3.5 µm SB-C18 Waters XBridge 3.5 µm C18		
Dimension:	50 x 2.1 mm (1.6, 1.7, 1.8 µm columns) 150 x 4.6 mm (3 and 3.5 µm columns)		
Part No.:	00B-4742-AN (Luna Omega 1.6 µm C18) 00F-4784-E0 (Luna Omega 3 µm C18)		
Pressure (bar):	335, 364, 330 (Luna Omega 1.6 µm C18) 366, 293, 285 (Agilent ZORBAX RRHD 1.8 µm SB-C18) 390, 363, 375 (Waters ACQUITY BEH 1.7 µm C18) 497, 503, 512 (Luna Omega 3 µm C18) 379, 368, 375 (Agilent ZORBAX 3.5 µm SB-C18) 513, 495, 440 (Waters XBridge 3.5 µm C18)		
Mobile Phase:	A: 0.1 % Formic Acid in Water B: 0.1 % Formic Acid in Acetonitrile		
Gradient:	Time (min) Fig 1.	Time (min) Fig 2.	% B
	0.0	0.0	2
	0.5	1.5	2
	10.5	31.5	35
	11.0	33.0	35
	11.5	34.5	2
	15.0	37.0	2
Flow Rate:	0.4 mL/min (Figure 1) 2.0 mL/min (Figure 2)		
Temperature:	30 °C		
Detection:	UV @ 254 nm		
Injection Volume:	1 µL (Figure 1) 5 µL (Figure 2)		
Instrument:	Agilent 1260 (Binary)		

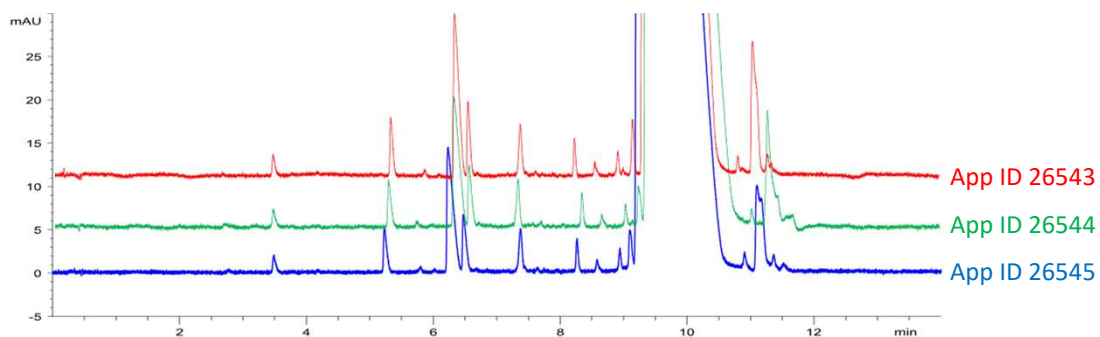


Figure 1.

Luna® Omega 1.6 µm C18 50 x 2.1 mm



Agilent® ZORBAX® RRHD 1.8 µm SB-C18 50 x 2.1 mm



Waters® ACQUITY® BEH™ 1.7 µm C18 50 x 2.1 mm

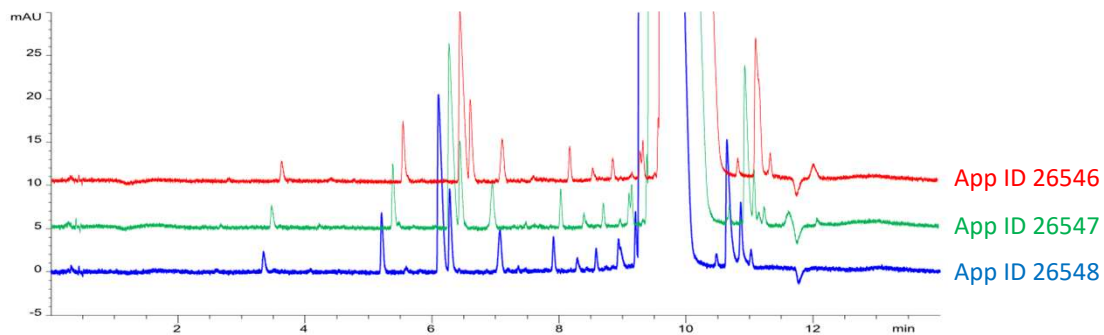
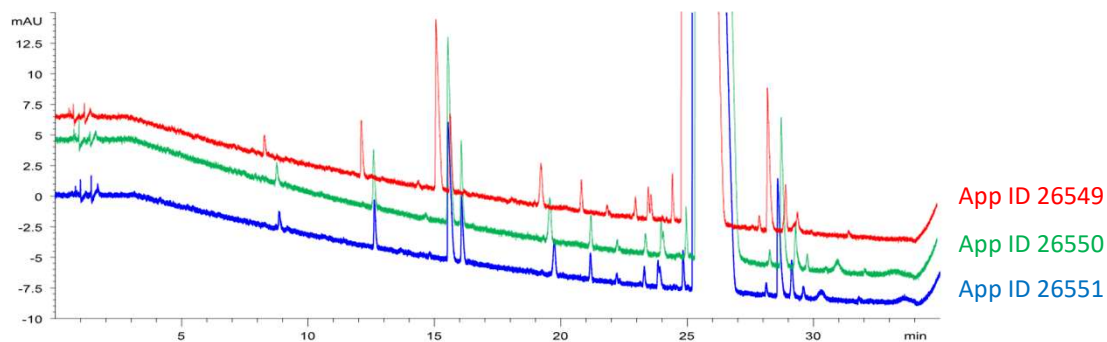
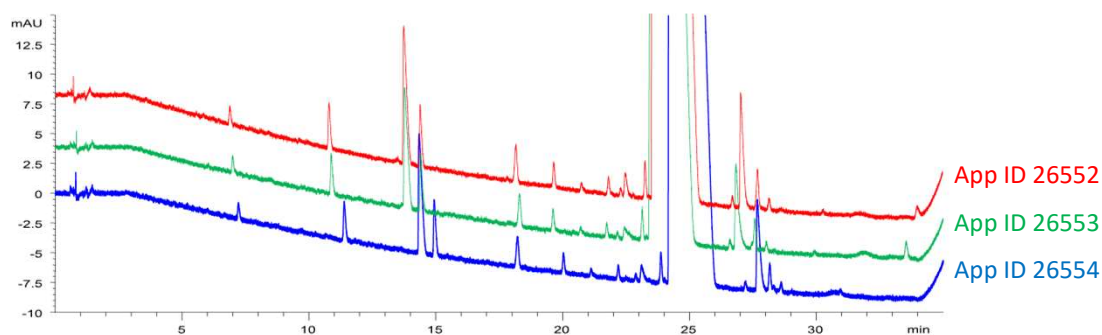


Figure 2.

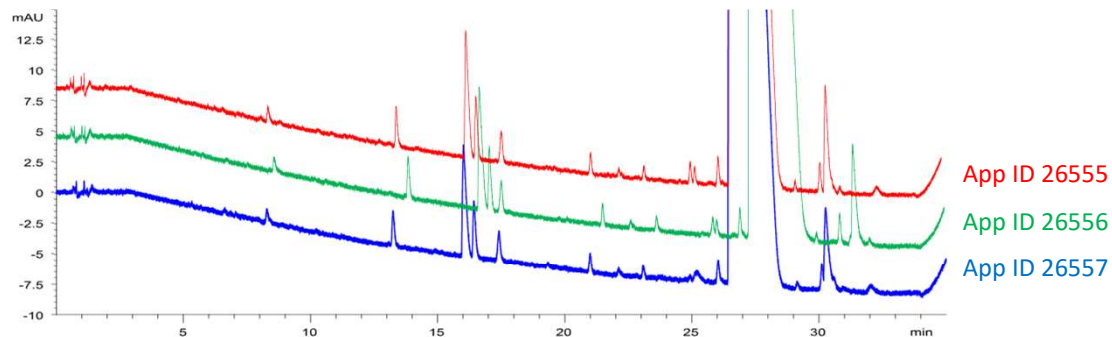
Luna® Omega 3 µm C18 150 x 4.6 mm



Agilent® ZORBAX® 3.5 µm SB-C18 150 x 4.6 mm



Waters® XBridge 3.5 µm C18 150 x 4.6 mm



Need a different column size or sample preparation format?

No problem! We have a majority of our available dimensions up on www.phenomenex.com, but if you can't find what you need right away, our super helpful Technical Specialists can guide you to the solution via our online chat portal www.phenomenex.com/LiveChat.

Australia

t: +61 (0)2-9428-6444
auinfo@phenomenex.com

Austria

t: +43 (0)1-319-1301
anfrage@phenomenex.com

Belgium

t: +32 (0)2 503 4015 (French)
t: +32 (0)2 511 8666 (Dutch)
beinfo@phenomenex.com

Canada

t: +1 (800) 543-3681
info@phenomenex.com

China

t: +86 400-606-8099
cninfo@phenomenex.com

Czech Republic

t: +420 272 017 077
cz-info@phenomenex.com

Denmark

t: +45 4824 8048
nordicinfo@phenomenex.com

Finland

t: +358 (0)9 4789 0063
nordicinfo@phenomenex.com

France

t: +33 (0)1 30 09 21 10
franceinfo@phenomenex.com

Germany

t: +49 (0)6021-58830-0
anfrage@phenomenex.com

Hong Kong

t: +852 6012 8162
hkinfo@phenomenex.com

India

t: +91 (0)40-3012 2400
indiainfo@phenomenex.com

Indonesia

t: +62 21 5010 9707
indoinfo@phenomenex.com

Ireland

t: +353 (0)1 247 5405
eireinfo@phenomenex.com

Italy

t: +39 051 6327511
italiainfo@phenomenex.com

Japan

t: +81 (0) 120-149-262
jpinfo@phenomenex.com

Luxembourg

t: +31 (0)30-2418700
nlinfo@phenomenex.com

Mexico

t: 01-800-844-5226
tecnicomx@phenomenex.com

The Netherlands

t: +31 (0)30-2418700
nlinfo@phenomenex.com

New Zealand

t: +64 (0)9-4780951
nzinfo@phenomenex.com

Norway

t: +47 810 02 005
nordicinfo@phenomenex.com

Poland

t: +48 22 104 21 72
pl-info@phenomenex.com

Portugal

t: +351 221 450 488
ptinfo@phenomenex.com

Singapore

t: +65 800-852-3944
sginfo@phenomenex.com

Slovakia

t: +420 272 017 077
sk-info@phenomenex.com

Spain

t: +34 91-413-8613
espinfo@phenomenex.com

Sweden

t: +46 (0)8 611 6950
nordicinfo@phenomenex.com

Switzerland

t: +41 (0)61 692 20 20
swissinfo@phenomenex.com

Taiwan

t: +886 (0) 0801-49-1246
twinfo@phenomenex.com

Thailand

t: +66 (0) 2 566 0287
thaiinfo@phenomenex.com

United Kingdom

t: +44 (0)1625-501367
ukinfo@phenomenex.com

USA

t: +1 (310) 212-0555
info@phenomenex.com

🌐 **All other countries/regions**
Corporate Office USA

t: +1 (310) 212-0555
info@phenomenex.com

www.phenomenex.com

Phenomenex products are available worldwide. For the distributor in your country/region, contact Phenomenex USA, International Department at international@phenomenex.com

BE-HAPPY™
GUARANTEE

Your happiness is our mission. Take 45 days to try our products. If you are not happy, we'll make it right.

www.phenomenex.com/behappy

Terms and Conditions

Subject to Phenomenex Standard Terms and Conditions, which may be viewed at www.phenomenex.com/TermsAndConditions.

Trademarks

Luna is a registered trademark and BE HAPPY is a trademark of Phenomenex. XBridge, ACQUITY, and Waters are registered trademarks and BEH is a trademark of Waters Technologies Corporation. ZORBAX and Agilent are registered trademarks of Agilent Technologies, Inc.

Disclaimer

Comparative separations may not be representative of all applications. Phenomenex is in no way affiliated with Waters Technologies Corporation or Agilent Technologies, Inc.

FOR RESEARCH USE ONLY. Not for use in clinical diagnostic procedures.

© 2021 Phenomenex, Inc. All rights reserved.

