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bioZen™ 3 µm NX-C18 Fractionation Column has Improved Loading Capacity in Comparison to Competitor Brand

Dr. Jason Anspach, Roxana Eggleston-Rangel, and Dr. Bryan Tackett
Phenomenex, Inc., 411 Madrid Ave., Torrance, CA 90501 USA

Overview

High pH fractionation is a strategy commonly used to increase proteome coverage and its main purpose is to maximize protein identification in complex sample matrices. In proteomics it is often the situation where the amount of sample that is available for analysis is limited. This presents the analyst with a challenge to successfully collect all the information needed to advance their research. A powerful tool that can, and often is, used to increase the effectiveness of the MS efficiency is to miniaturize the LC separation. While the mass of the sample available is often small in proteomics applications, the volume that the sample is present in typically is not. The injection of a large volume on a small ID column directly is a very time-consuming process. Thus, in this technical note we explore the loading capacity of the bioZen 3 µm NX-C18 fractionation column and how it compares to the competitor column.

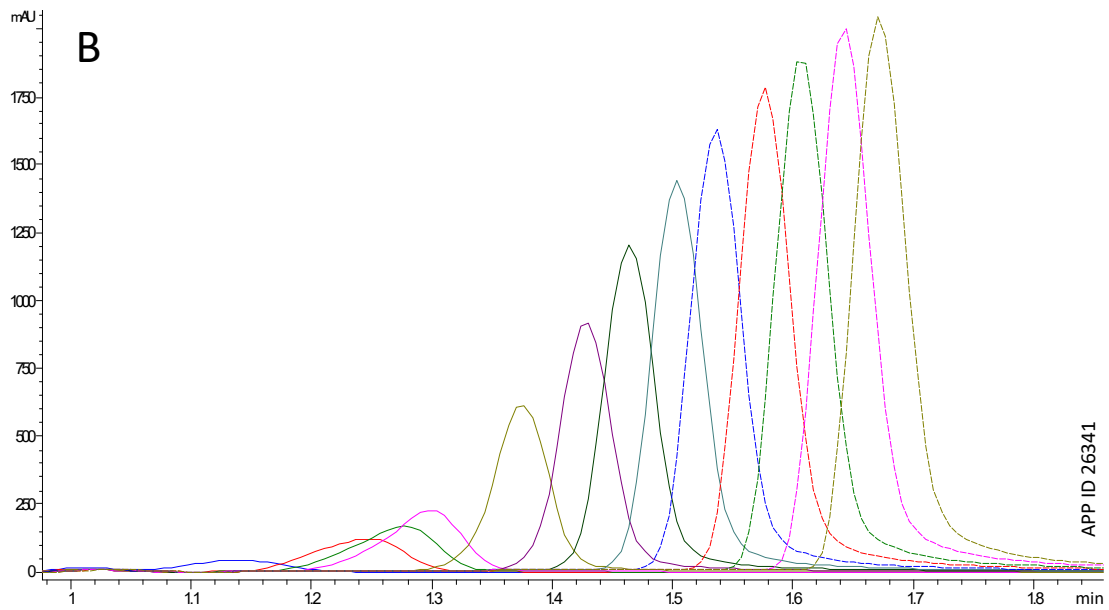
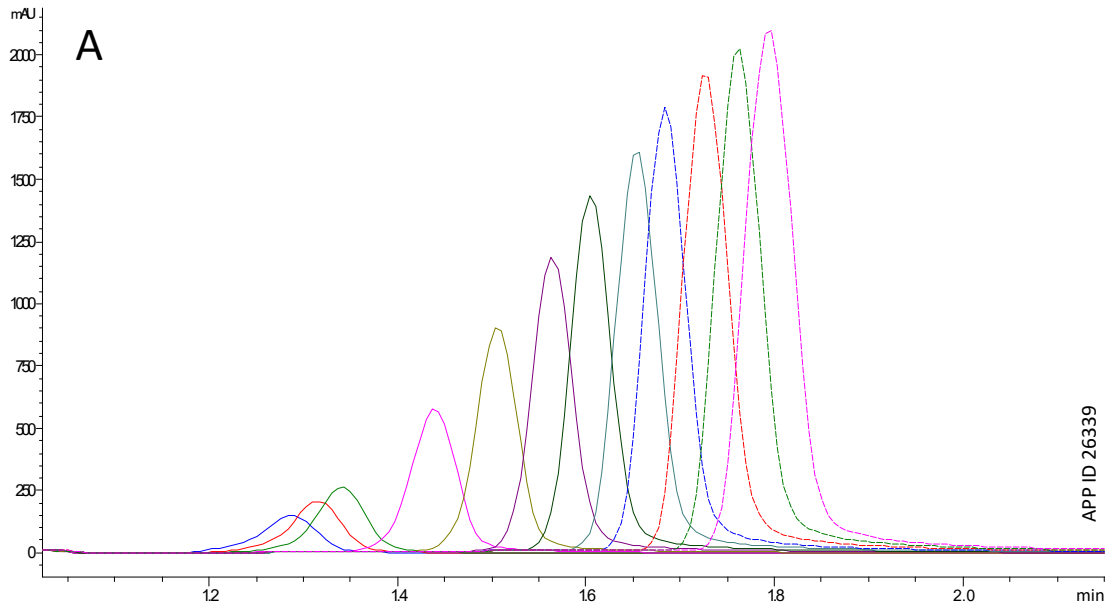
A mixture of Angiotensin III Peptide (RVYIHPF) was injected at a range of masses on the columns. The injection mass range chosen was well within the limits of detection for this method (**Figure 1**). The peak area response to the mass load on the column was monitored to investigate the loadability. A non-linear response of peak area to mass would indicate that the loadability of the trap had been exceeded. None of the masses reached the capacity threshold for the bioZen NX-C18 fractionation column as the peak area was consistently increasing, but the Waters XBridge column did not reach the same amount of angiotensin before reaching the same peak area (**Figure 2**). This data suggests that the bioZen NX-C18 fractionation column has a 50 % higher loading capacity than the Waters XBridge column.

LC-MS/MS Conditions

Column:	bioZen 3 µm NX-C18 Fractionation Waters® XBridge® 3.5 µm BEH C18		
Dimension:	150 x 2.1 mm 150 x 2.1 mm		
Part No.:	00F-4793-AN (bioZen)		
Pressure (bar):	220 bar		
Mobile Phase:	A: 10 mM Ammonium Formate pH 10 in Water B: 10 mM Ammonium Formate pH 10 in 90 % Acetonitrile, 10 % Water		
Gradient:	Time (min)	%A	%B
	0	50	50
	7	50	50
Flow Rate:	300 µL/min		
Temperature:	Ambient		
LC System:	EASY-nLC™ 1200		
Detection:	UV @ 220 nm		
Injection Volume:	10 µL		

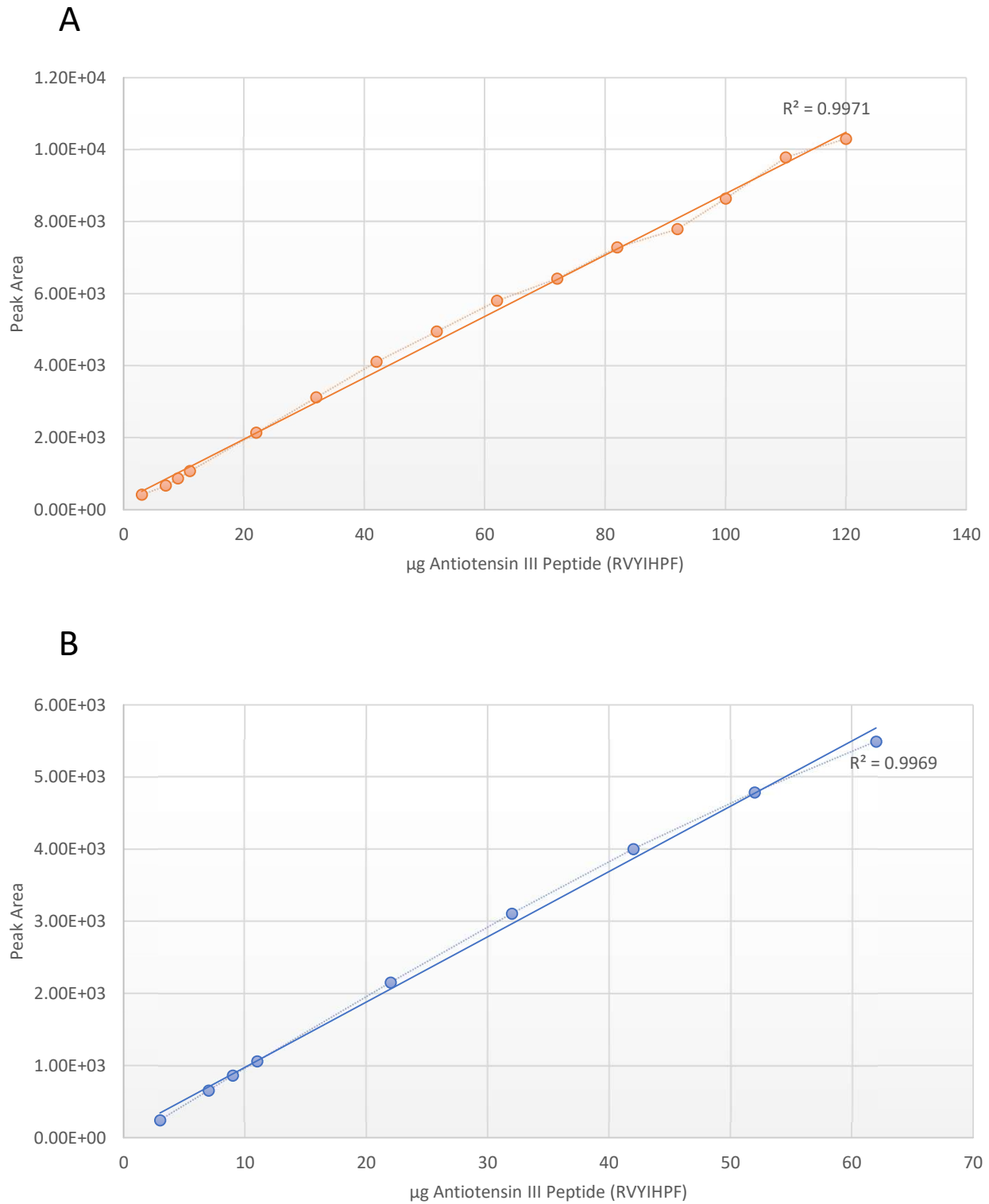
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Figure 1. Chromatograms of loading capacity of (A) bioZen™ NX-C18 Fractionation and (B) Waters® XBridge® BEH C18.



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Figure 2. Peak areas of (A) bioZen™ NX-C18 Fractionation and (B) Waters® XBridge® BEH C18



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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

India

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

Ireland

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

Italy

t: +39 051 6327511
italiainfo@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
thainfo@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
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