

# iPhree™

## Phospholipid Removal Solutions



**Remove Phospholipids**

**Remove Protein**

**No Method Development**

 **phenomenex**<sup>®</sup>  
...breaking with tradition<sup>™</sup>

# One Quick Method, Three Big Advantages

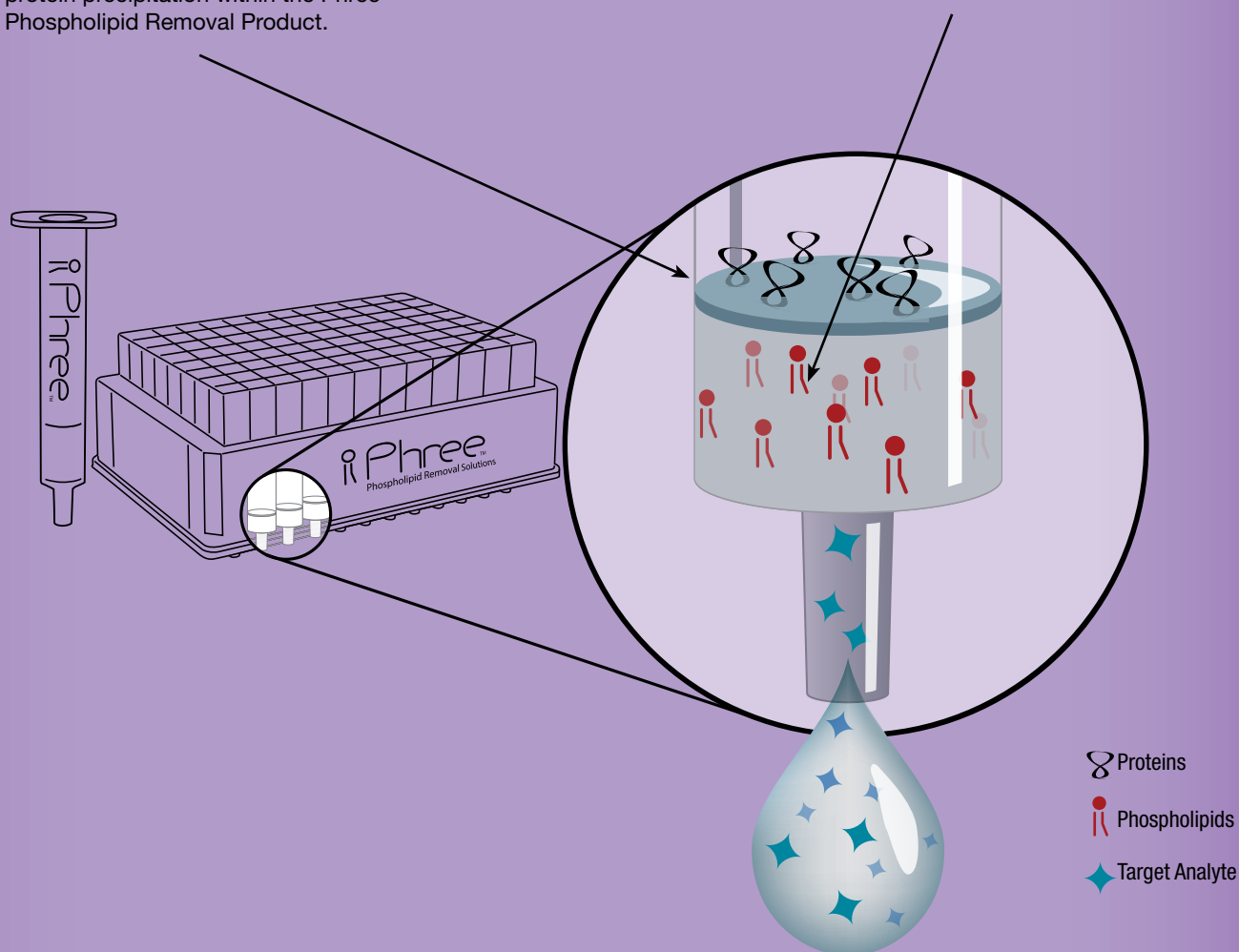
- 1** Remove Proteins that can clog HPLC columns
- 2** Eliminate Phospholipids that cause ion suppression and increase your column lifetime!
- 3** No Method Development; one method for acids, bases, and neutrals

## Remove Proteins

Solvent Shielding Technology™ prevents dripping of organic solvent, allowing for protein precipitation within the Phree Phospholipid Removal Product.

## Eliminate Phospholipids

The Phree sorbent selectively removes phospholipids from precipitated plasma samples.



# Be Free of Phospholipids and Proteins

“We have demonstrated that Phree Phospholipid Removal Plates resulted in >98 % decrease in the peak area of the six phospholipids we monitored in rat plasma compared to traditional protein crash. We highly recommend the use of these plates for high throughput LC-MS/MS bioanalytical sample preparation.”

**Nina Khoshaba**  
WIL Research



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# 3 Steps Above Traditional Protein Precipitation

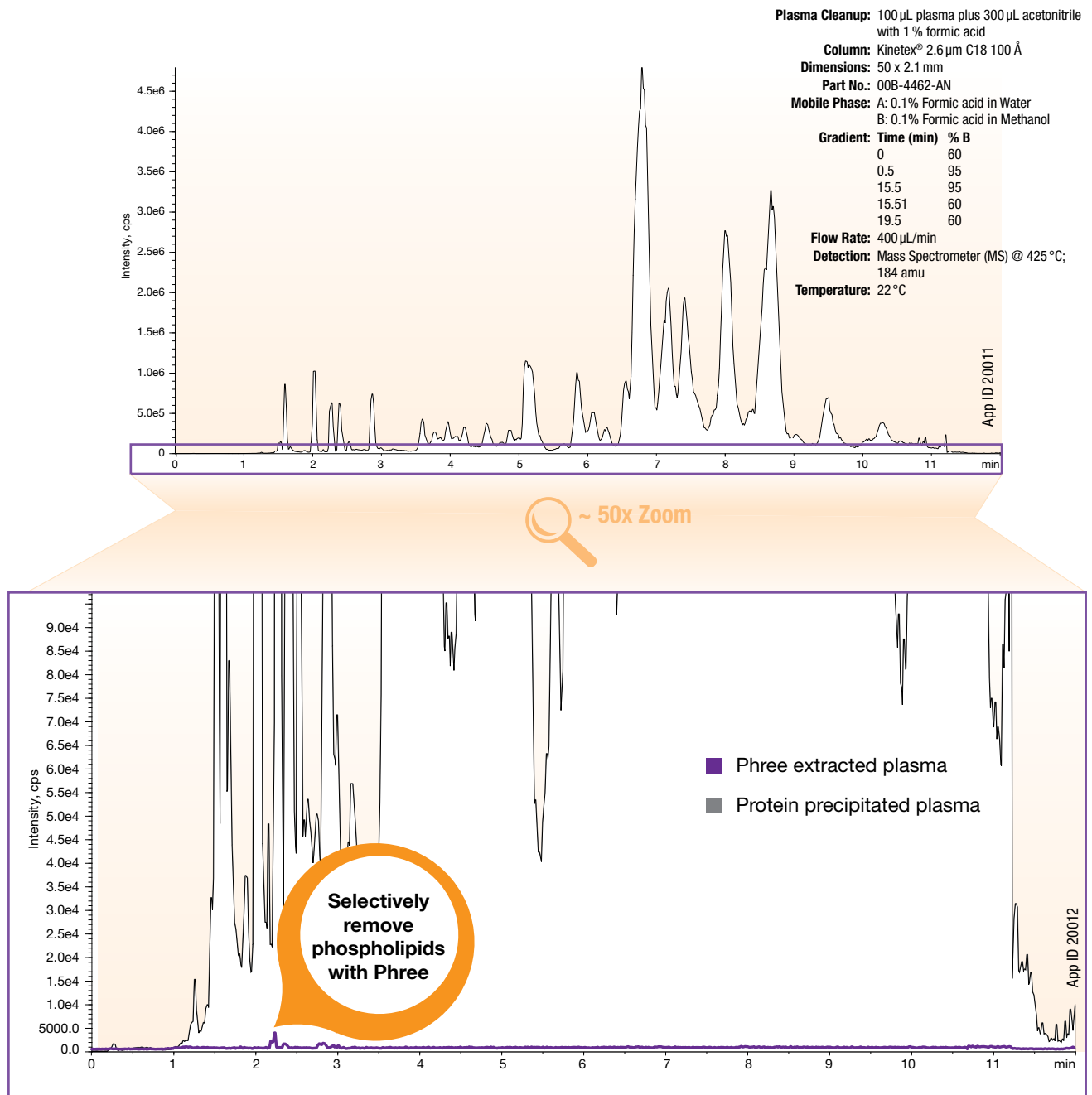
## 1. Protein Precipitation Does Not Remove Phospholipids

Endogenous phospholipids are a primary source of ion suppression and resulting matrix effects in bioanalytical LC/MS work. Ion suppression caused by the presence of phospholipids can result in:

- irreproducible results
- quantitation issues
- loss in method sensitivity
- matrix to matrix bias

### Total Phospholipid Profile

Protein Precipitation vs. Phree™ Phospholipid Removal Products

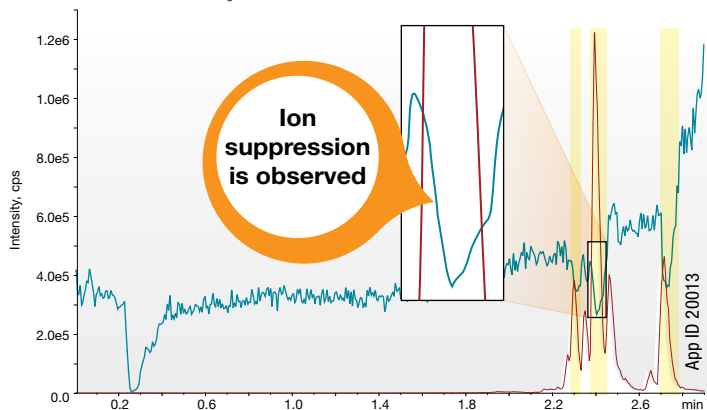


Phospholipid profile monitored using  $m/z$  184-184

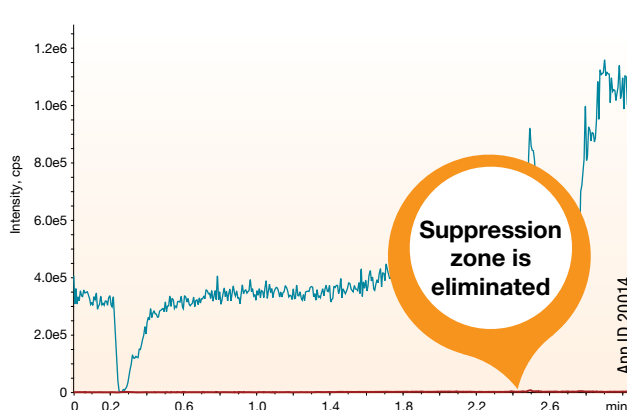
## 2. Reduce Ion Suppression

The presence of phospholipids in plasma samples produces zones of ion suppression that correlate exactly with the phospholipid elution profile when analyzed via mass spectrometer (MS).

### Protein Precipitated Plasma



### Phree Extracted Plasma



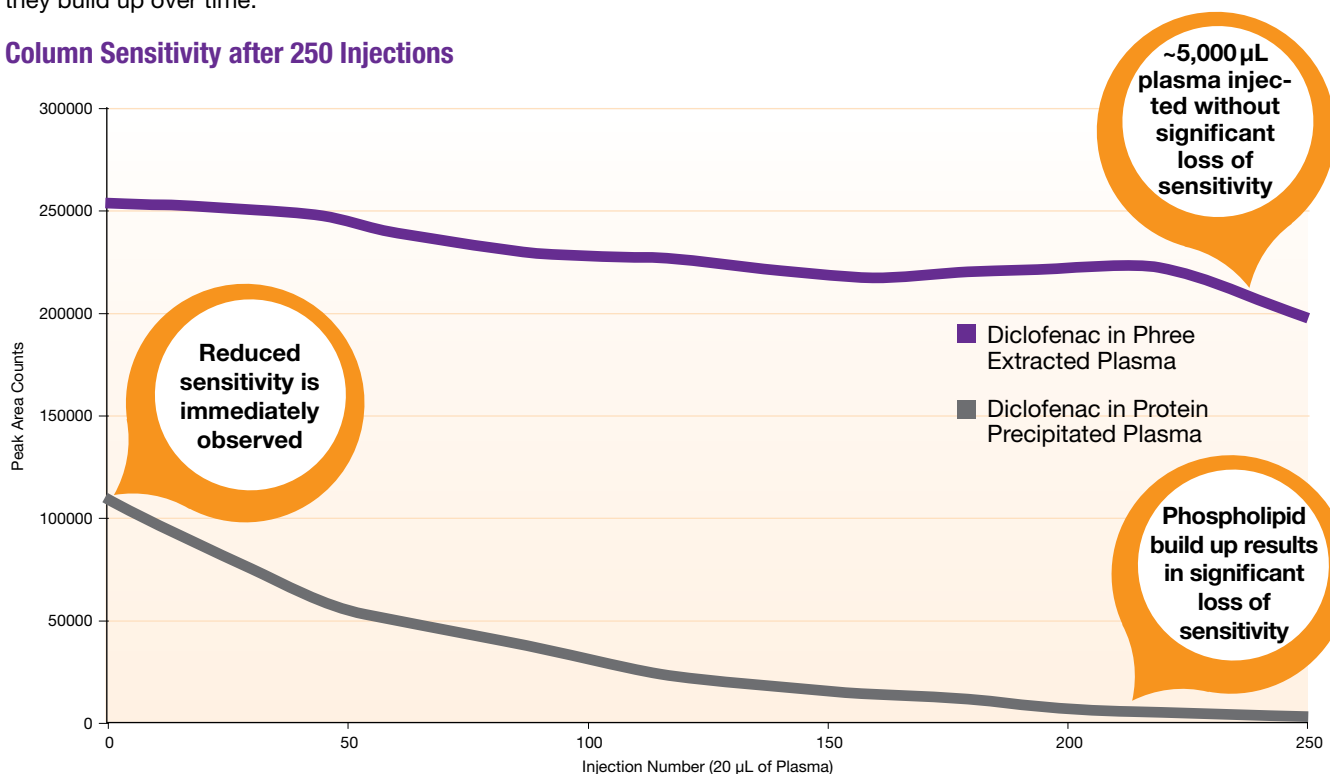
- Suppression Zone
- Phospholipids  $m/z$  184-184
- Amoxapine  $m/z$  314-271

Amoxapine was infused post-column to establish an ion suppression/enhancement profile with both protein precipitated plasma (left) and Phree extracted plasma (right), showing that Phree can successfully reduce ion suppression.

## 3. Maximize Sensitivity and Column Lifetime

Phospholipids reduce the sensitivity of the MS signal and shorten column lifetime when they build up over time.

### Column Sensitivity after 250 Injections

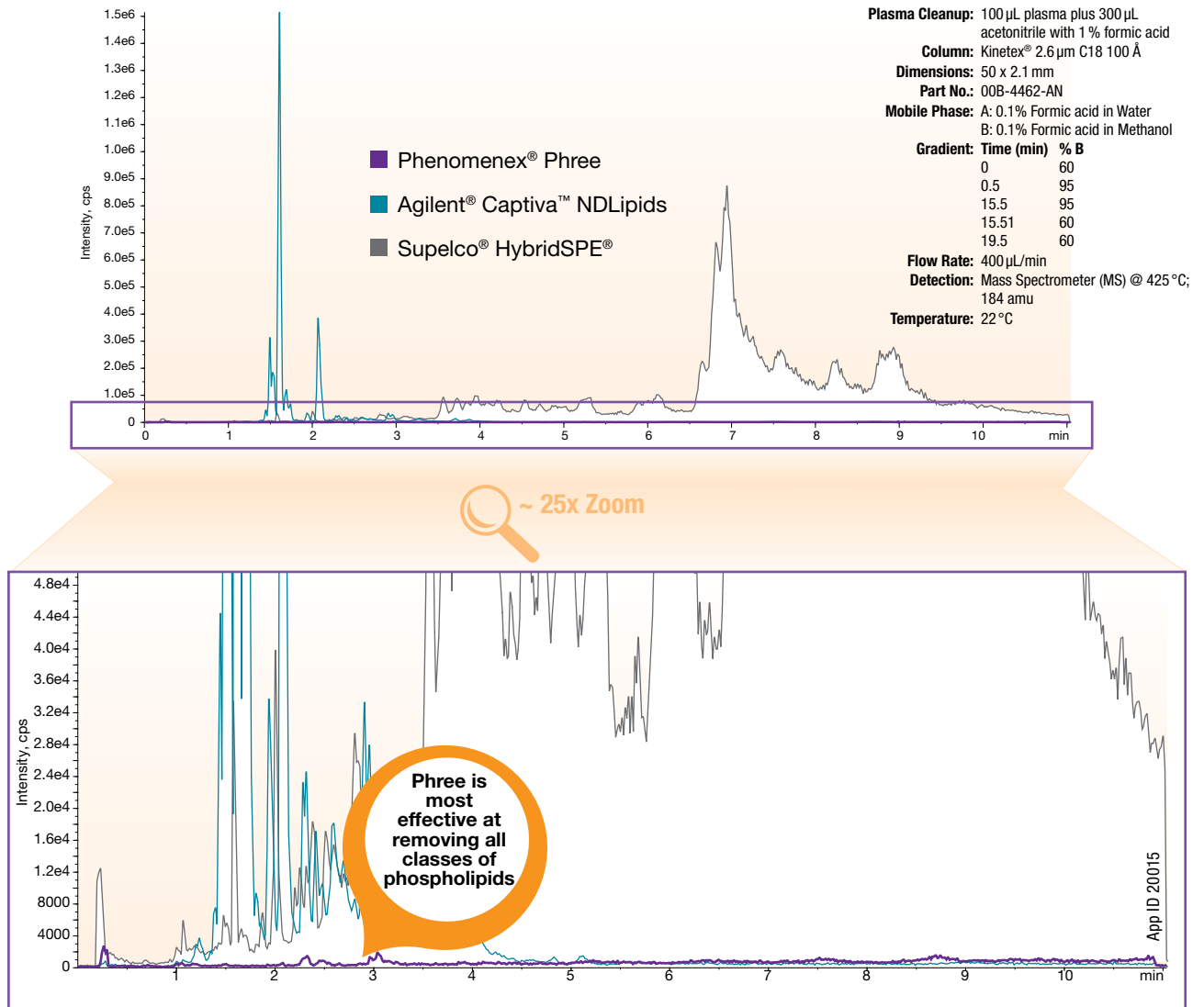


To assess the effect of phospholipid build up, repetitive 20 µL injections of diclofenac in protein precipitated plasma versus diclofenac in Phree extracted plasma were made.

# An Improved Phospholipid Removal Solution

## Remove All Classes of Phospholipids

Lysophosphatidylcholines and phosphatidylcholines both contribute to matrix effects. Remove all classes of phospholipids using Phree™ Phospholipid Removal Products.

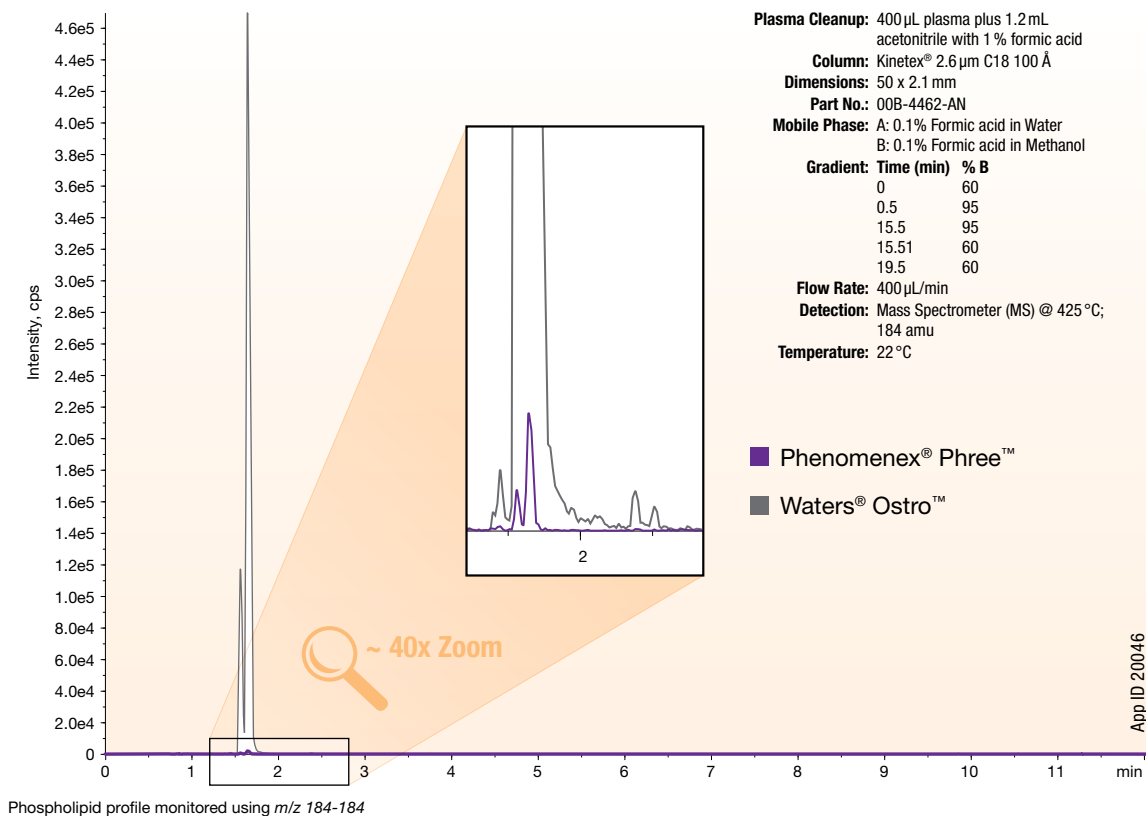


Phospholipid profile monitored using  $m/z$  184-184

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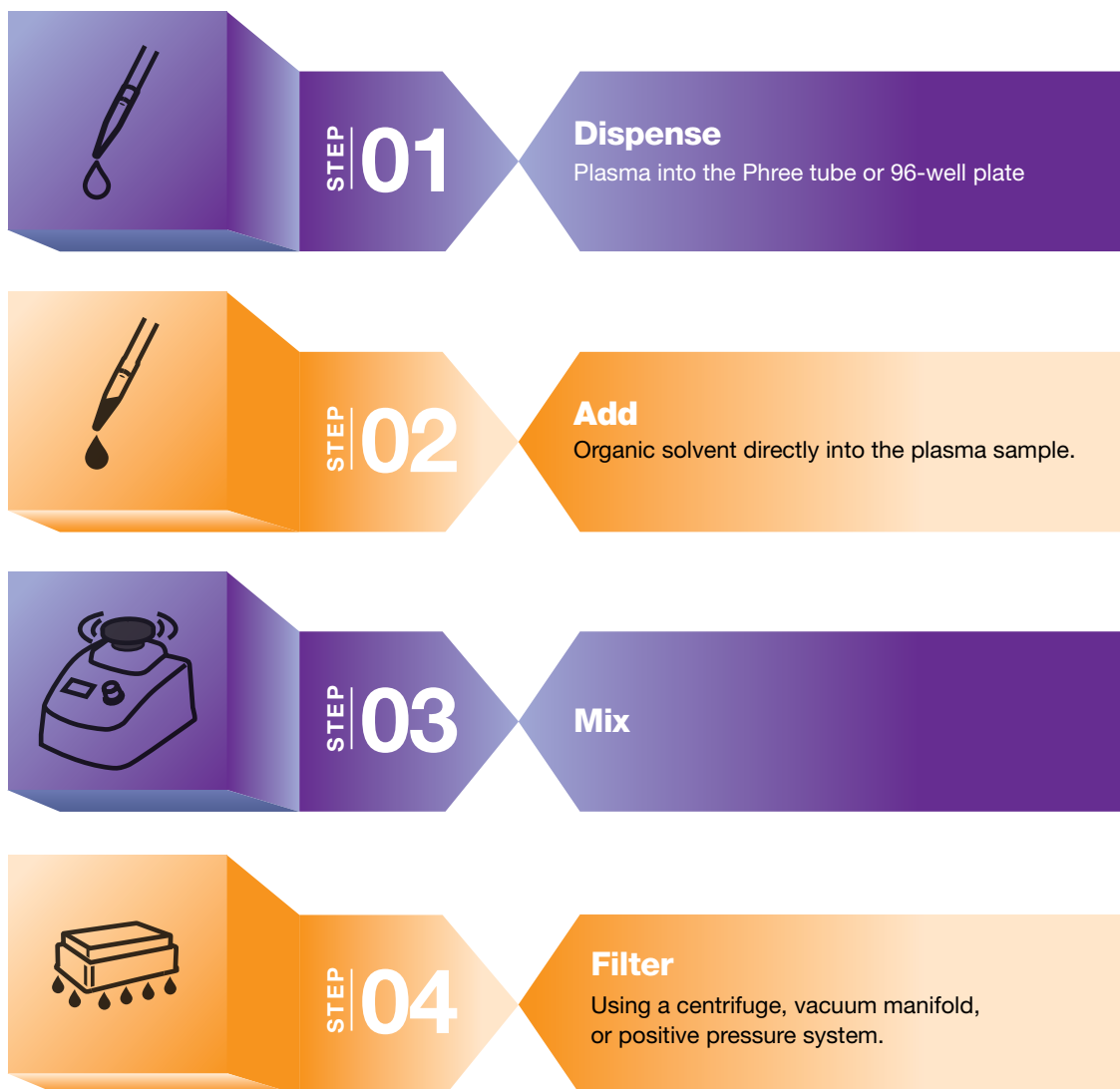
## Extended Phospholipid Capacity

The Phree sorbent has an extended capacity for phospholipids, allowing you to load up to 400 µL of plasma without significant breakthrough of phospholipids.



Waters Corporation states that the true maximum recommended plasma volume that can be processed using the Ostro plate is 350 µL due to well volume limitations. Ostro is a trademark of Waters Corporation. Comparative separations may not be representative of all applications.

# Skip the Method Development



For complete method details and optimization tips, visit [www.phenomenex.com/Phree](http://www.phenomenex.com/Phree)

## Recommended Organic Solvents

Solvent	Solvent Volume	Plasma Volume
Acetonitrile with 1 % Formic acid	300 $\mu$ L	100 $\mu$ L
Methanol with 1 % Formic acid	400 $\mu$ L	100 $\mu$ L

## Recommended Plasma Loading Capacities

Format	Volume
96-well plates	25 - 400 $\mu$ L
Tubes	25 - 200 $\mu$ L

### Tip

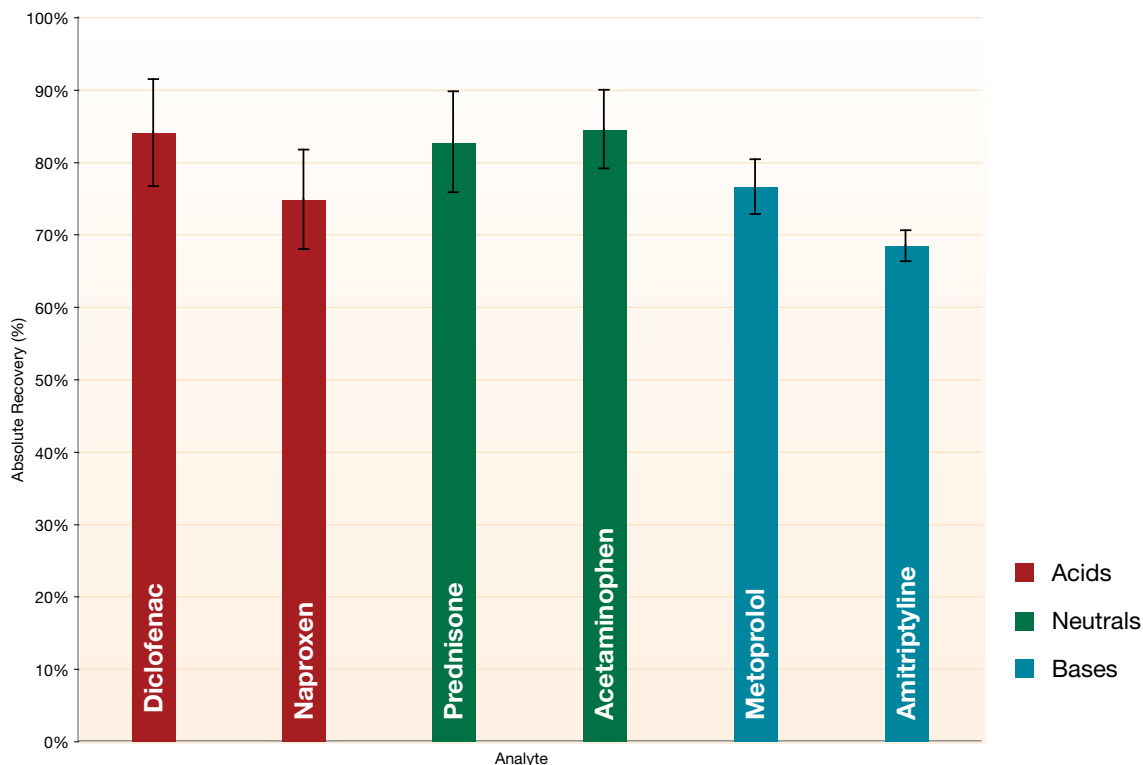
Phenomenex accessories pair perfectly with Phree Phospholipid Removal Products. Go to page 11 for a complete list of accessories.



## High Recoveries of Target Analytes

The Phree general protocol has been developed to produce high recoveries of acids, bases, and neutrals while simultaneously removing all classes of phospholipids.

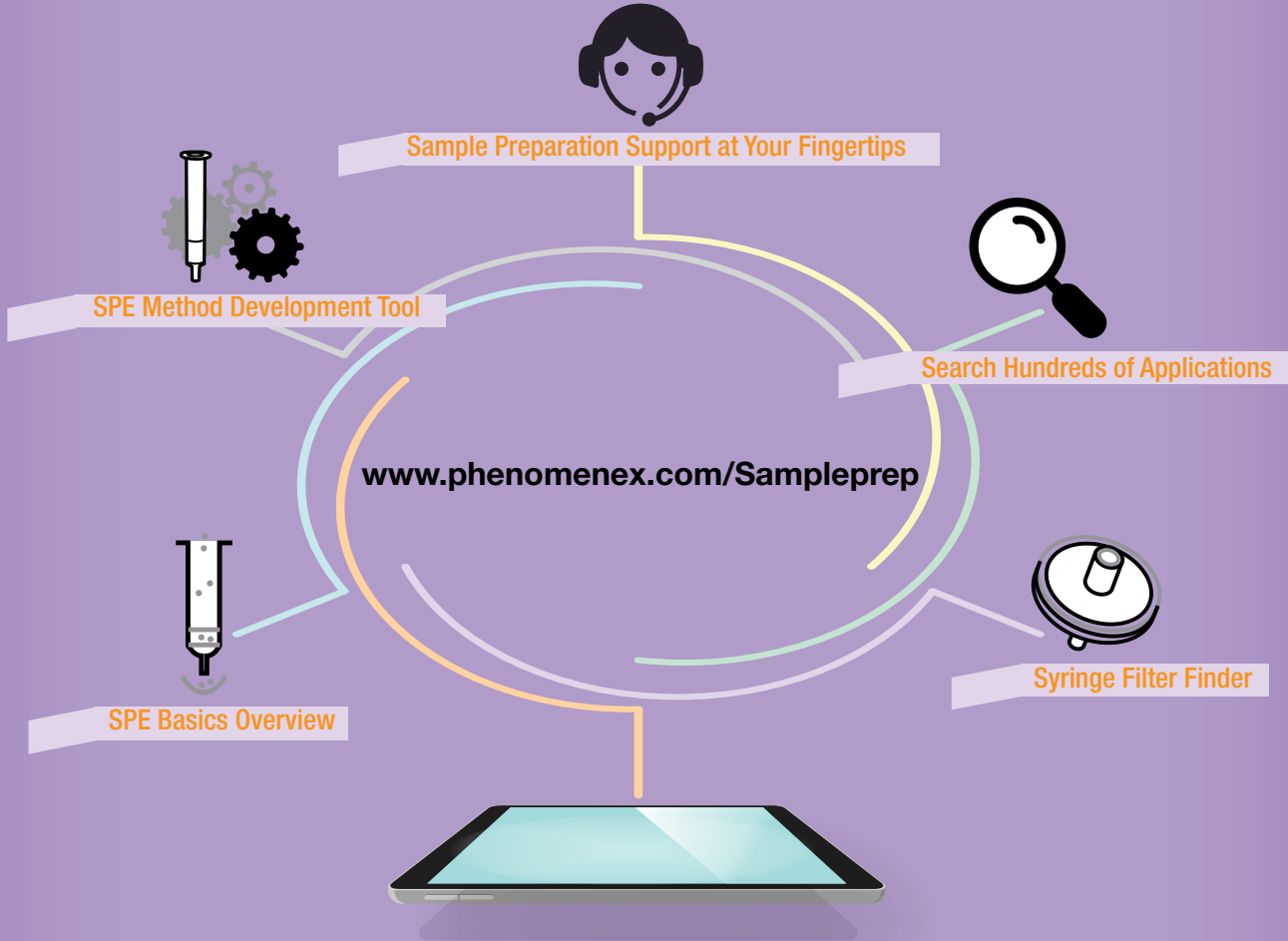
### Absolute Recoveries of Acids, Bases, and Neutrals



Recovery data was obtained by calculating the average absolute recoveries of analytes extracted from 3 Phree plates.

One easy method for tubes and 96-well plates! Easily transfer methods between the two formats.

# Sample Preparation Tools and Resources to Serve You



## Get Started

Contact your Sample Preparation Specialist:  
By email: [Support@phenomenex.com](mailto:Support@phenomenex.com)

## Live Chat

Talk to an expert about methods, ordering questions or product recommendations.  
[www.phenomenex.com/techsupport](http://www.phenomenex.com/techsupport)

“Phenomenex’s prompt support is very important for us to achieve our work. I thank them for their persistent support and innovative products.”

Allena Ji  
Wyeth

# Order Phree Now!

## Ordering Information

### Phree Phospholipid Removal Products

Part No.	Description	Unit
8B-S133-TAK	Phree Phospholipid Removal 1 mL Tube	100/box
8E-S133-TGB	Phree Phospholipid Removal 96-Well Plates	2/box

### Accessories

#### Collection Plates (deep well, polypropylene)

AHO-7192	96-Well Collection Plate 350 µL/well	50/pk
AHO-7193	96-Well Collection Plate 1 mL/well	50/pk
AHO-7194	96-Well Collection Plate 2 mL/well	50/pk
AHO-8635	96-Well Collection Plate, 2 mL Square/Round-Conical	50/pk
AHO-8636	96-Well Collection Plate, 2 mL Round/Round, 8 mm	50/pk
AHO-7279	96-Well Collection Plate, 1 mL/well Round, 7 mm	50/pk

#### Sealing Mats

AHO-8597	Sealing Mats, Pierceable, 96-Square Well, Silicone	50/pk
AHO-8598	Sealing Mats, Pre-Slit, 96-Square Well, Silicone	50/pk
AHO-8631	Sealing Mats, Pierceable, 96-Round Well 7 mm, Silicone	50/pk
AHO-8632	Sealing Mats, Pre-Slit, 96-Round Well 7 mm, Silicone	50/pk
AHO-8633	Sealing Mats, Pierceable, 96-Round Well 8 mm, Silicone	50/pk
AHO-8634	Sealing Mats, Pre-Slit, 96-Round Well 8 mm, Silicone	50/pk
AHO-7362	Sealing Tape Pad	10/pk

#### Vacuum Manifolds

AHO-6023*	SPE 12-Position Vacuum Manifold Set, for tubes	ea
AHO-6024*	SPE 24-Position Vacuum Manifold Set, for tubes	ea
AHO-8950	96-Well Plate Manifold, Universal with Vacuum Gauge	ea

\*Manifolds include: Vacuum-tight glass chamber, vacuum gauge assembly, polypropylene lid with gasket, male and female luers and yellow end plugs, stopcock valves, collection rack assemblies, polypropylene needles, lid support legs. Waste container included with 12-positive manifold.

### Presston™ 100 Positive Pressure Manifold

Part No.	Description
AHO-9334	Presston 100 Positive Pressure Manifold, 96-Well Plate
AHO-9342	Presston 100 Positive Pressure Manifold, 3 mL Tube Complete Assembly
AHO-9347	Presston 100 Positive Pressure Manifold, 3 mL Tube Complete Assembly
AHO-9343	Presston 100 Positive Pressure Manifold, 6 mL Tube Complete Assembly

The Presston 100 96-Well Positive Pressure Manifold can also process 1, 3, and 6 mL tubes using the following adapter kits

#### Presston 100 Tube Adapter Kits (for AHO-9334)

Part No.	Description
AHO-9344	1 mL Tube Adapter Kit
AHO-9345	3 mL Tube Adapter Kit
AHO-9346	6 mL Tube Adapter Kit



Phenomenex warrants that for a period of 12 months following delivery, the Presston 100 Positive Pressure Manifold you have purchased will perform in accordance with the published specifications and will be free from defects in materials or workmanship. In the event that the Presston 100 Positive Pressure Manifold does not meet this warranty, Phenomenex will repair or replace defective parts. The Presston 100 Positive Pressure Manifold does not meet this warranty, Phenomenex will repair or replace defective parts.

Please visit [www.phenomenex.com/Presston](http://www.phenomenex.com/Presston) for complete warranty information.



guarantee

If Phree Phospholipid Removal products do not perform as well or better than your current phospholipid removal product, send in your comparative data within 45 days and keep the Phree Phospholipid Removal product for FREE.



Tip

For more information about Phenomenex sample preparation products, visit [www.phenomenex.com/samplepreinfo](http://www.phenomenex.com/samplepreinfo)



#### Terms and Conditions

Subject to Phenomenex Standard Terms and Conditions, which may be viewed at [www.phenomenex.com/TermsAndConditions](http://www.phenomenex.com/TermsAndConditions).

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#### Disclaimer

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## Phospholipid Removal Solutions



### Australia

t: +61 (0)2-9428-6444  
f: +61 (0)2-9428-6445  
auinfo@phenomenex.com

### Austria

t: +43 (0)1-319-1301  
f: +43 (0)1-319-1300  
anfrage@phenomenex.com

### Belgium

t: +32 (0)2 503 4015 (French)  
t: +32 (0)2 511 8666 (Dutch)  
f: +31 (0)30-2383749  
beinfo@phenomenex.com

### Canada

t: +1 (800) 543-3681  
f: +1 (310) 328-7768  
info@phenomenex.com

### China

t: +86 (0)20 2282-6668  
f: +86 (0)20 2809-8130  
chinainfo@phenomenex.com

### Denmark

t: +45 4824 8048  
f: +45 4810 6265  
nordicinfo@phenomenex.com

### Finland

t: +358 (0)9 4789 0063  
f: +45 4810 6265  
nordicinfo@phenomenex.com

### France

t: +33 (0)1 30 09 21 10  
f: +33 (0)1 30 09 21 11  
franceinfo@phenomenex.com

### Germany

t: +49 (0)6021-58830-0  
f: +49 (0)6021-58830-11  
anfrage@phenomenex.com

### India

t: +91 (0)40-3012 2400  
f: +91 (0)40-3012 2411  
indiainfo@phenomenex.com

### Ireland

t: +353 (0)1 247 5405  
f: +44 1625-501796  
eireinfo@phenomenex.com

### Italy

t: +39 051 6327511  
f: +39 051 6327555  
italiainfo@phenomenex.com

### Luxembourg

t: +31 (0)30-2418700  
f: +31 (0)30-2383749  
nlinfo@phenomenex.com

### Mexico

t: 01-800-844-5226  
f: 001-310-328-7768  
tecnicomx@phenomenex.com

### The Netherlands

t: +31 (0)30-2418700  
f: +31 (0)30-2383749  
nlinfo@phenomenex.com

### New Zealand

t: +64 (0)9-4780951  
f: +64 (0)9-4780952  
nzinfo@phenomenex.com

### Norway

t: +47 810 02 005  
f: +45 4810 6265  
nordicinfo@phenomenex.com

### Puerto Rico

t: +1 (800) 541-HPLC  
f: +1 (310) 328-7768  
info@phenomenex.com

### Spain

t: +34 91-413-8613  
f: +34 91-413-2290  
espinfo@phenomenex.com

### Sweden

t: +46 (0)8 611 6950  
f: +45 4810 6265  
nordicinfo@phenomenex.com

### United Kingdom

t: +44 (0)1625-501367  
f: +44 (0)1625-501796  
ukinfo@phenomenex.com

### USA

t: +1 (310) 212-0555  
f: +1 (310) 328-7768  
info@phenomenex.com

### All other countries Corporate Office USA

t: +1 (310) 212-0555  
f: +1 (310) 328-7768  
info@phenomenex.com



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Phenomenex products are available worldwide. For the distributor in your country, contact Phenomenex USA, International Department at [international@phenomenex.com](mailto:international@phenomenex.com)