Figure 1B

HS 293   293 HS

Ome   X X + − + − X X X − + − + X X

1532   1533

293 HS

Ome   X X − + − + X X X X X X X X X

1538

293 HS

Ome   − + − + X

Negative

Figure 1C

KLH

Ome   X X X X X X − + X X X X X X X X

4E12

KLH   KLH

Ome   + − X X X X X X X X X X X X − +

7C5   5C3

KLH   KLH
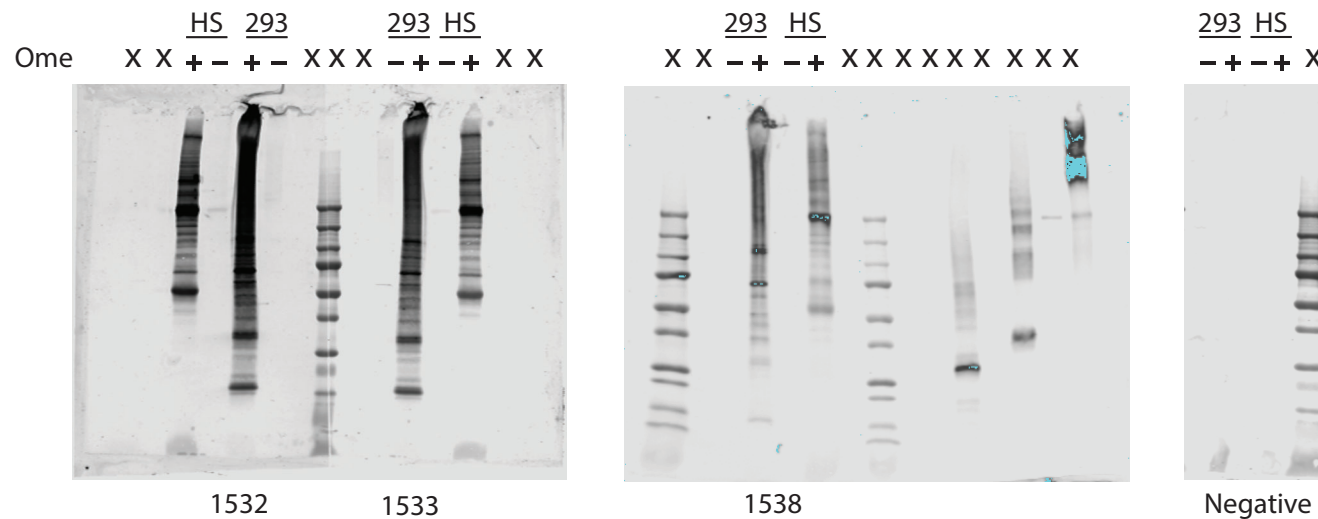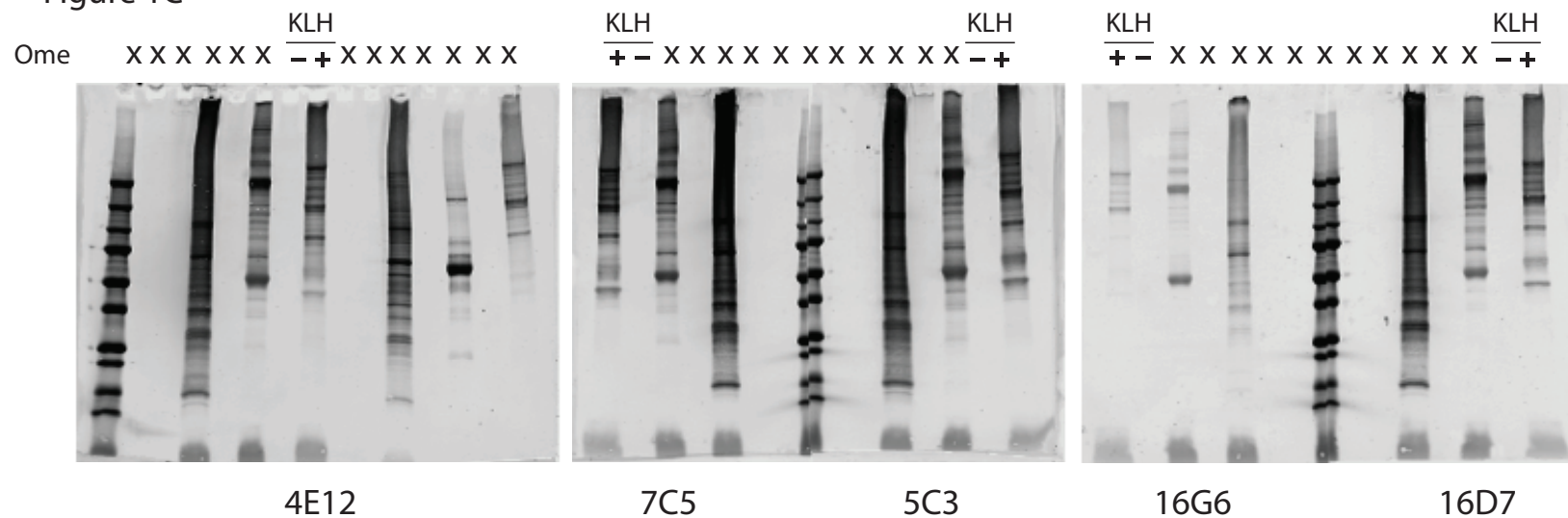
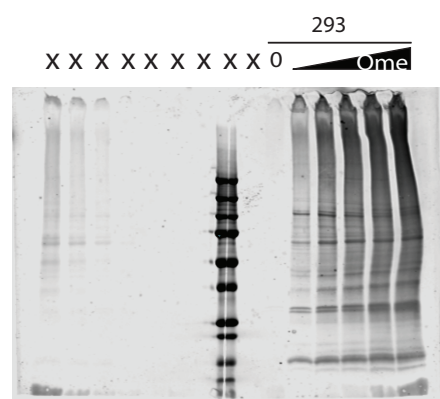Ome   + − X X X X X X X X X X X X − +

16G6   16D7

Sample wells were loaded in the indicated manner and Odyssey LICOR imager was used for the image capture.
Ome=Omeprazole
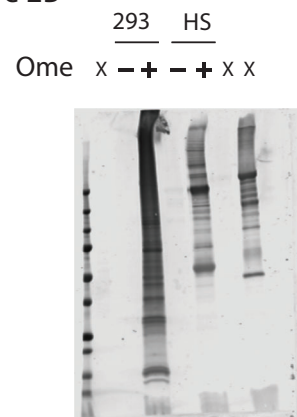Figure 1B, 293 = HEK 293 cells lysate, HS = Human Serum
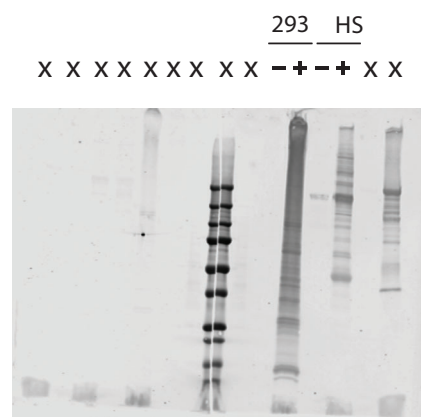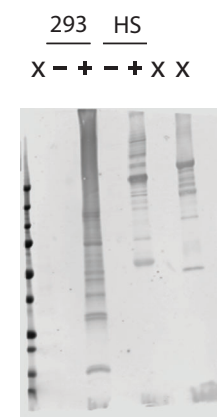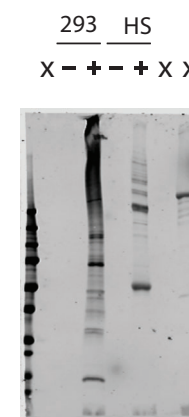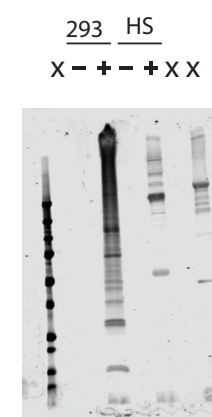Figure 1C, KLH = Keyhole Lympet Hemocyanin

Figure 2A

Figure 2B

293

x x x x x x x x x x 0 ——— Ome

4E12

Ome   293 HS
      x – + – + x x

4E12

293 HS
x x x x x x x x x x – + – + x x

5C3

293 HS
x – + – + x x

7C5

293 HS
x – + – + x x

16D7

293 HS
x – + – + x x

16G6

Sample wells were loaded in the indicated manner and Odyssey LICOR imager was used for the image capture.
Ome = omeprazole treatment dose in figure 1A, 0, 0.1, 0.25, 0.5, 1, 2mM. 293 = HEK 293 cells lysate,
Figure 2B, HS = Human Serum
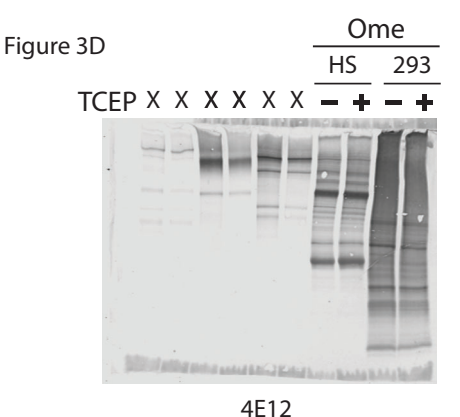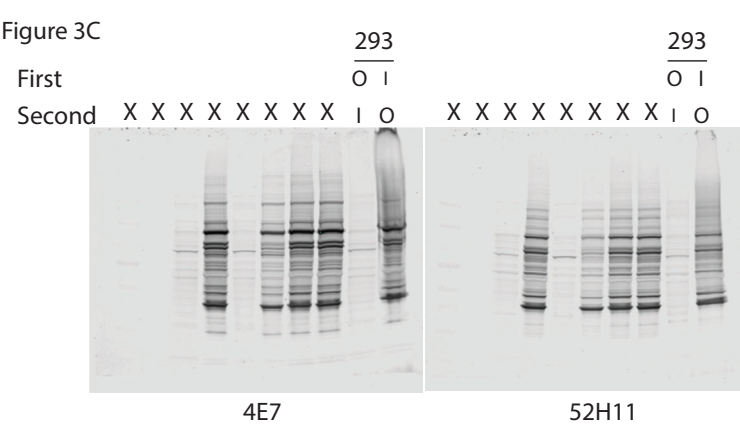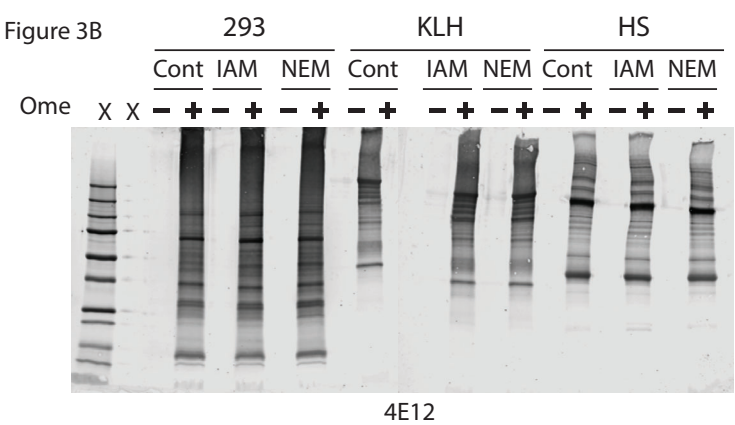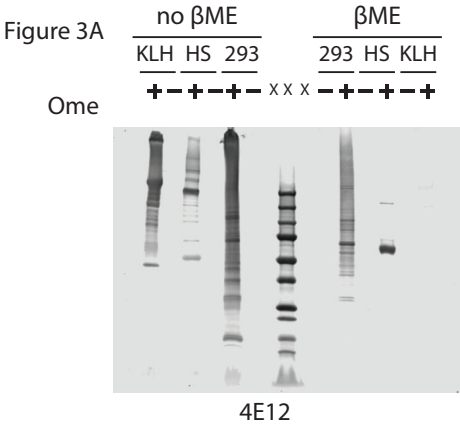 X = sample not included in the manuscript

Figure 3A

no βME | βME
KLH HS 293 | 293 HS KLH

Ome: + − + − + X X X − + − + − +

4E12

Figure 3B

293 | KLH | HS
Cont IAM NEM | Cont IAM NEM | Cont IAM NEM

Ome: X X − + − + − + − + − + − + − + − + − +

4E12

Figure 3C

293
O I

First
Second: X X X X X X X X I O   X X X X X X X X X I O

4E7   52H11

Figure 3D

Ome
HS   293

TCEP: X X X X X X − + − +

4E12

Figure 3E

293
pH7.4   pH2.7   pH7.4   pH2.7
0 ___ Ome 0 ___ Ome   0 ___ Ome 0 ___ Ome

4E12   7C5
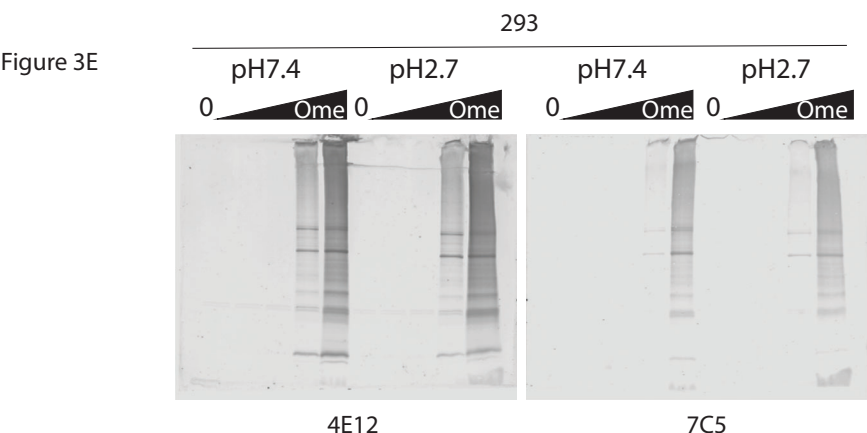
Samples wells were loaded as indicated in the figures above and Odyssey LICOR was used for the image capture.
Ome = Omeprazole, 293 = 293 cells lysate, HS = Human Serum, KLH = Keyhole Lympet Hemocyanin, X = samples not included in the manuscript figures
Figure 3B, Cont= Control, IAM = Iodoacetamide, NEM = N-ethylmaleimide
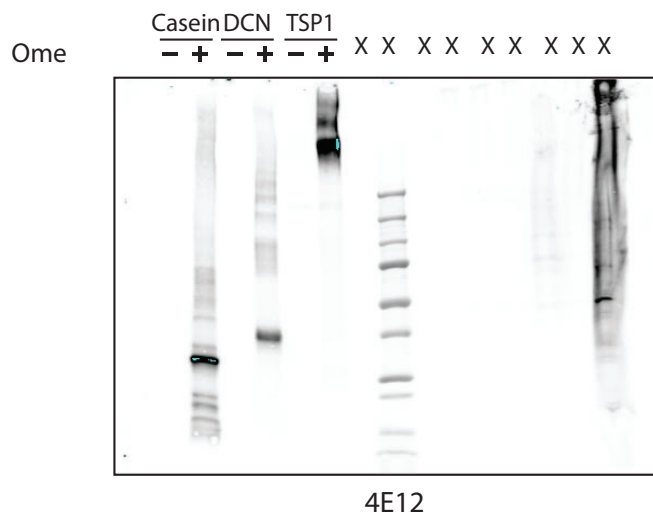Figure 3C, I = Iodoacetamide, O = Omeprazole

Figure 4A

Ome

Casein DCN TSP1

− + − + − + X X X X X X X X X

4E12

Figure 4B

TCEP

Casein   COL1 COL4 DCN IL17RC   vWF TSP1 TSP2

X X X − + X X − + − + − + − +   − + − + − + X X X X

4E12

Figure 4C

Ome

TCEP DTT BME   TCEP DTT BME
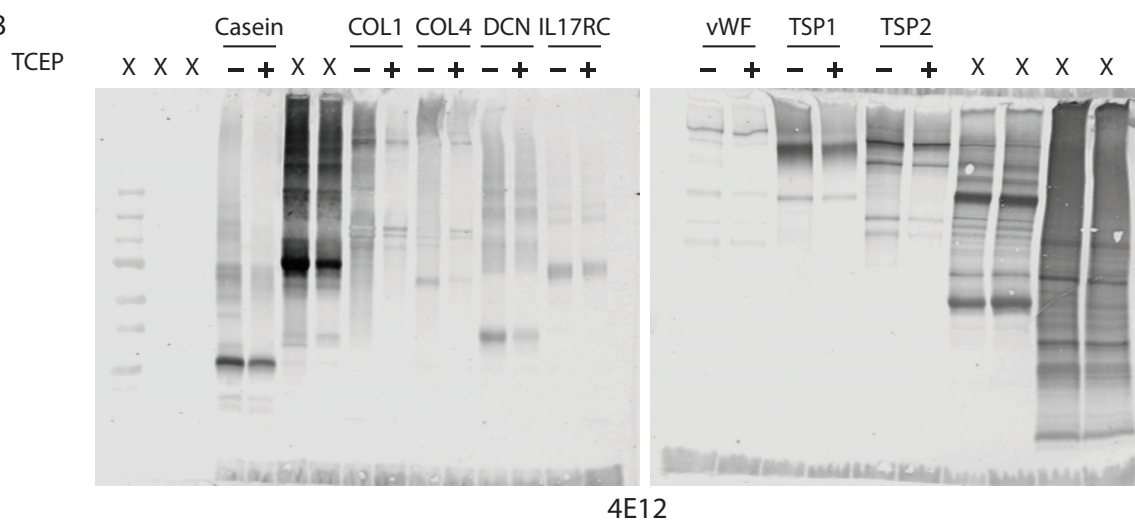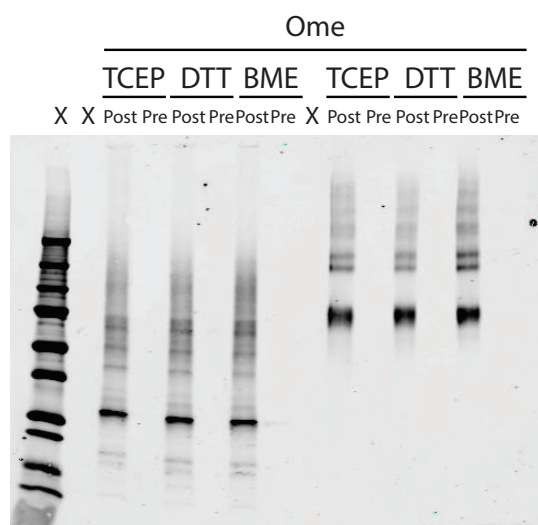
X X Post Pre Post Pre Post Pre   X Post Pre Post Pre Post Pre

Sample wells loading are as shown in the figures. Odyssey LICOR imager was used for the image capture.

Ome = Omeprazole

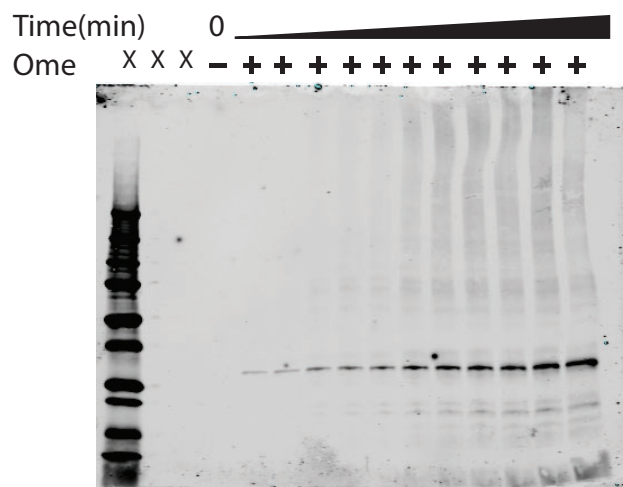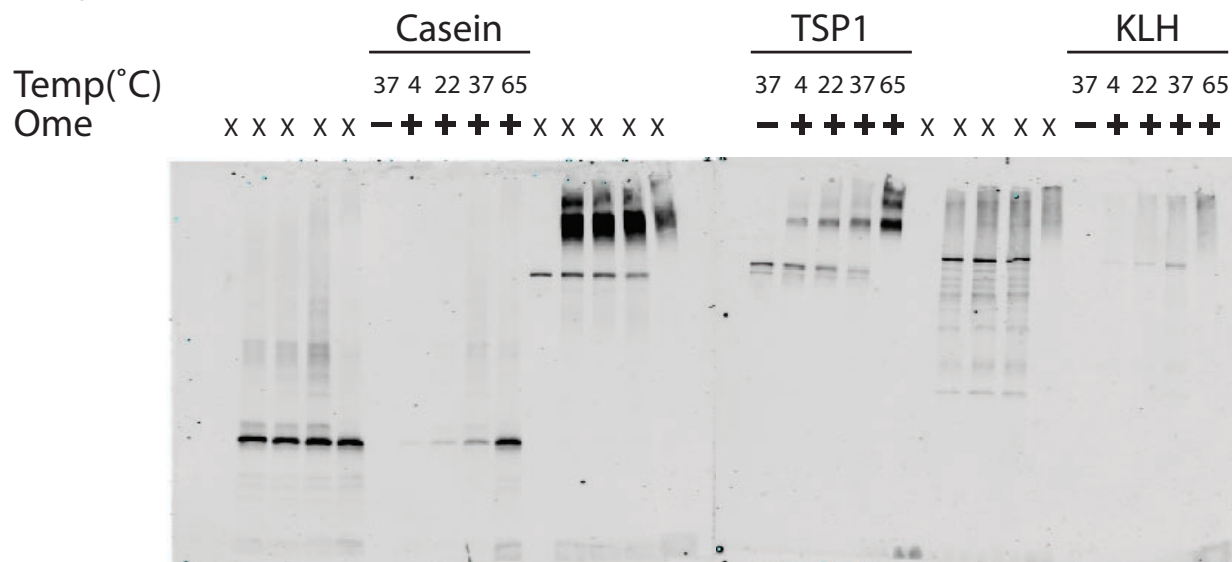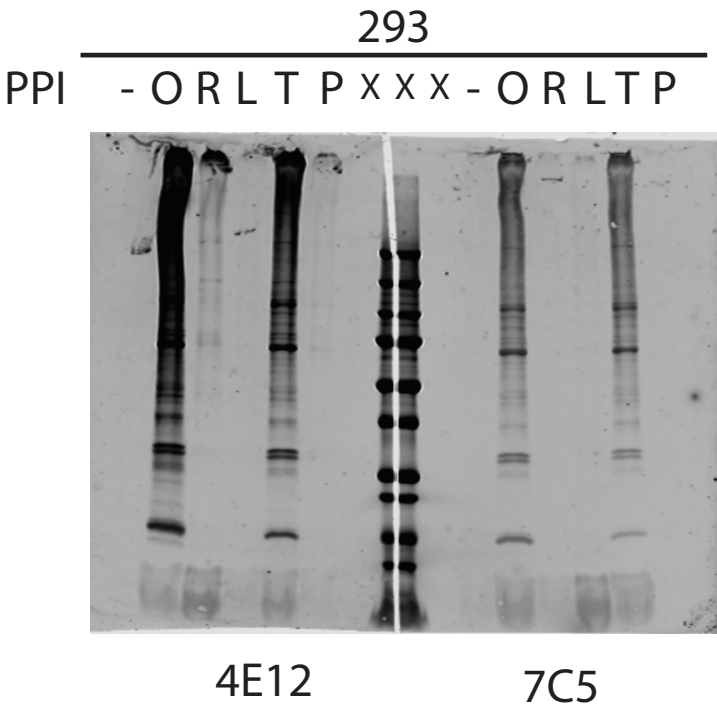X = Sample not included in the manuscript

Figure 5A

Time(min)   0 ▁▁▁▁▁▁▁▁▁▁▁▁▁

Ome   X X X — + + + + + + + + + + +

Figure 5B

	Casein											TSP1										KLH			
Temp(˚C)	37	4	22	37	65								37	4	22	37	65						37	4	22	37	65
Ome	X	X	X	X	X	—	+	+	+	+	X	X	X	X	X	—	+	+	+	+	X	X	X	X	X	—	+	+	+	+

All samples were loaded as indicated and Odyssey LICOR was used for the image capture.
X = sample not included in the manuscript figures.

Figure 5A

4E12   7C5

Sample wells were loaded as indicated and Odyssey LICOR imager was used for image capture.
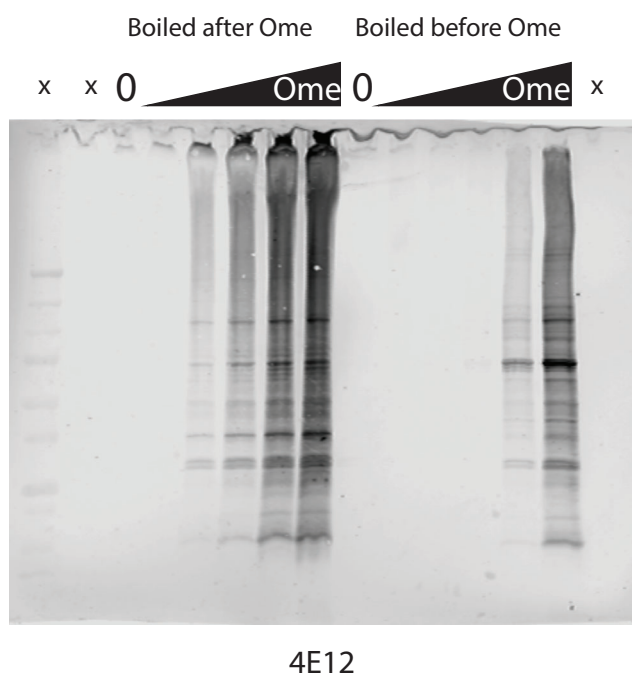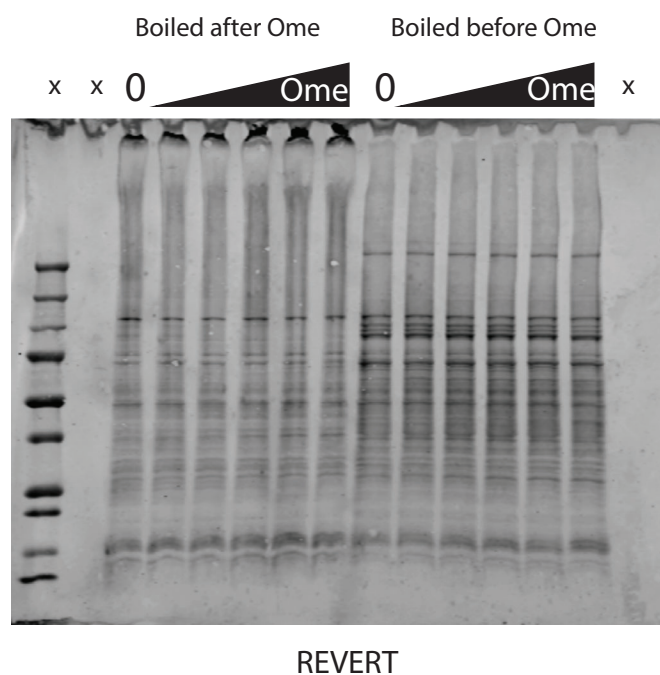
293 = HEK 293 cells lysate

PPI = proton pump inhibitor

O = omeprazole, R = Rabeprazole, L= Lansoprazole, T = Tenatoprazole

P = Pantoprazole

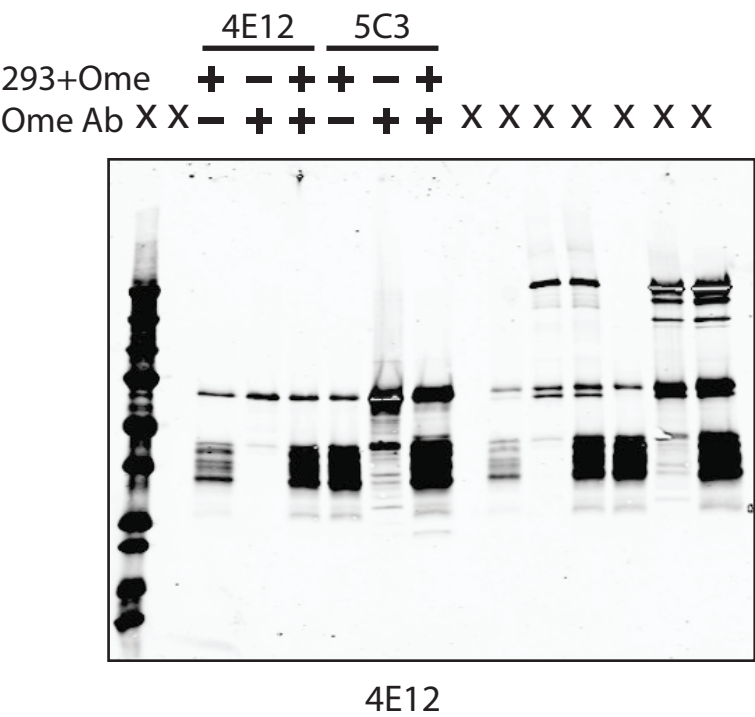## Supplymental Figure A   B

4E12   REVERT

Sample wells were loaded as indicated and Odyssey LICOR imager was used for image capture.

Ome = Omeprazole concentration 1, 10, 25, 50, 100 µM.

Supplemental Figure 2

4E12

Sample wells were loaded as indicated and Odyssey LICOR imager was used for image capture.
293 = HEK 293 lysates, Ome = Omeprazole,
 Ome Ab = Omeprazole monoclonal antibody
X = sample not included in the manuscript figure.