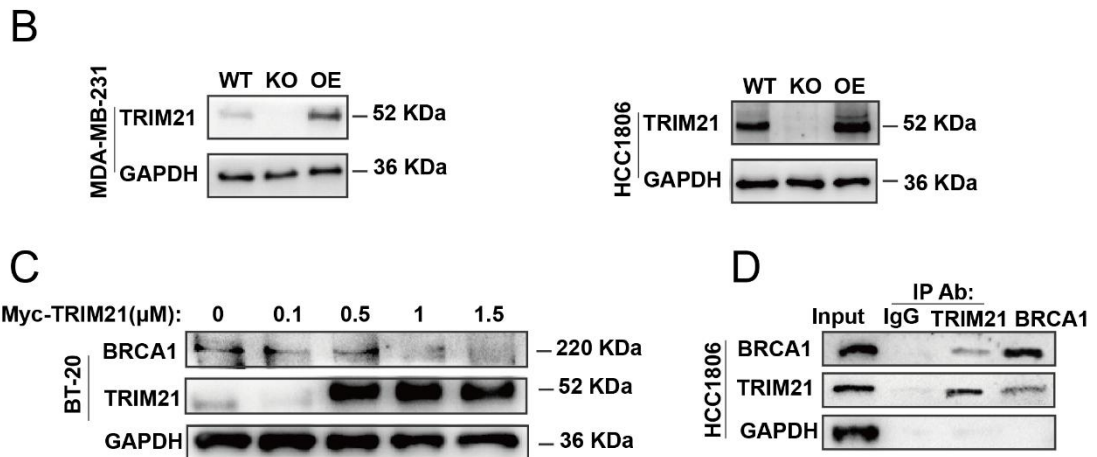
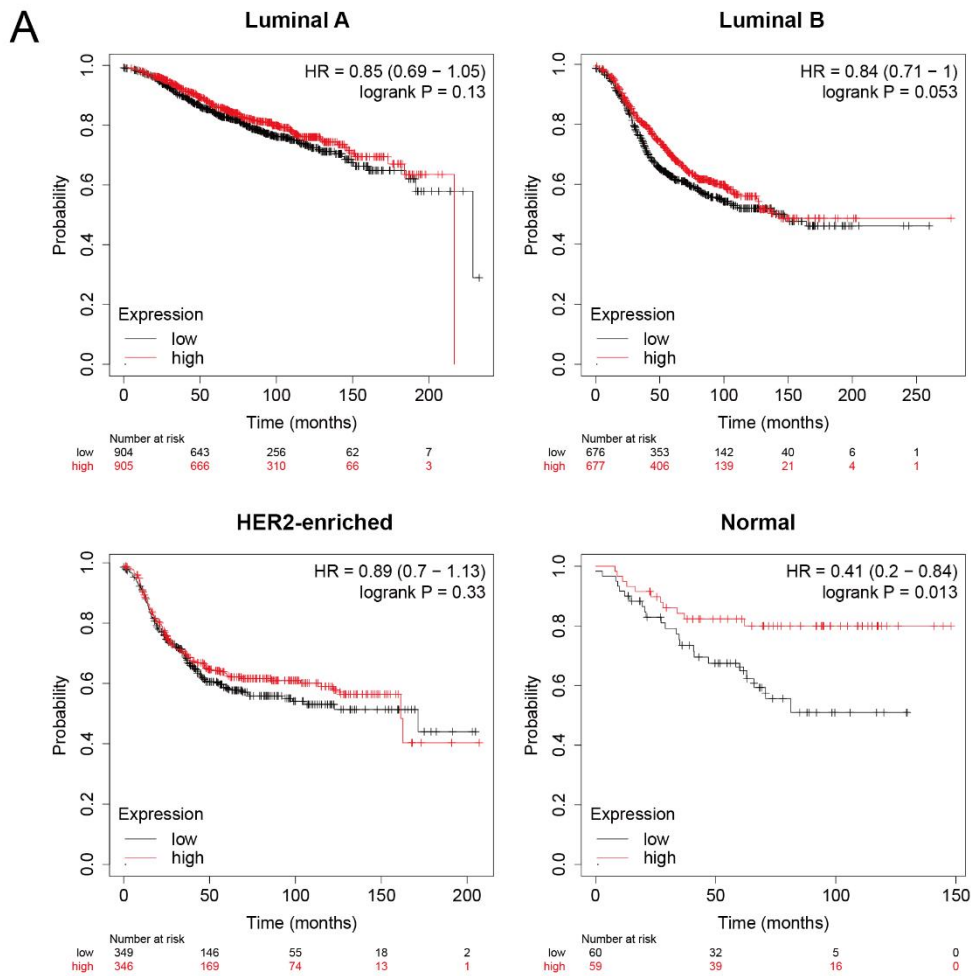


Supplementary Table S1: plasmids information

| Gene Name | Vector | Type |
|----------------------|-------------------------|---|
| h-TRIM21 | pCDH-CMV-MCS-EF1-copGFP | Overexpression Plasmid (for lentivirus infection) |
| h-TRIM21 | pCMV3-ORF-Myc | Overexpression Plasmid |
| h-BRCA1 | pDEST-Flag | Overexpression Plasmid |
| h-TRIM21 | Plenticrispr v2 | SgRNA Plasmid |
| h-TRIM21-ligase dead | pLNCX2 ER:ras | Overexpression Plasmid |

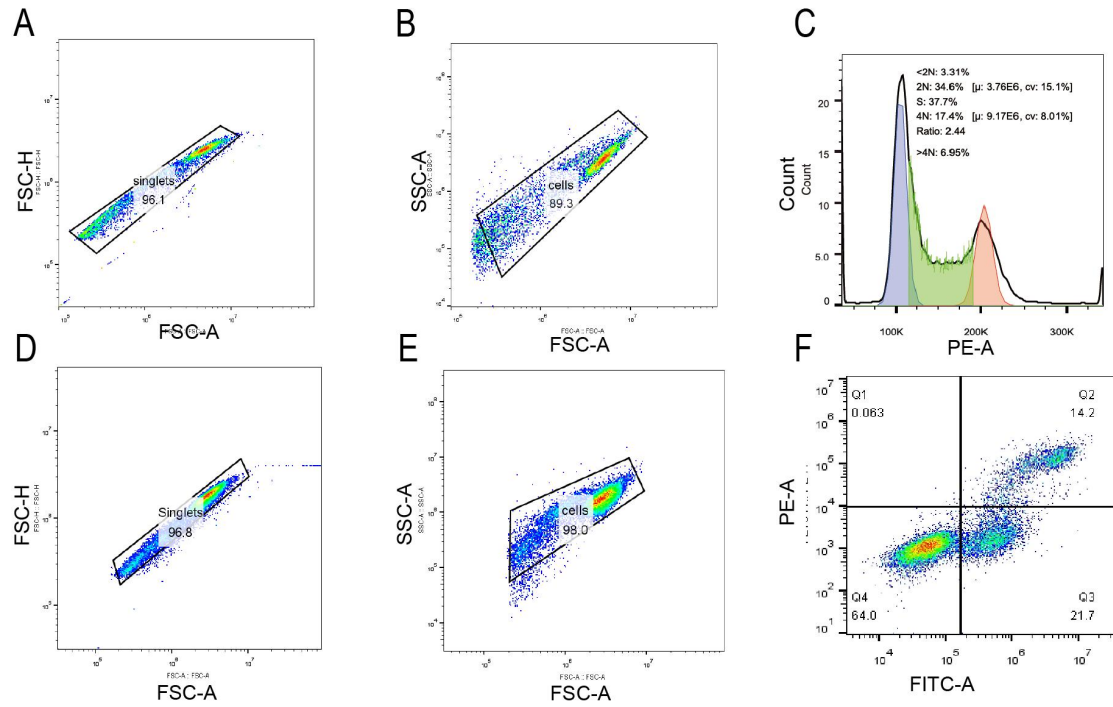
Supplementary Table S2: IC₅₀ of TNBC cell lines

| Parental Cell lines | Gene expression/mutation | IC ₅₀ (μM) |
|---------------------|--------------------------|-----------------------|
| MDA-MB-231 | TRIM21 WT | 68.78 |
| MDA-MB-231 | TRIM21 OE | 31.88 |
| MDA-MB-231 | TRIM21 KO | 142.31 |
| HCC1806 | TRIM21 WT | 71.87 |
| HCC1806 | TRIM21 OE | 45.67 |
| HCC1806 | TRIM21 KO | 169.20 |
| BT-20 | TRIM21 WT | 153.1 |
| MDA-MB-436 | BRCA1 mutation | 18.86 |



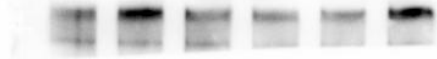
Supplementary Figure 1. (A) The correlation between the expression level of TRIM21 and relapse-free survival of Luminal A, Luminal B, HER2-enriched, and normal breast cancer types analyzed by gene chip. (B) WB verification for TRIM21^{KO} and TRIM21^{OE} TNBC cells. (C). The endogenous BRCA1 protein level was examined after transfecting with exogenous TRIM21.

(D). The CO-IP result between TRIM21, BRCA1 and GAPDH were confirmed by WB.



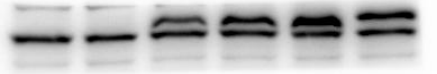
Supplementary Figure 2. Gating strategies used in flow cytometric analysis of tumor cell lines. A and D: Debris were gated out. B and E: non-viable cells were gated out. C: cell cycle are divided by the Watson Pragmatic algorithm provided by FlowJo v10. Apoptosis are gated by PE-A and FITC-A. Q2: non-viable apoptotic cells. Q3: early apoptotic cells. Q4: non-apoptotic cells.

Marker 170kDa-



-220kDa
Figure 2C BRCA1

Marker 55kDa-



-52kDa
Figure 2C TRIM21

Marker 40kDa-



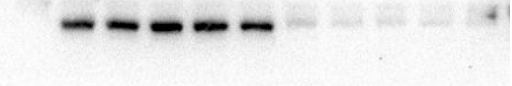
-36kDa
Figure 2D GAPDH

Marker 170kDa-



-220kDa
Figure 2E BRCA1

Marker 55kDa-

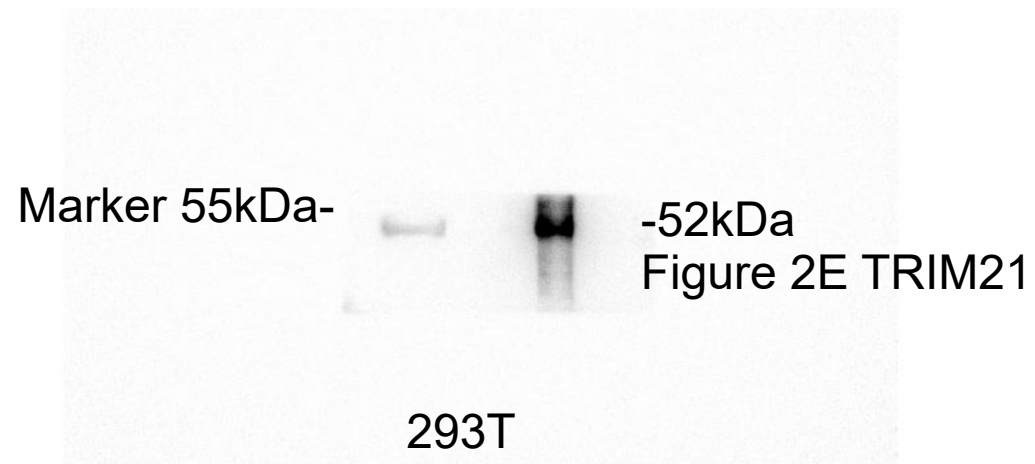
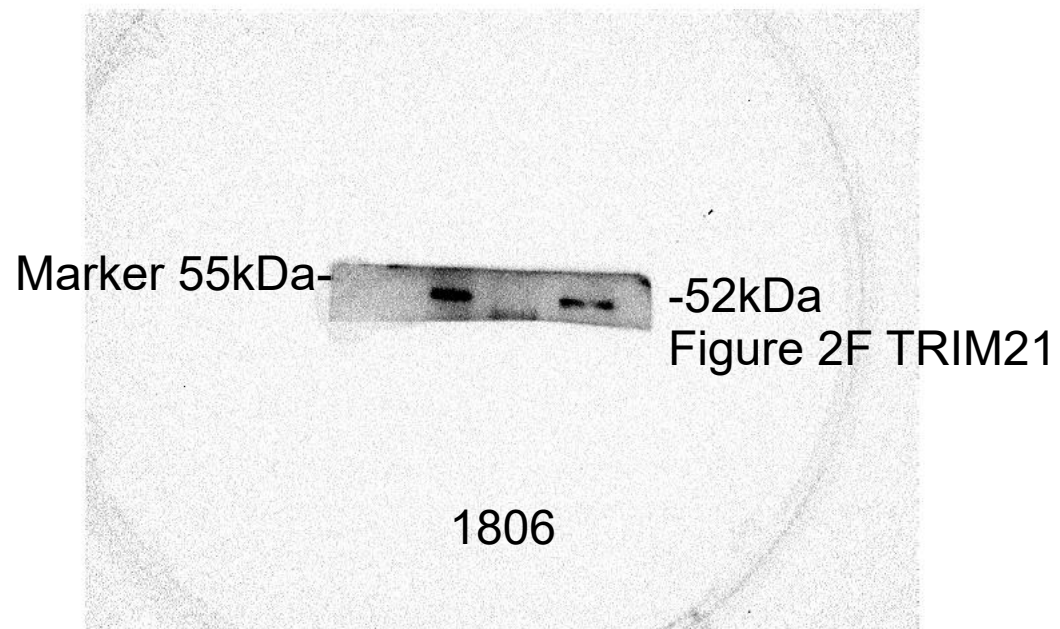
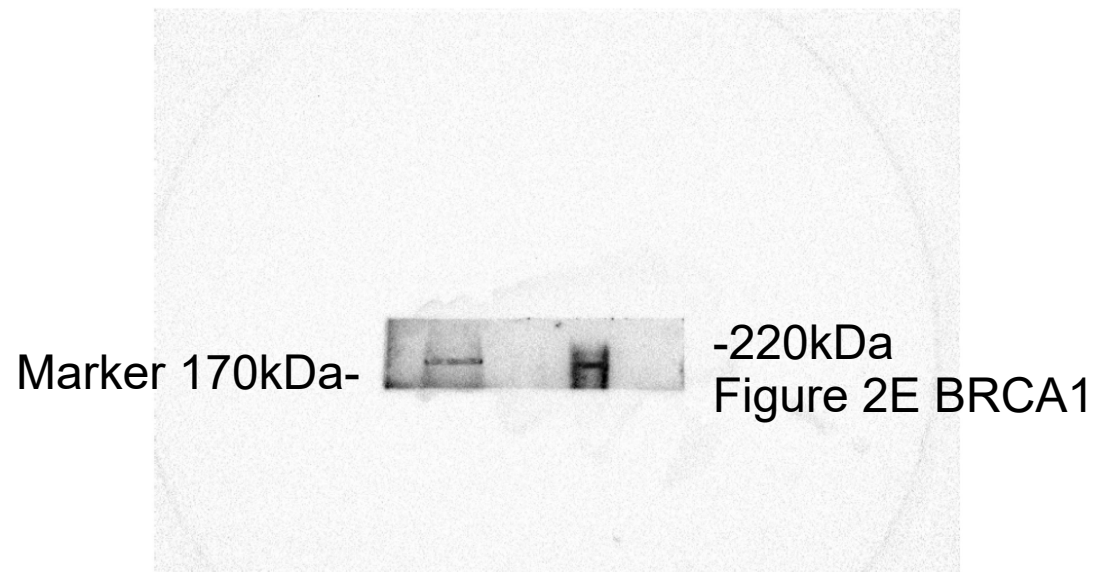
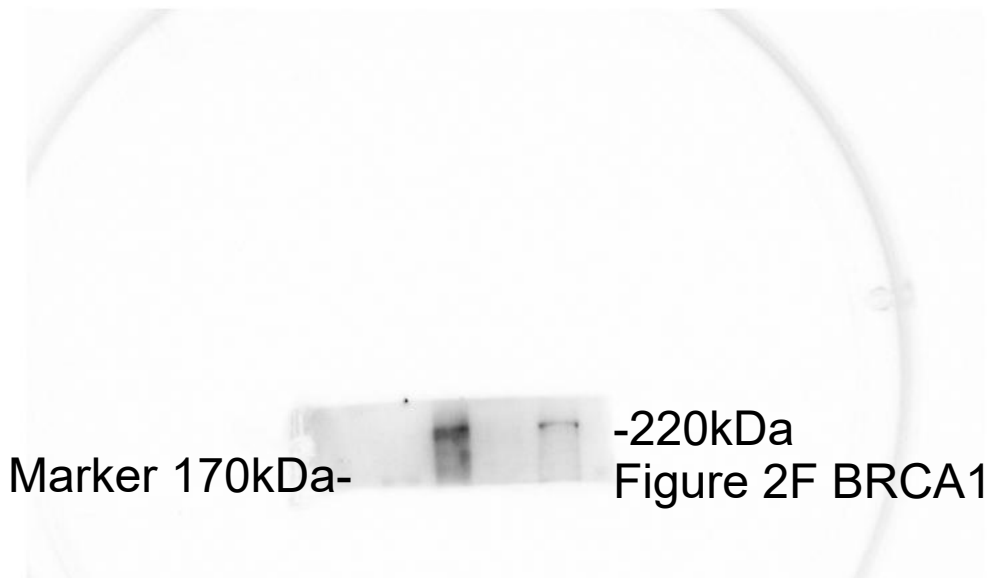


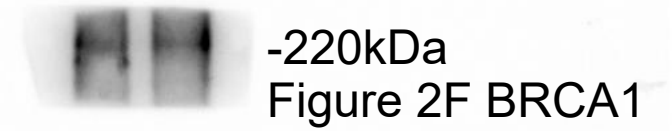
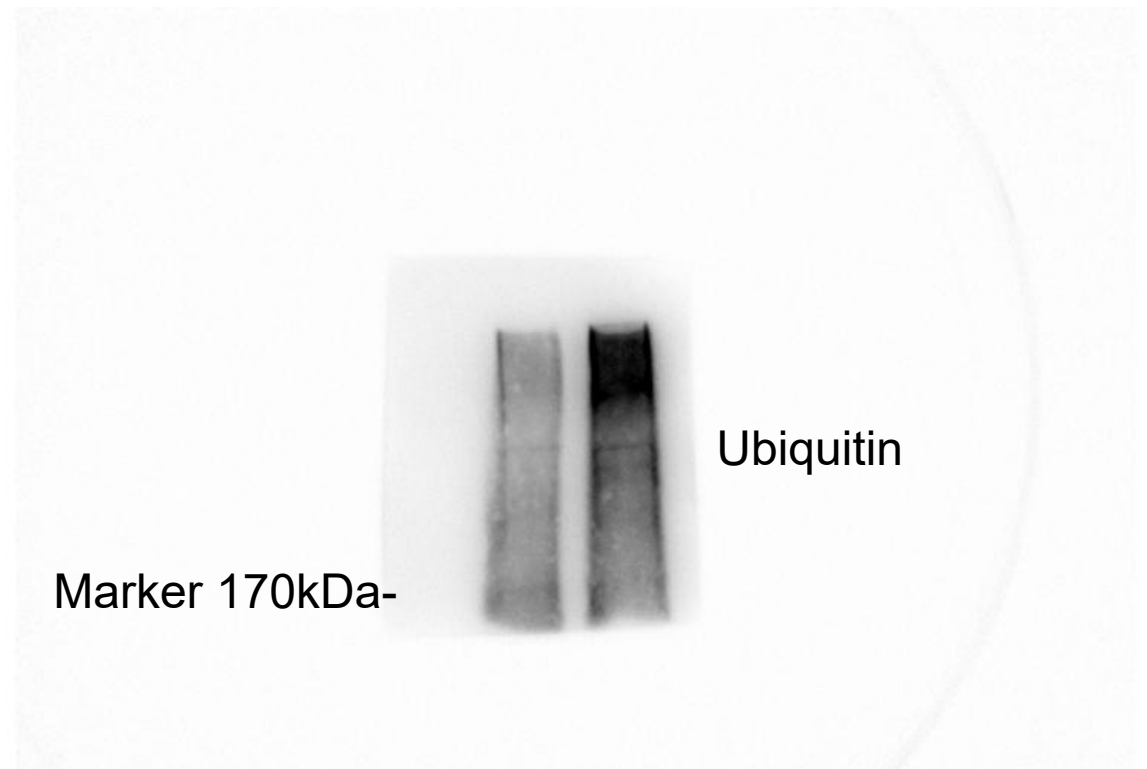
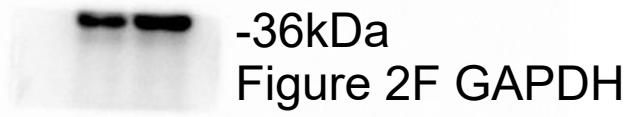
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Figure 2E TRIM21

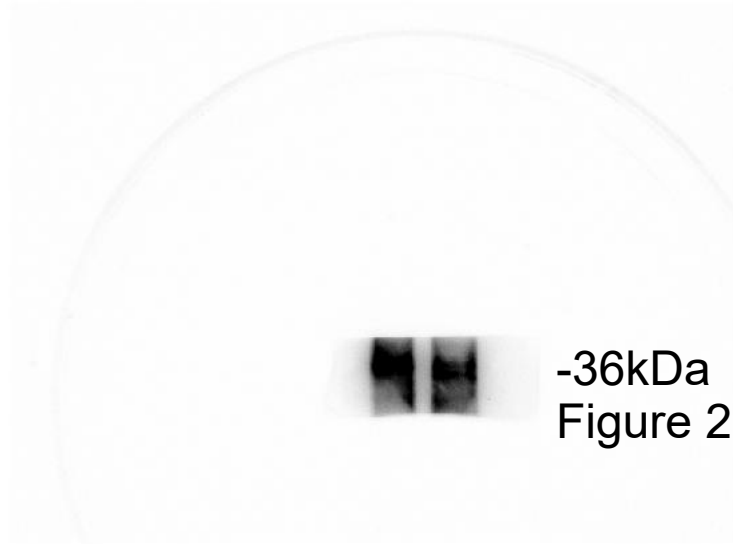
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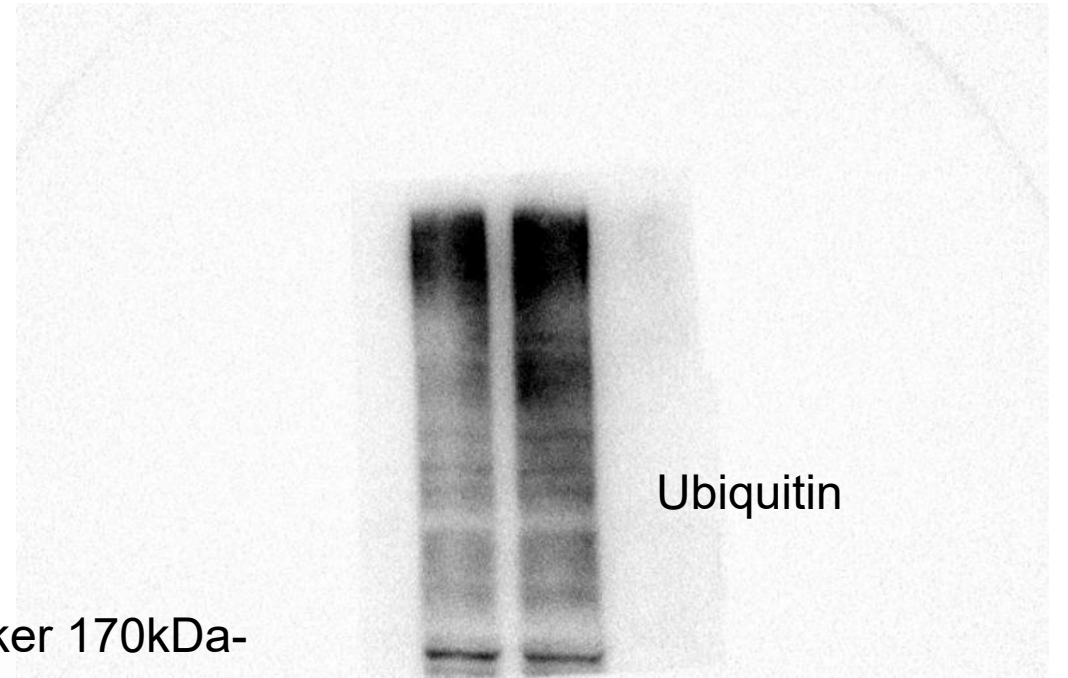
-36kDa
Figure 2E GAPDH





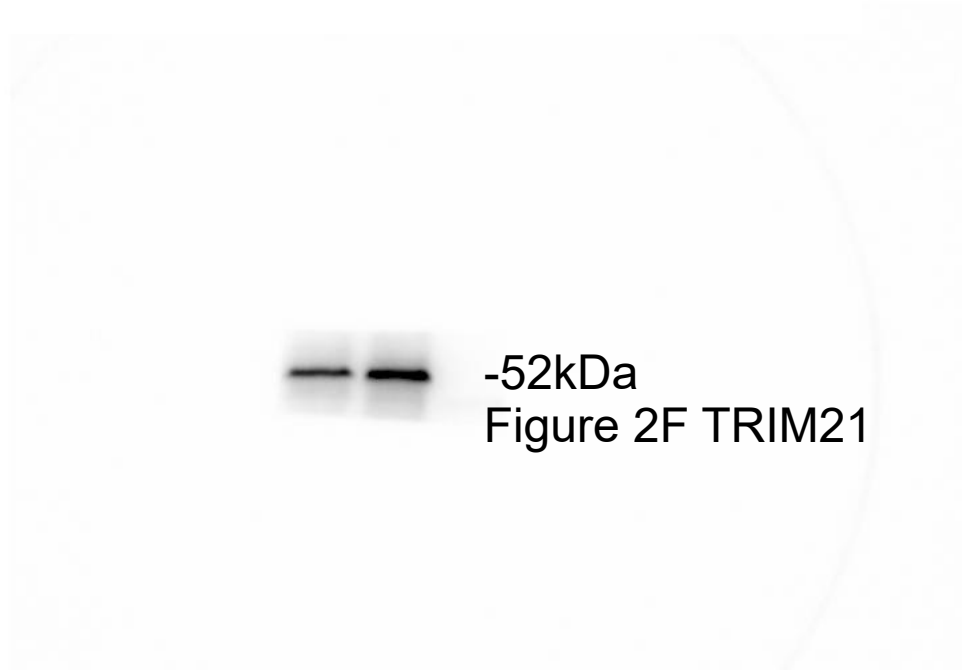


-36kDa
Figure 2F GAPDH

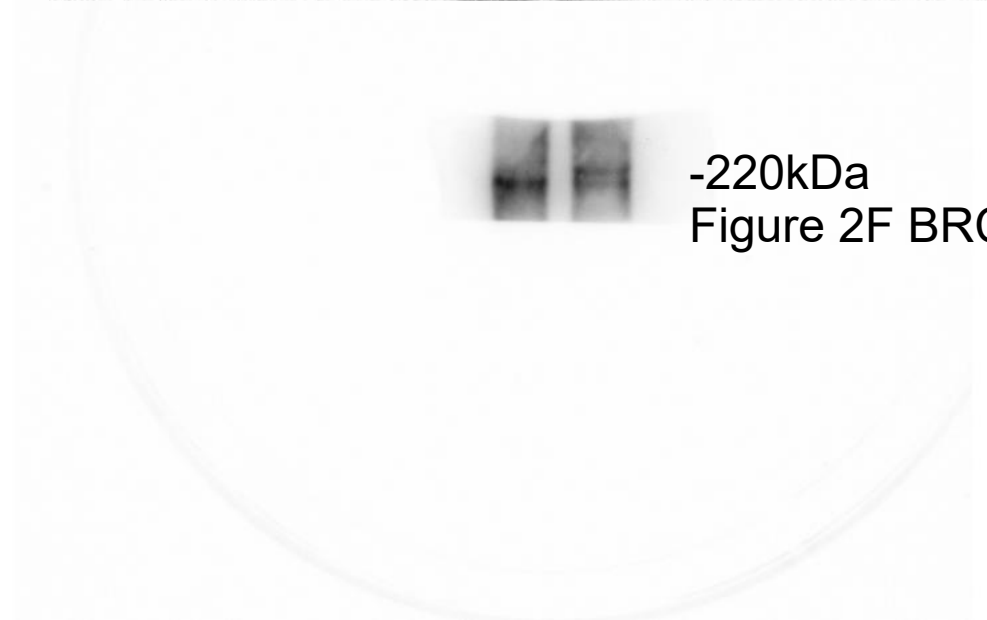


Ubiquitin

Marker 170kDa-



-52kDa
Figure 2F TRIM21



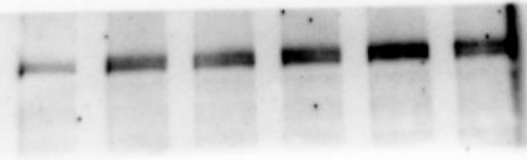
-220kDa
Figure 2F BRCA1

Marker 40kDa-



-36kDa Figure 3B GAPDH

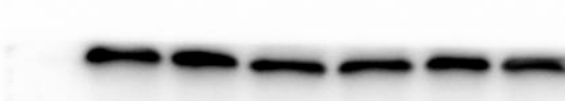
Marker 170kDa-



-220kDa
Figure 3B BRCA1

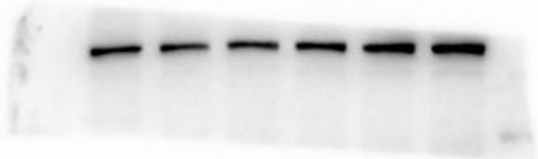
BT-20

Marker 40kDa-



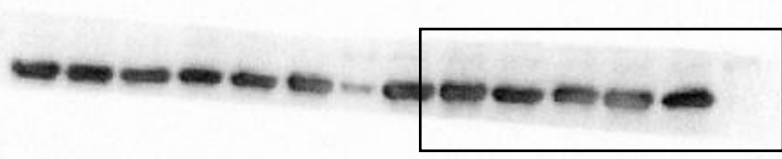
-36kDa Figure 3B GAPDH

70kDa-

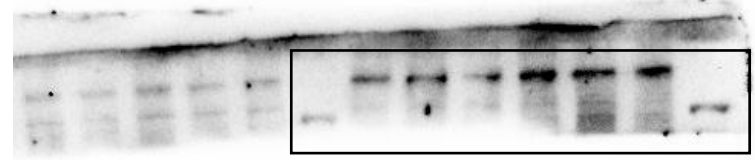


-220kDa
Figure 3B BRCA1

Marker 40kDa-



-36kDa
Figure 3B
GAPDH



-220kDa
Figure 3B BRCA1

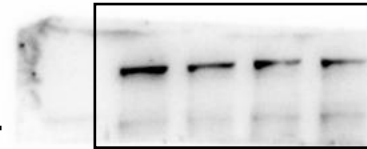
231

Marker 170kDa-



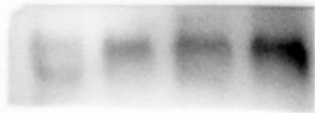
-220kDa
Figure 4A BRCA1

Marker 170kDa-



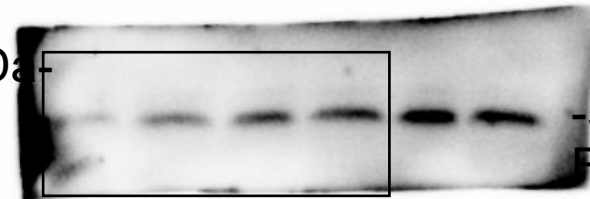
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Figure 4A BRCA1

Marker 55kDa-



-52kDa
Figure 4A TRIM

Marker 55kDa-



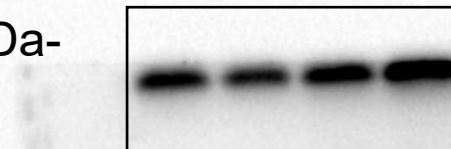
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Figure 4A TRIM21

Marker 40kDa-



-36kDa
Figure 4A GAPDH

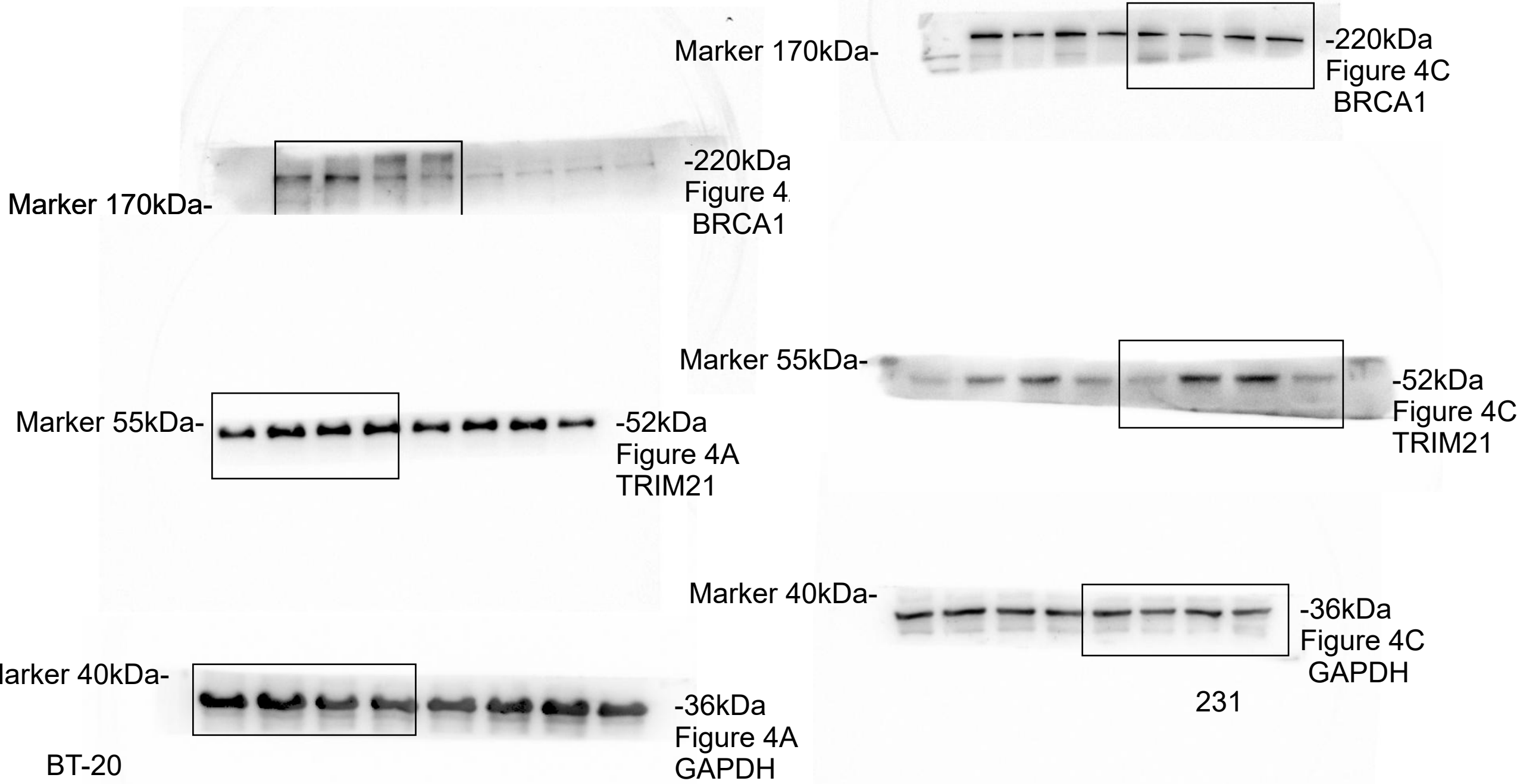
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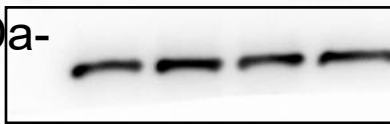
-36kDa
Figure 4A GAPDH

231

1806

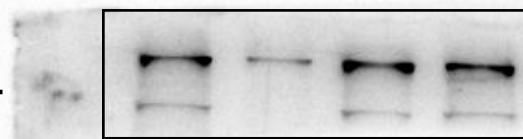


Marker 40kDa-



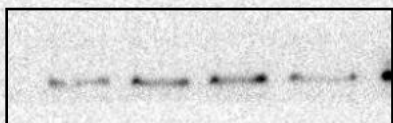
-36kDa Figure 4C GAPDH

Marker 170kDa-



-220kDa
Figure 4C BF

Marker 55kDa-



-52kDa Figure 4C TRIM21

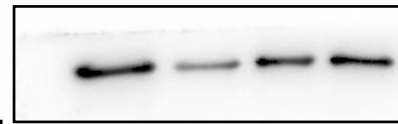
1806

Marker 40kDa-



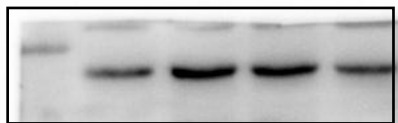
-36kDa Figure 4C GAPDH

Marker 170kDa-



-220kDa
Figure 4C BRCA1

Marker 55kDa-



-52kDa Figure 4C TRIM21

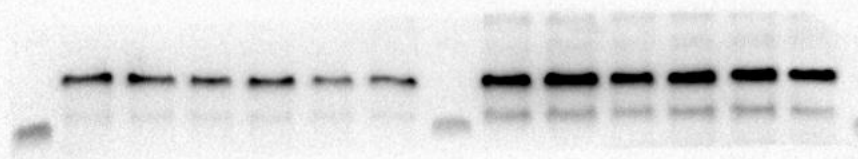
BT-20

Marker 40kDa-



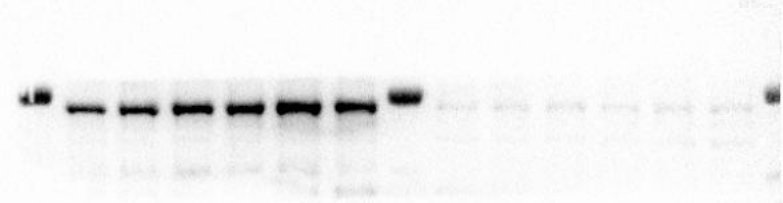
-36kDa Figure 4D GAPDH

Marker 170kDa-



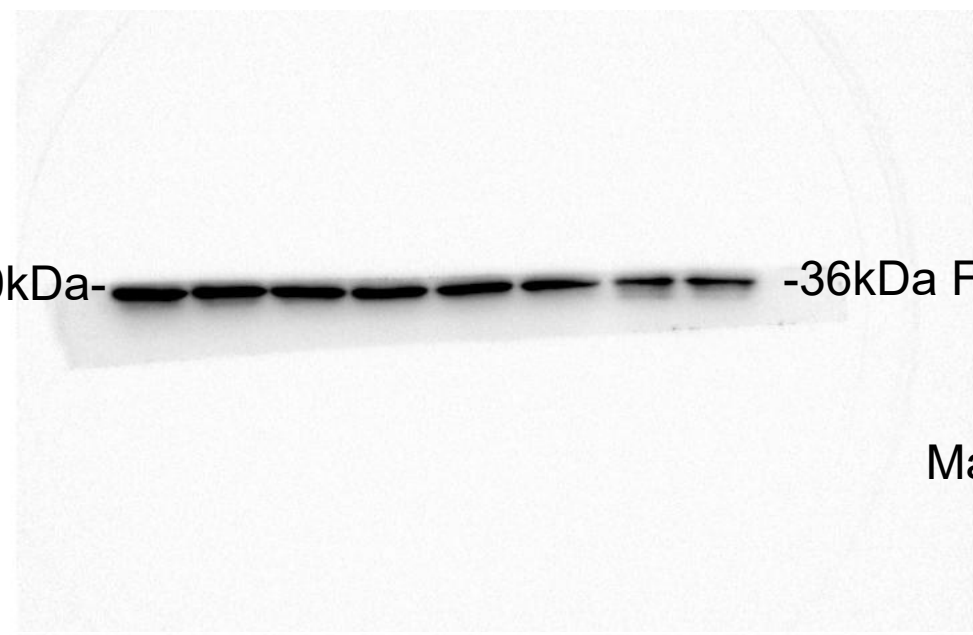
-220kDa
Figure 4D BRCA1

Marker 55kDa-

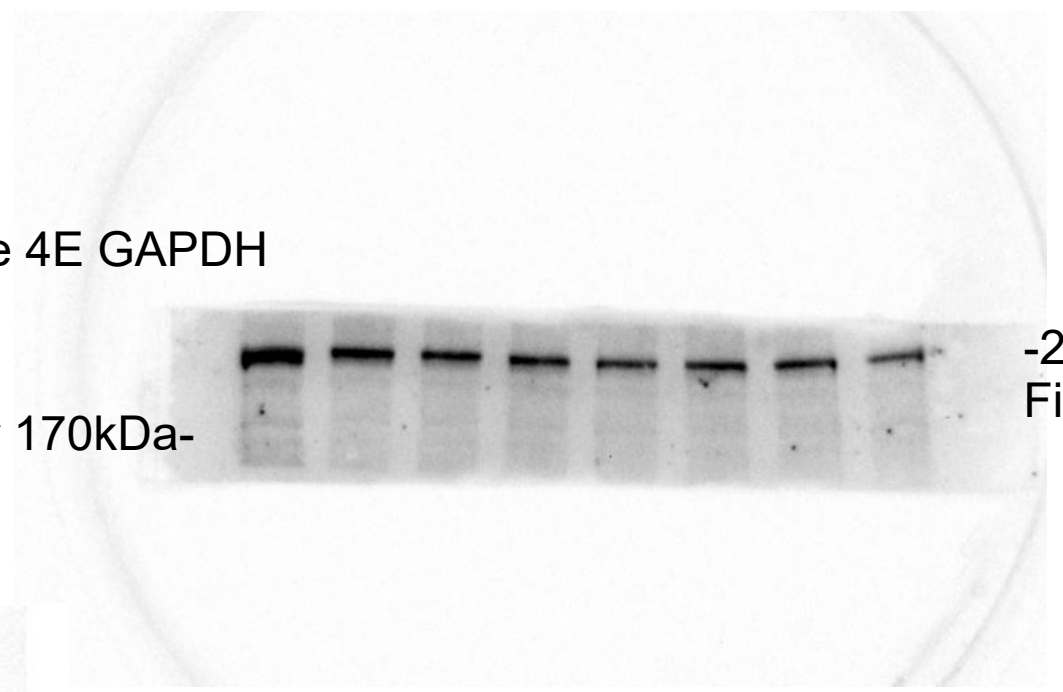


-52kDa Figure 4D TRIM21

Marker 40kDa- -36kDa Figure 4E GAPDH

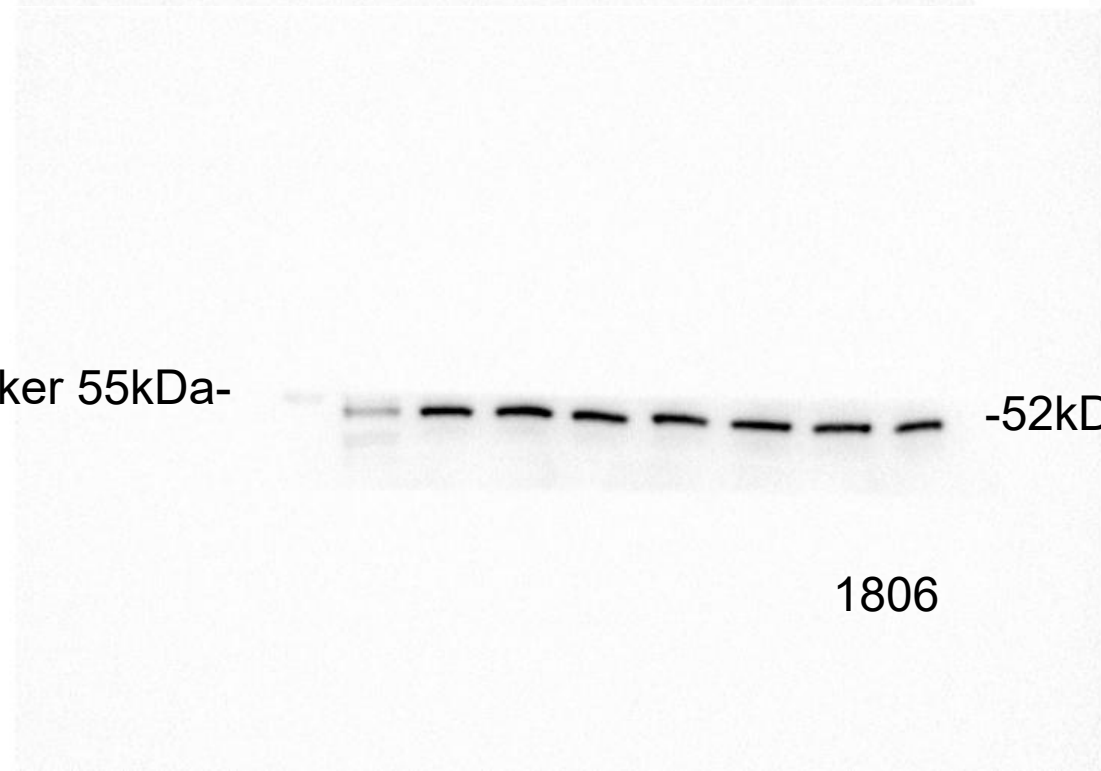


Marker 170kDa-



-220kDa
Figure 4EB

Marker 55kDa- -52kDa Figure 4E TRIM21

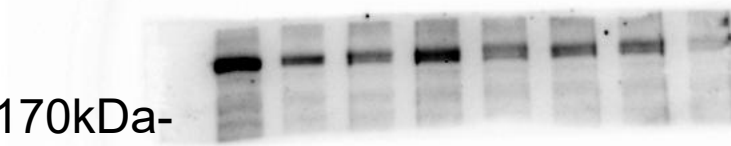


1806

Marker 40kDa- -36kDa Figure 4E GAPDH



Marker 170kDa- -220kDa Figure 4E BRCA1

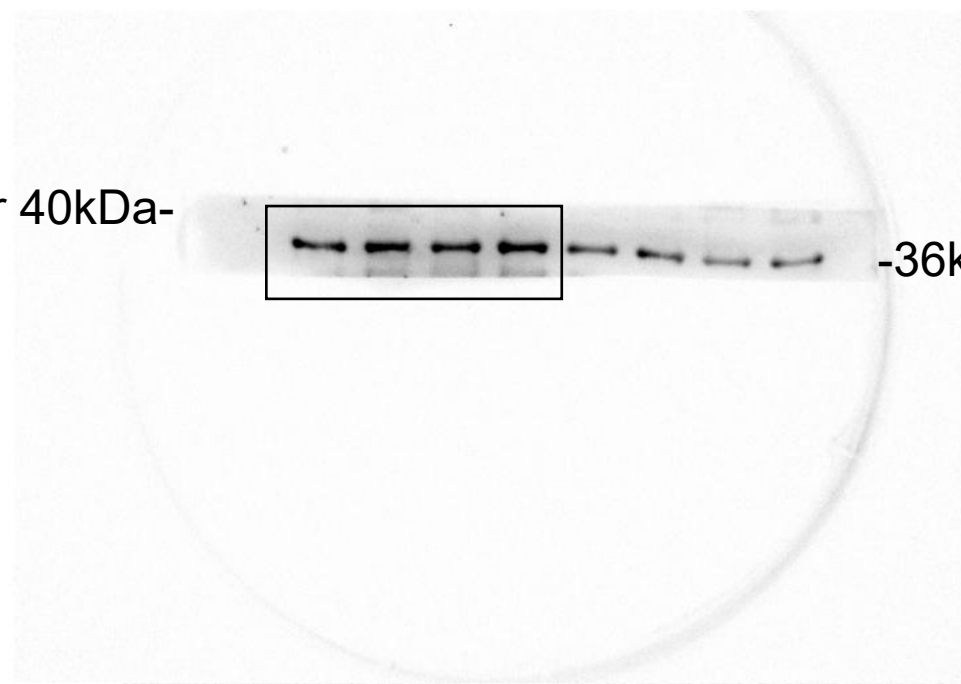


Marker 55kDa- -52kDa Figure 4E TRIM21



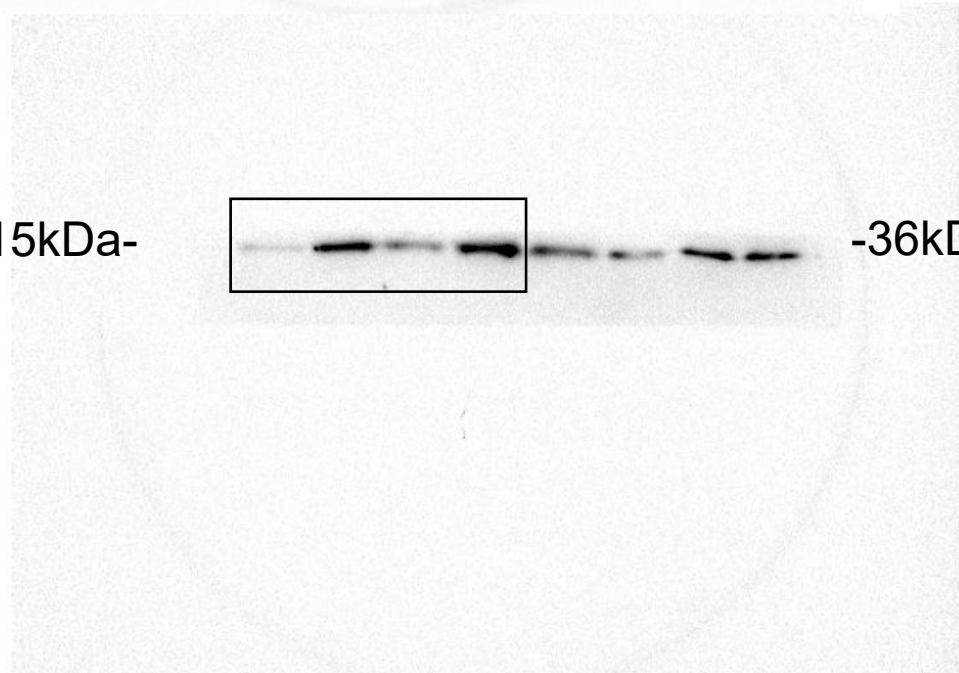
BT-20

Marker 40kDa-



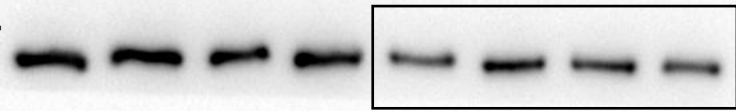
-36kDa Figure 6B GAPDH

Marker 15kDa-



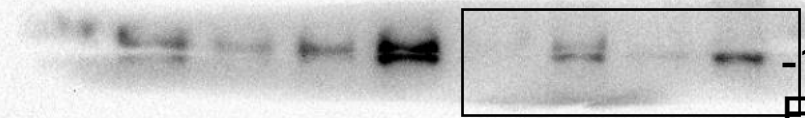
-36kDa Figure 6B γ H2AX

Marker 40kDa-



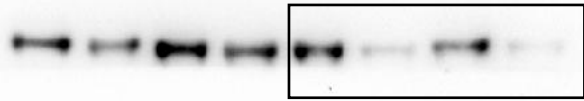
-36kDa Figure 6B GAPDH

Marker 25kDa-



-17kDa
Figure 6B C-caspase

Marker 35kDa-



-32kDa
Figure 6B P-caspase