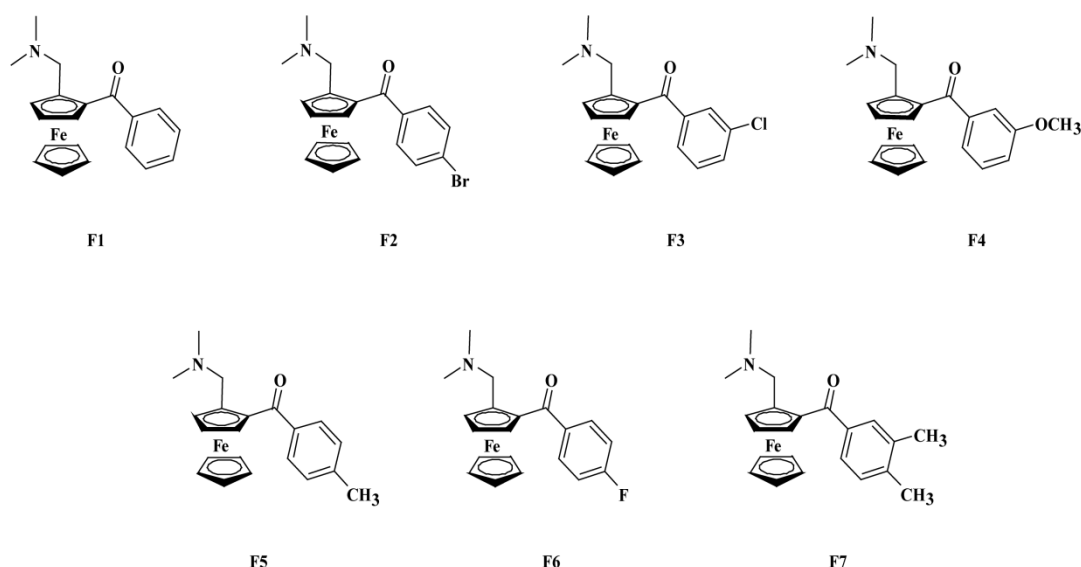


# Supplementary Materials: Novel Ferrocene Derivatives Induce Apoptosis through Mitochondria-Dependent and Cell Cycle Arrest via PI3K/Akt/mTOR Signaling Pathway in T Cell Acute Lymphoblastic Leukemia

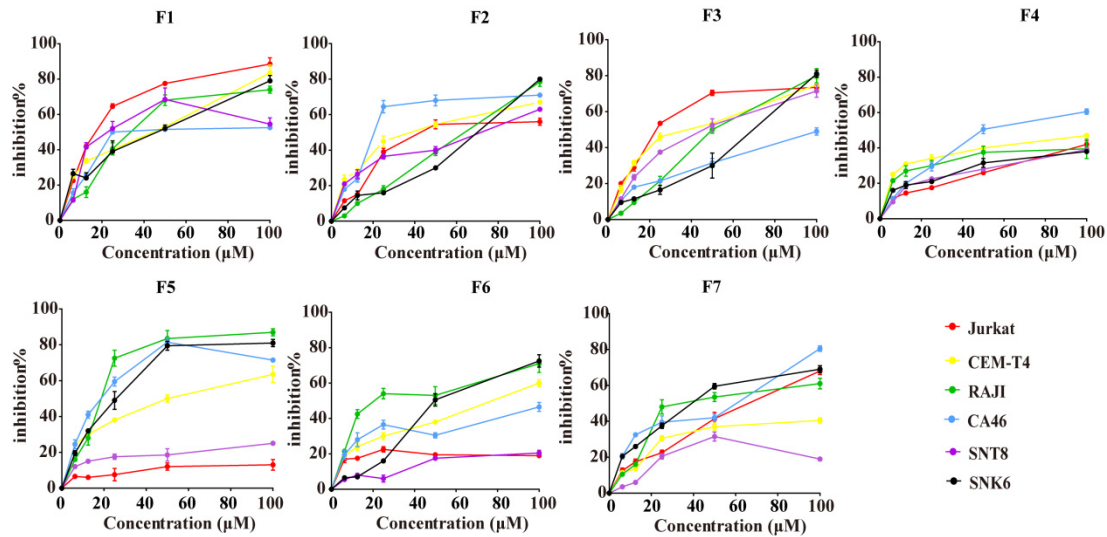
Liao Zeng, Mingqing Tang, Chao Pi, Jianrong Zheng, Sanxing Gao, Titaua Chabanne, Remi Chauvin, Wenzhao Cheng, Hongjun Lin, Ruian Xu and Xiuling Cui

**Table S1.** The IC<sub>50</sub> of compound F1, F3, and Daunorubicin in three T-ALL cell lines (Jurkat, CEM-T4, Molt-4) and normal cell lines (Normal human T and HEK293).

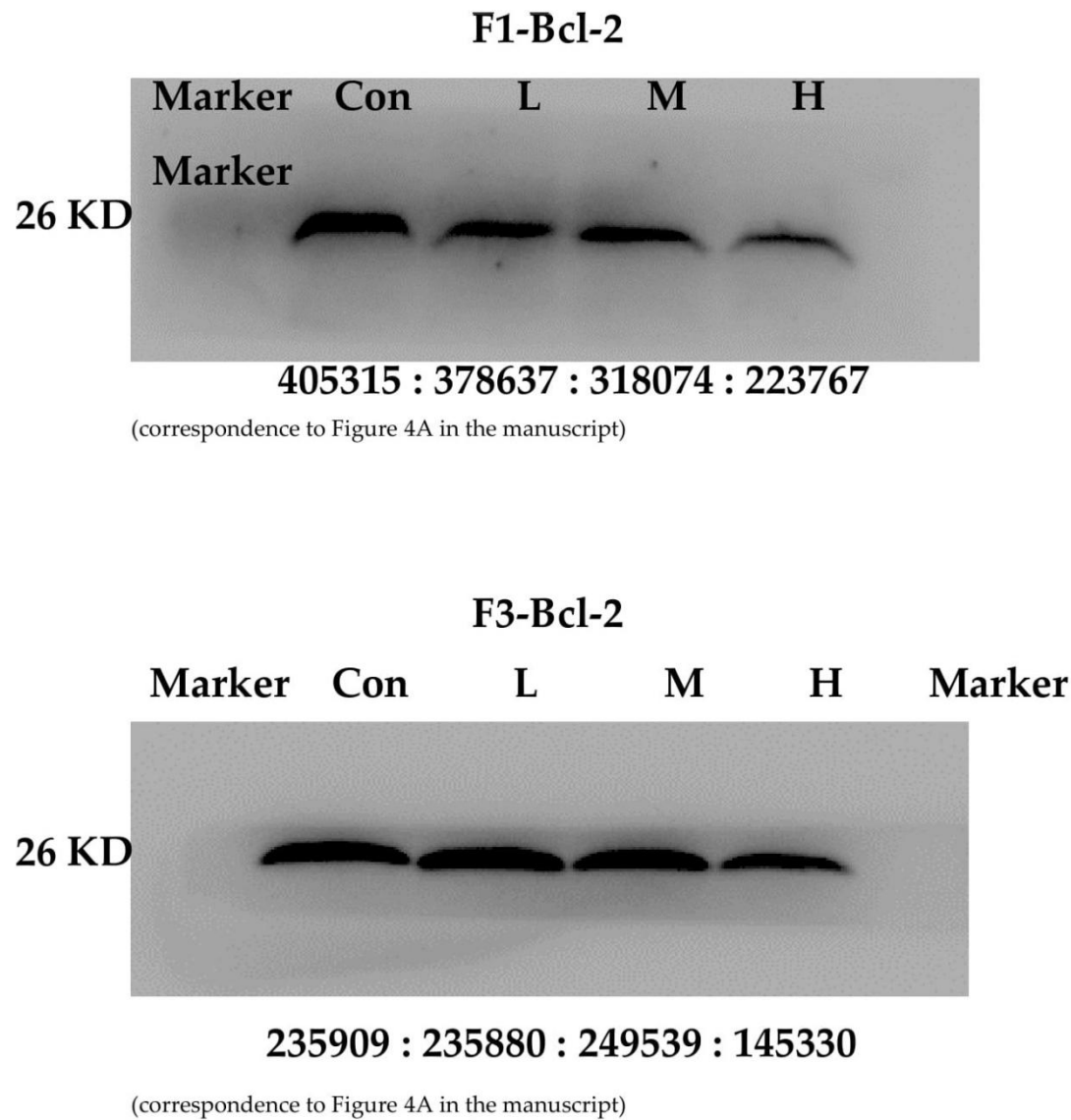
Compounds/ IC <sub>50</sub> (μM)	Jurkat	CEM-T4	Molt-4	Normal Human T	HEK293
F1	18.17 ± 1.23	30.77 ± 2.80	28.22 ± 1.17	190.03 ± 5.78	127.25 ± 2.60
F3	27.73 ± 0.97	44.43 ± 1.50	43.56 ± 1.21	242.59 ± 3.34	135.60 ± 1.70
Daunorubicin	0.08 ± 0.01	0.06 ± 0.01	0.05 ± 0.01	0.12 ± 0.01	0.02 ± 0.01

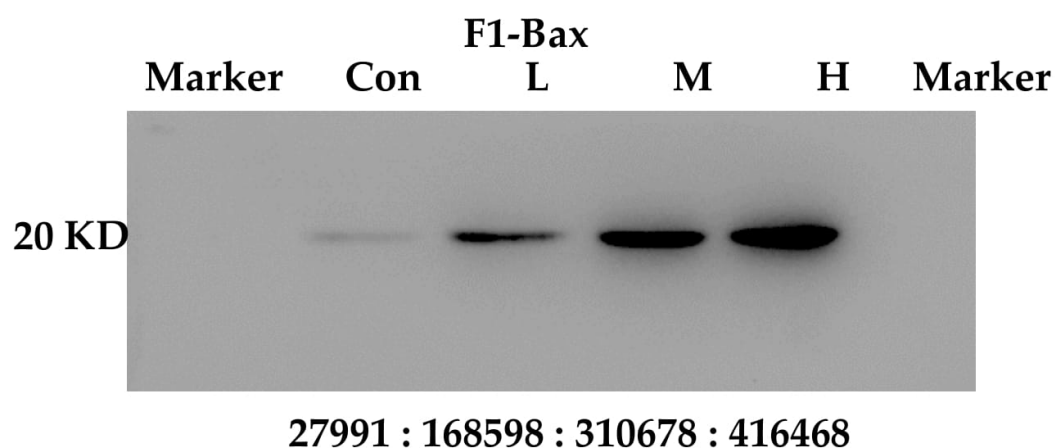


**Figure S1.** Chemical structures of the seven novel ferrocene derivatives (compounds F1–F7).

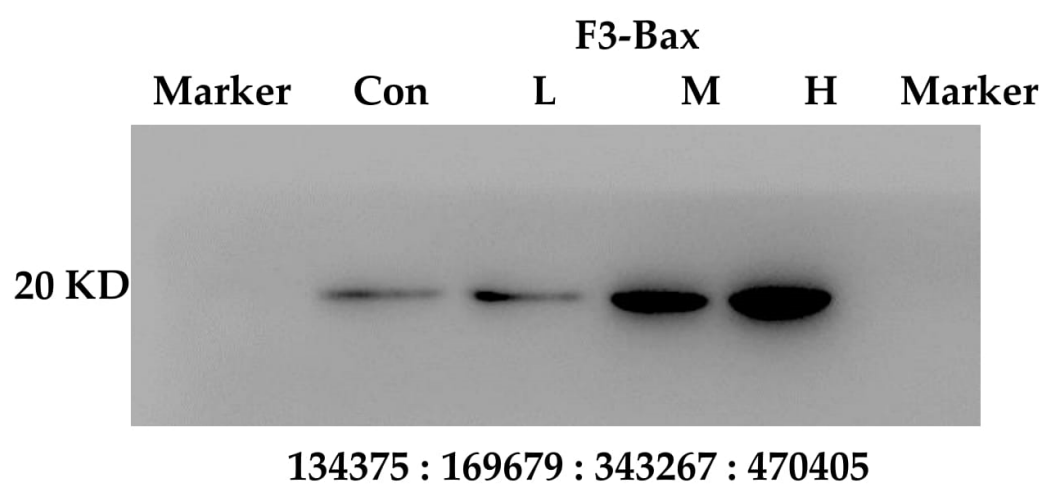


**Figure S2.** The inhibition rate (%) of ferrocene derivatives F1–F7 in Jurkat, CEM-T4, RAJI, CA46, SNT8, and SNK6 cells. F1–F7 at different concentrations (6.25, 12.5, 25, 50 and 100  $\mu\text{M}$ ) for 48 h. The data were expressed as the mean  $\pm$  SEM of three independent experiments.

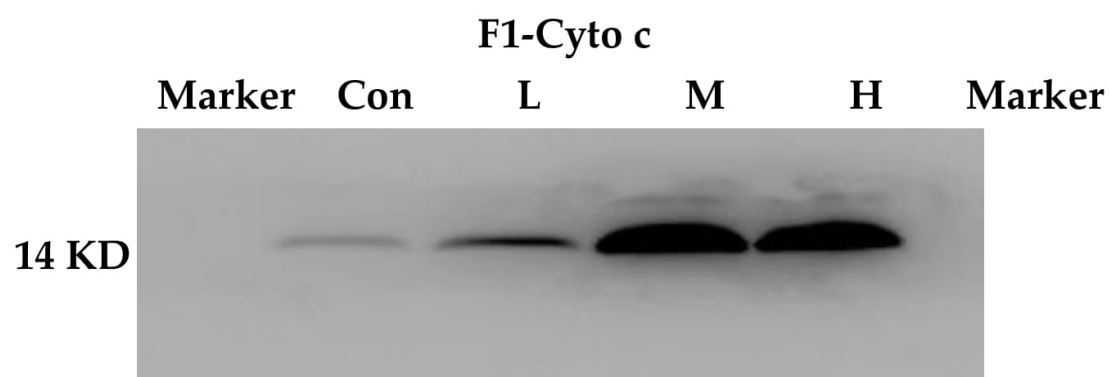




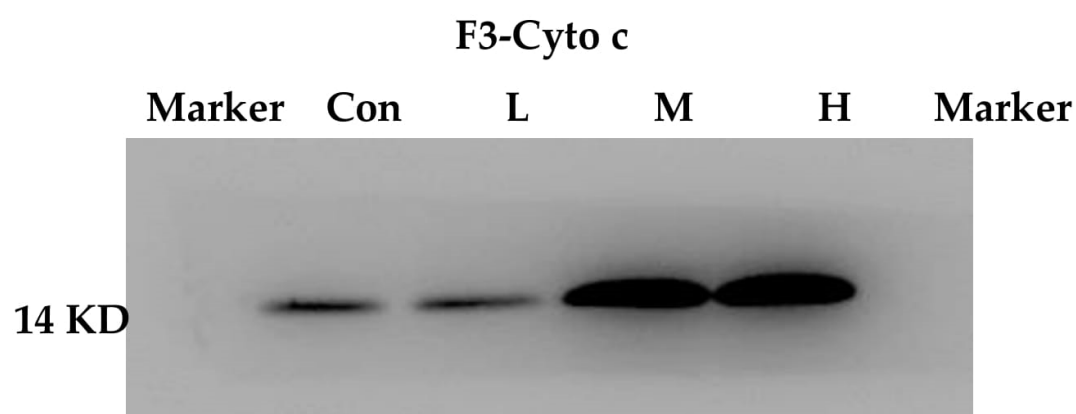
(correspondence to Figure 4A in the manuscript)



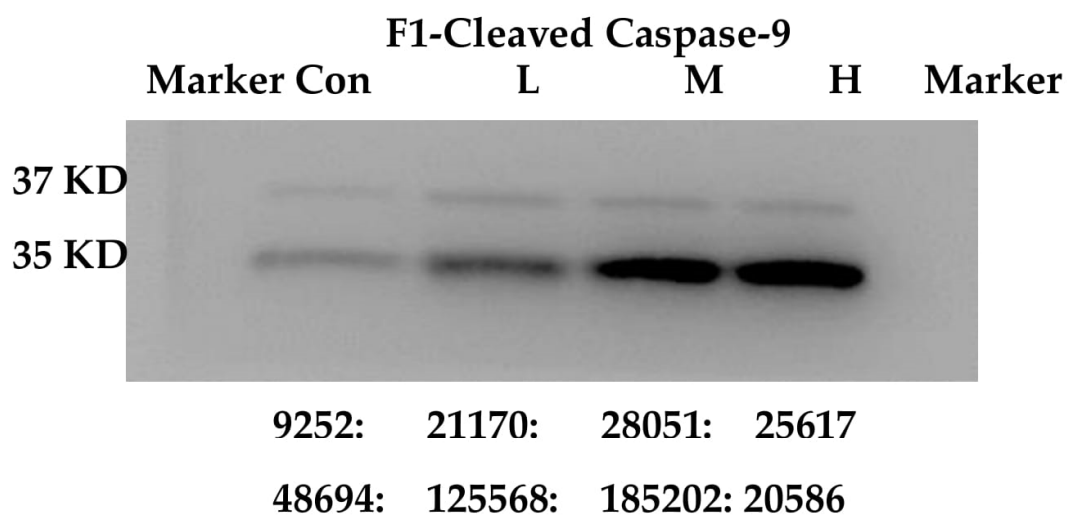
(correspondence to Figure 4A in the manuscript)



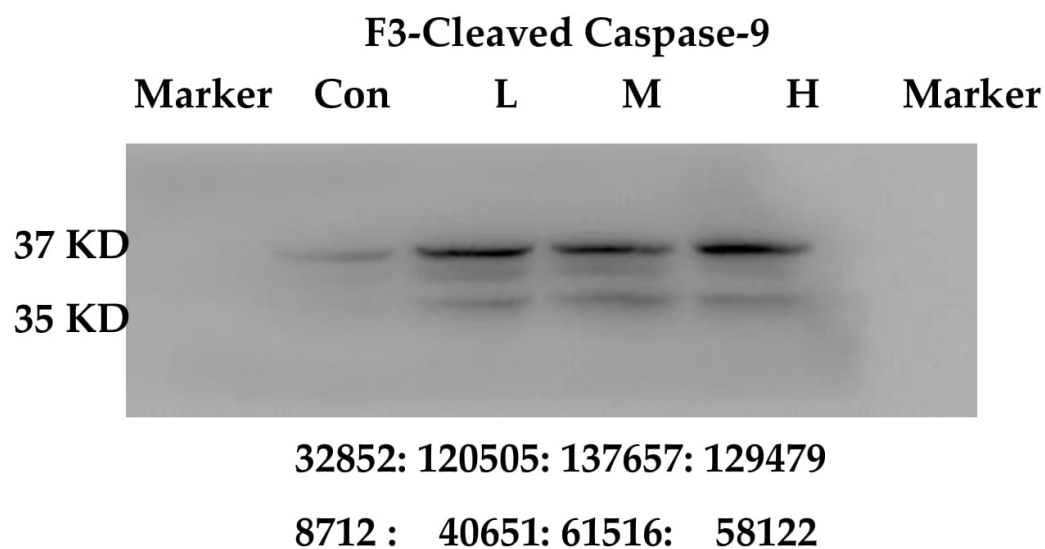
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(correspondence to Figure 4A in the manuscript)



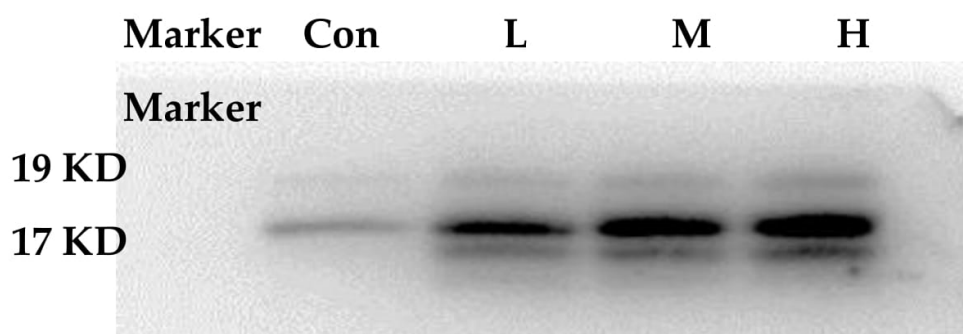
**89660 : 92724 : 269171 : 309731**  
(correspondence to Figure 4A in the manuscript)



(correspondence to Figure 4A in the manuscript)



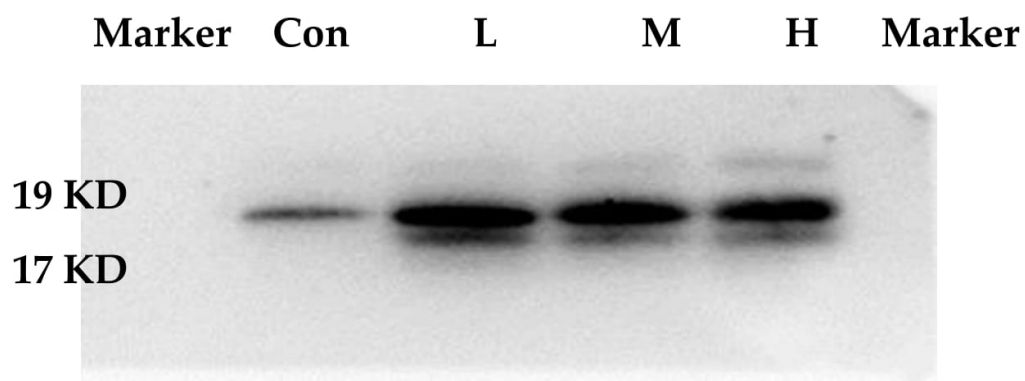
(correspondence to Figure 4A in the manuscript)

**F1-Cleaved Caspase-3**

36374: 140296: 163125: 161751

5336: 56754: 72791: 98672

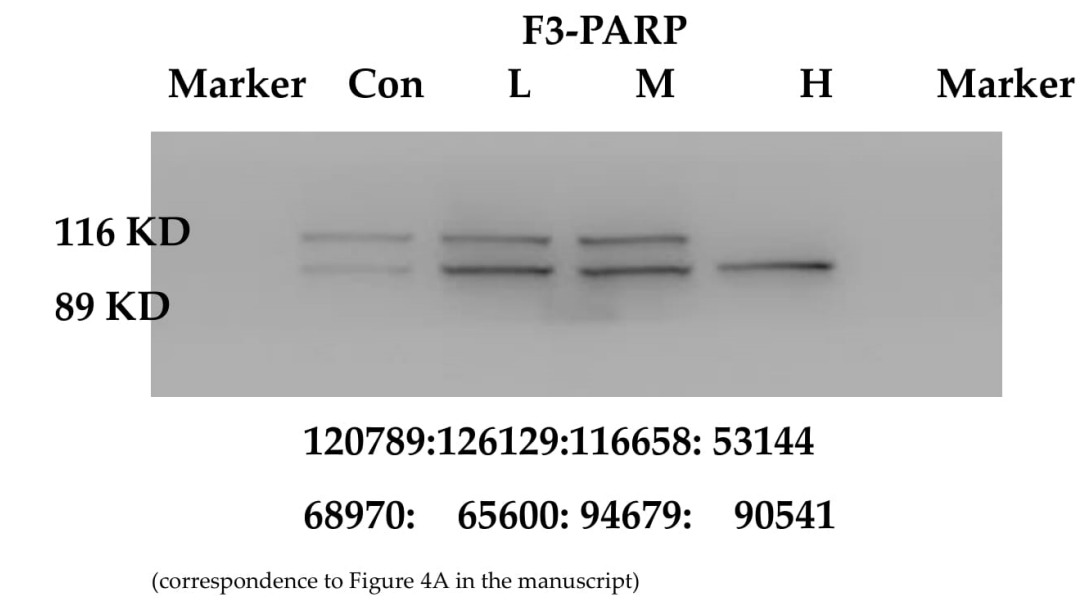
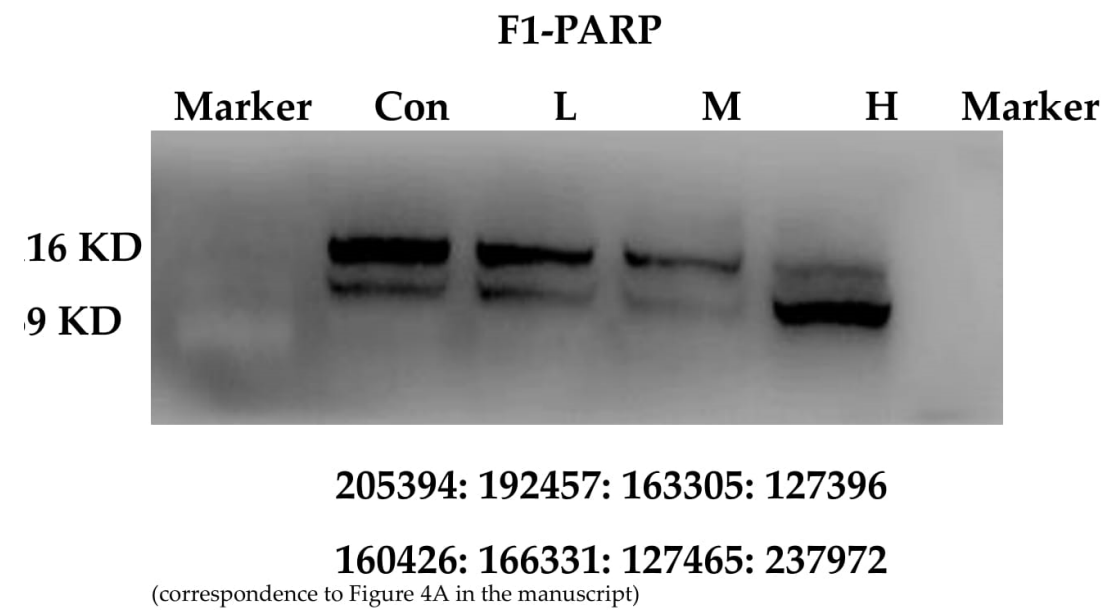
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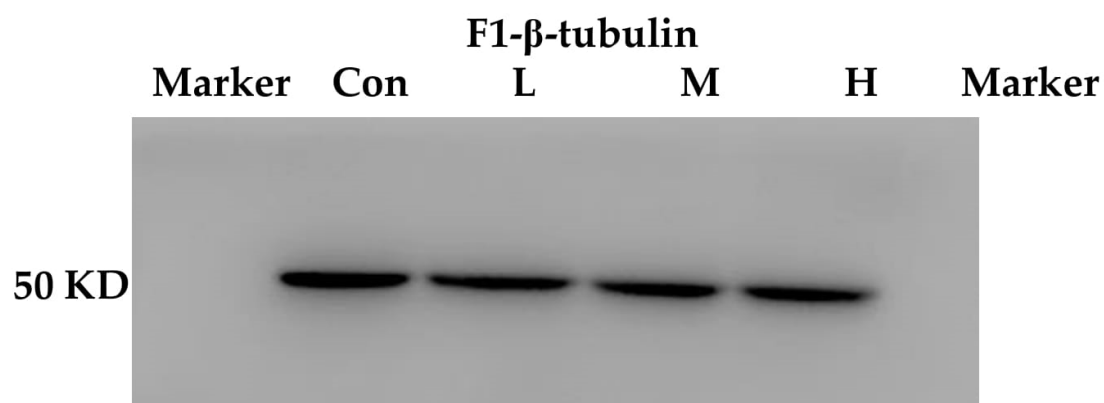
**F3-Cleaved Caspase-3**

55347: 150005: 153878: 124664

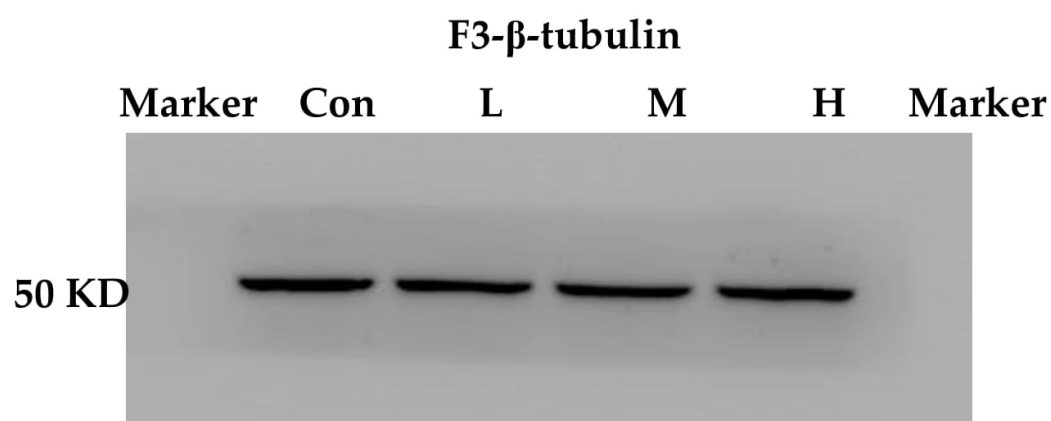
12456: 65943: 52121: 56948

(correspondence to Figure 4A in the manuscript)



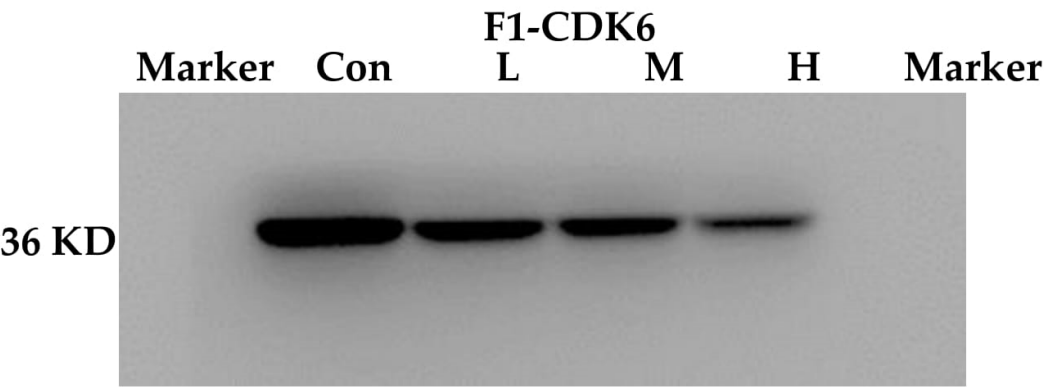


**239272 : 191869 : 186471 : 180623**  
(correspondence to Figure 4A in the manuscript)

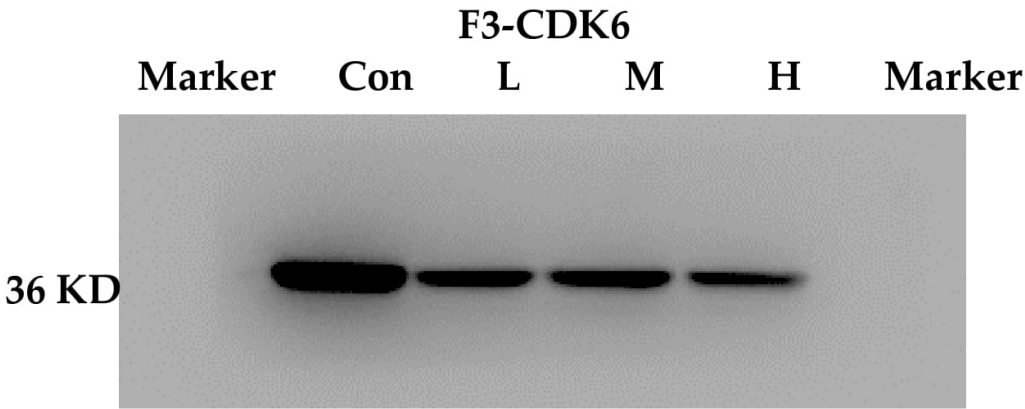


**181488 : 180377 : 198710 : 175777**  
(correspondence to Figure 4A in the manuscript)

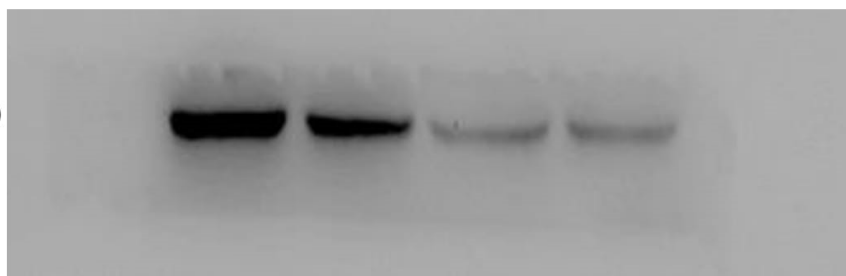




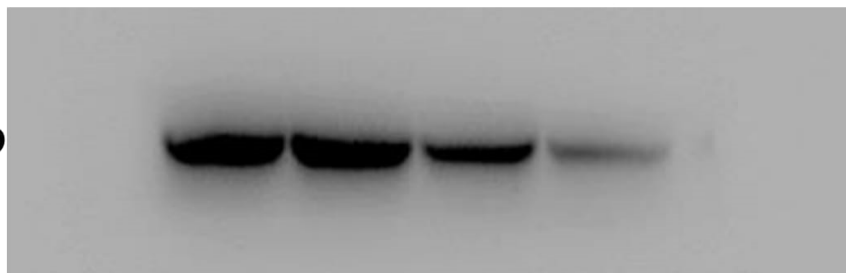
257572 : 198515 : 140945 : 85799  
(correspondence to Figure 5A in the manuscript)



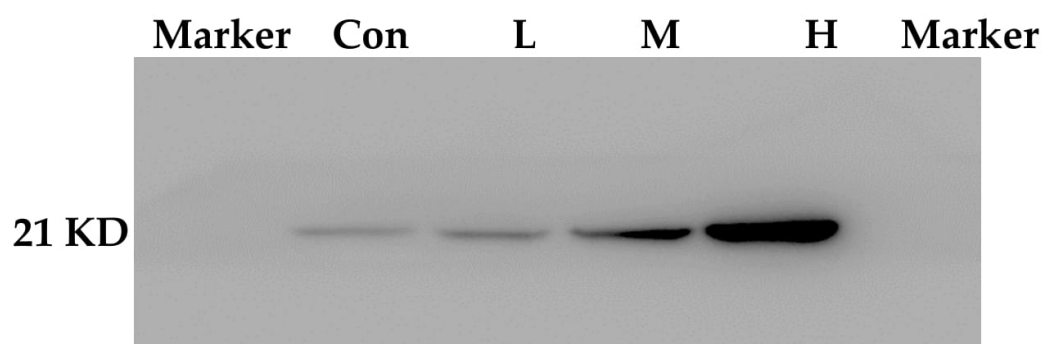
332098 : 163091 : 194267 : 149327  
(correspondence to Figure 5A in the manuscript)

**F1-Cyclin D1****Marker    Con    L    M    H    Marker****36 KD****341062:246324:134855:122808**

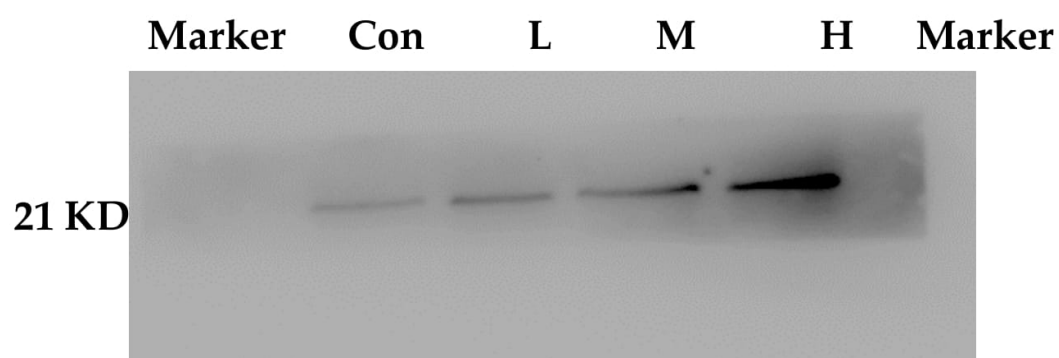
(correspondence to Figure 5A in the manuscript)

**F3-Cyclin D1****Marker    Con    L    M    H    Marker****36 KD****381371:368293:268948:159010**

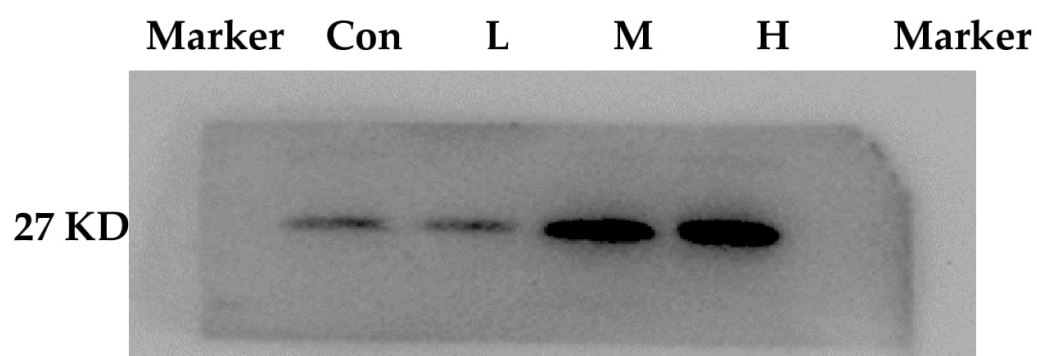
(correspondence to Figure 5A in the manuscript)

**F1-P21****71009 : 86217 : 219540 : 525780**

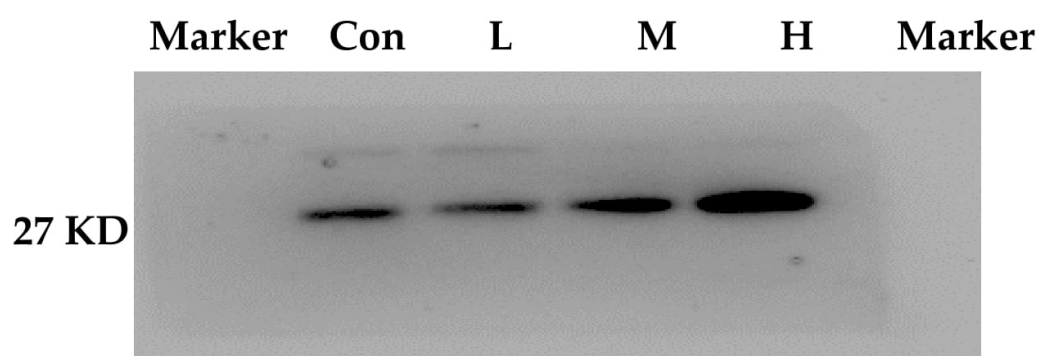
(correspondence to Figure 5A in the manuscript)

**F3-P21****93175 : 101590 : 166586 : 370573**

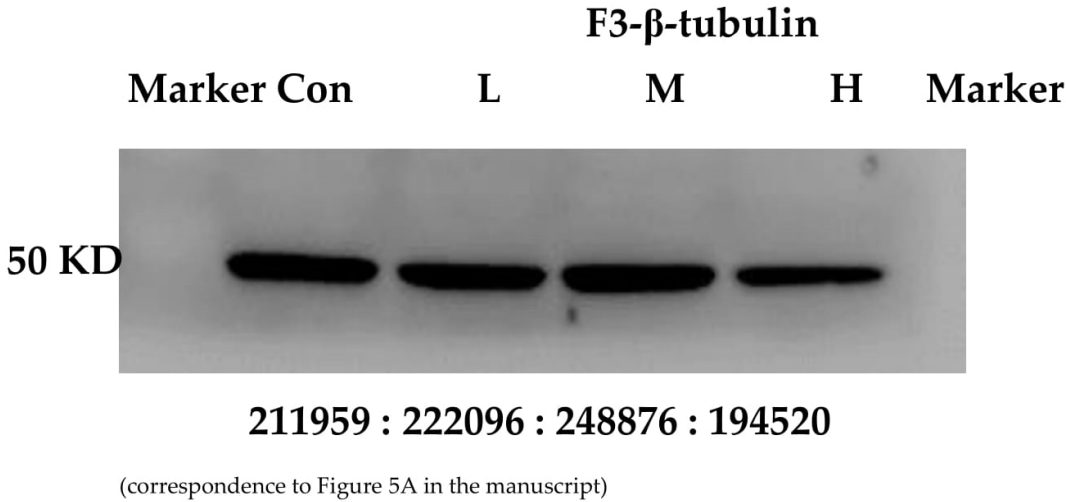
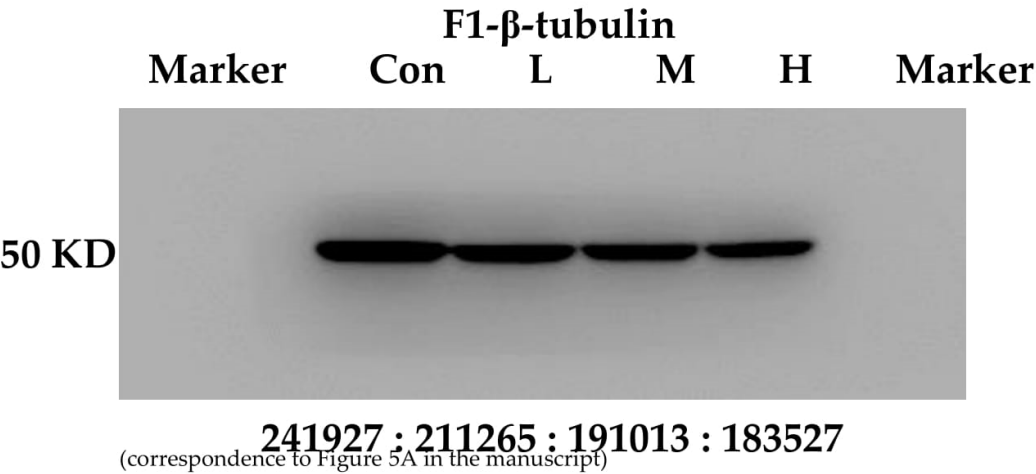
(correspondence to Figure 5A in the manuscript)

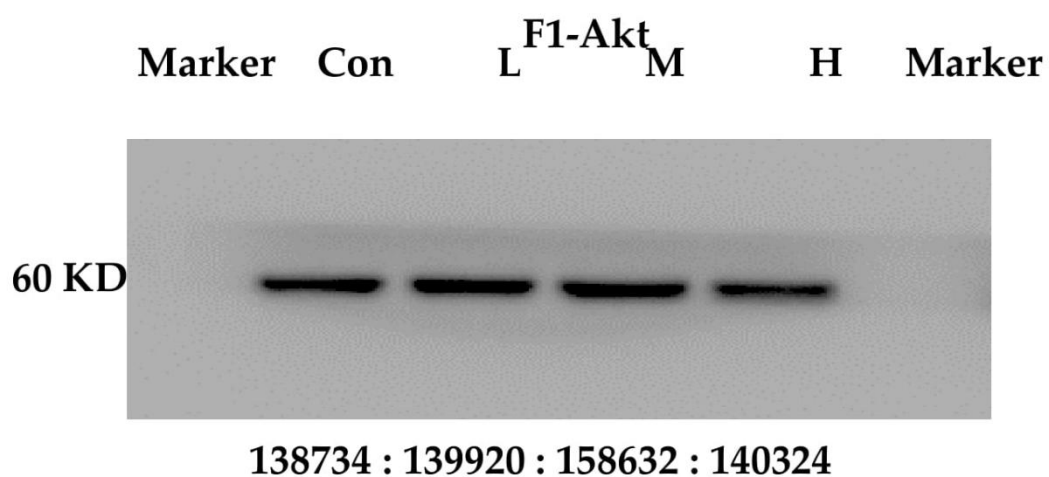
**F1-P27****41815 : 46107 : 142581 : 191935**

(correspondence to Figure 5A in the manuscript)

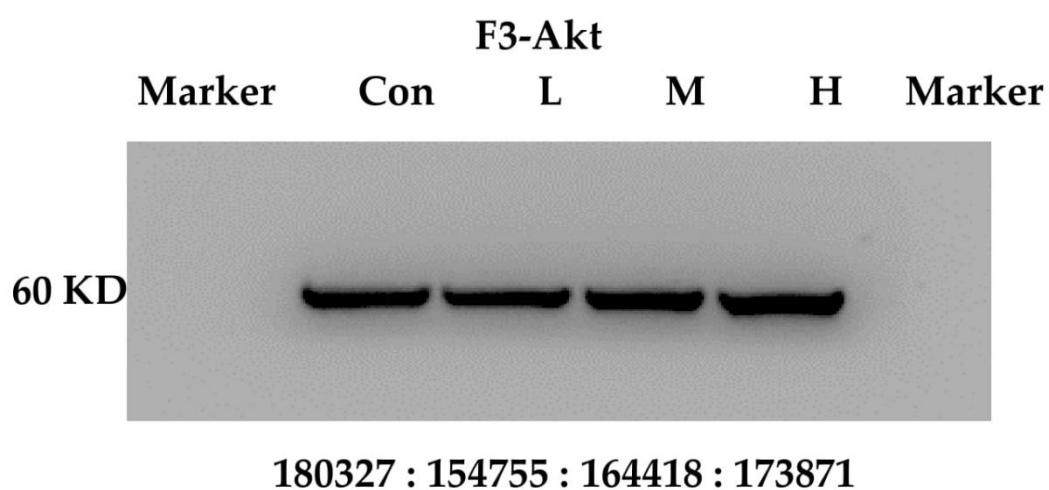
**F3-P27****124354 : 121587 : 178561 : 286274**

(correspondence to Figure 5A in the manuscript)

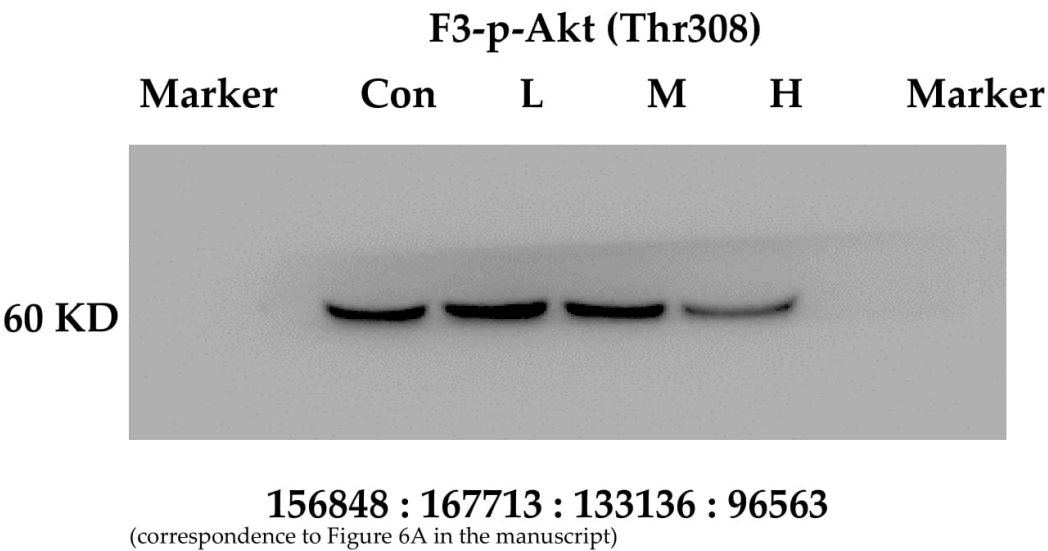
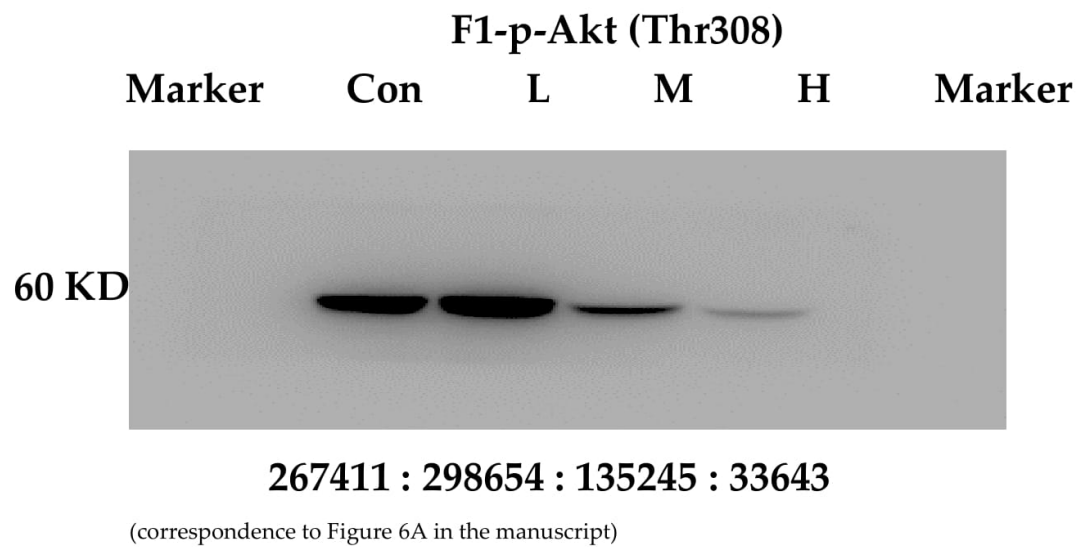




(correspondence to Figure 6A in the manuscript)



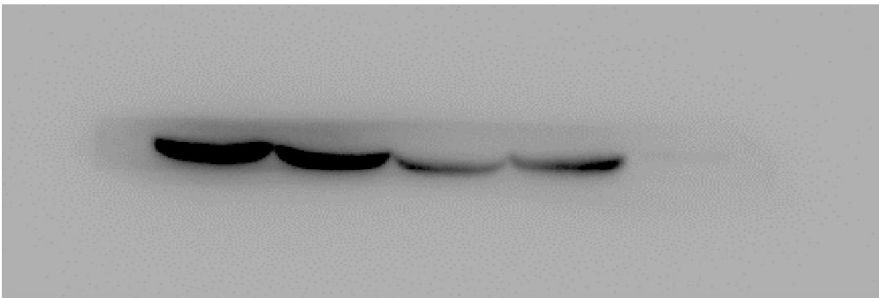
(correspondence to Figure 6A in the manuscript)



F1-p-Akt (Ser473)

Marker    Con    L    M    H    Marker

60 KD



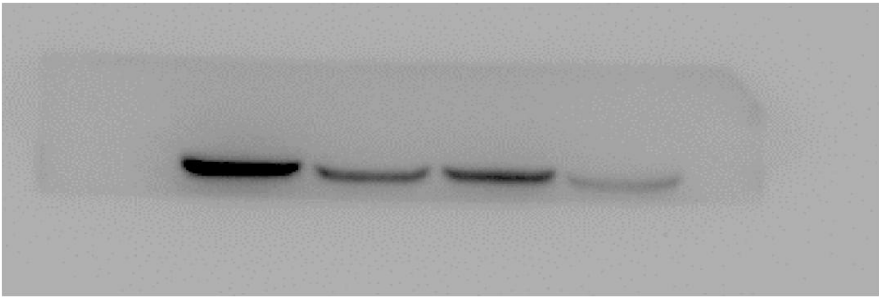
312348 : 246644 : 123789 : 134457

(correspondence to Figure 6A in the manuscript)

F3-p-Akt (Ser473)

Marker    Con    L    M    H    Marker

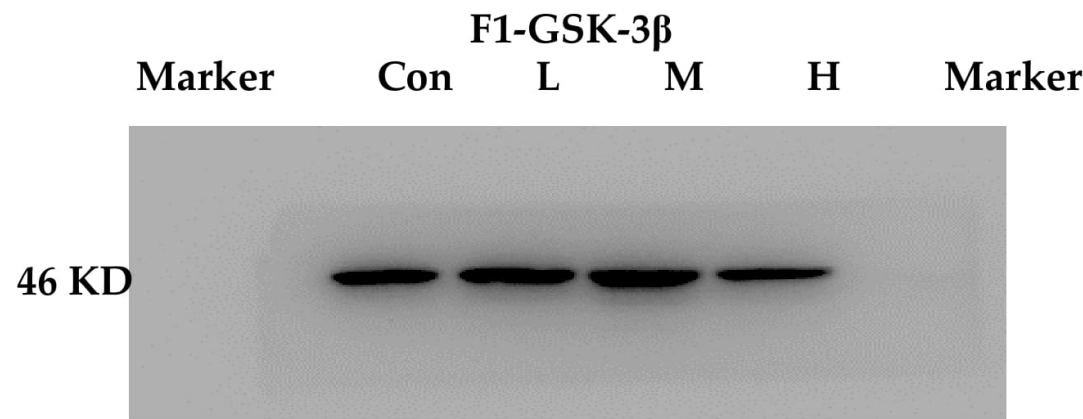
50 KD



168814 : 77484 : 87714 : 36044

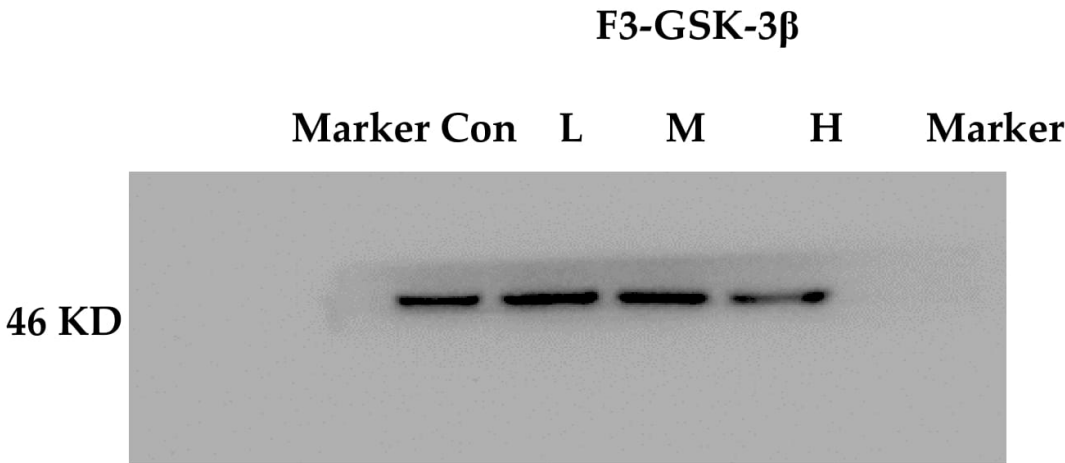
(correspondence to Figure 6A in the manuscript)





**179543 : 157973 : 190961: 157262**

(correspondence to Figure 6A in the manuscript)

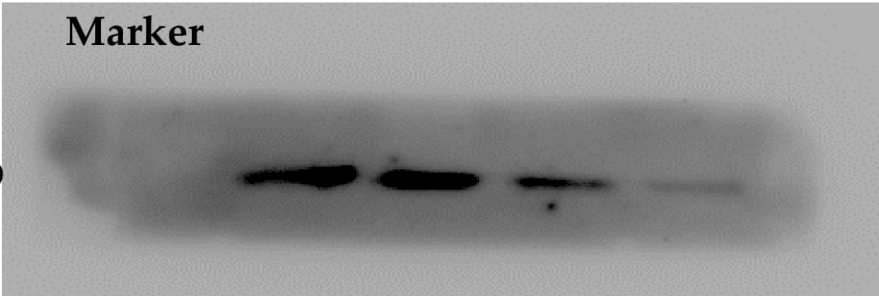


**145560 : 165985 : 160288 : 134006**

(correspondence to Figure 6A in the manuscript)

F1-p-GSK-3β (Ser9)

Marker      Con      L      M      H

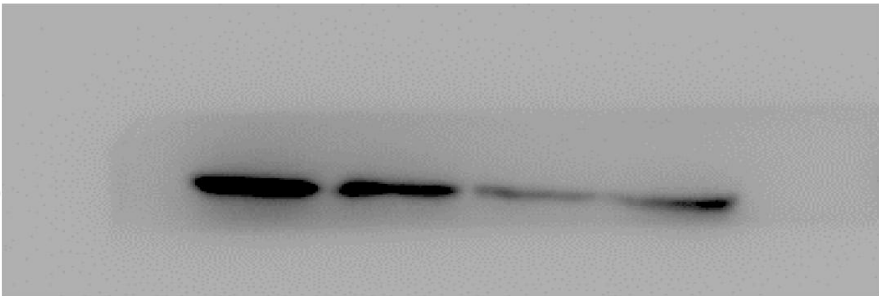


206798 : 122201 : 76942 : 58313

(correspondence to Figure 6A in the manuscript)

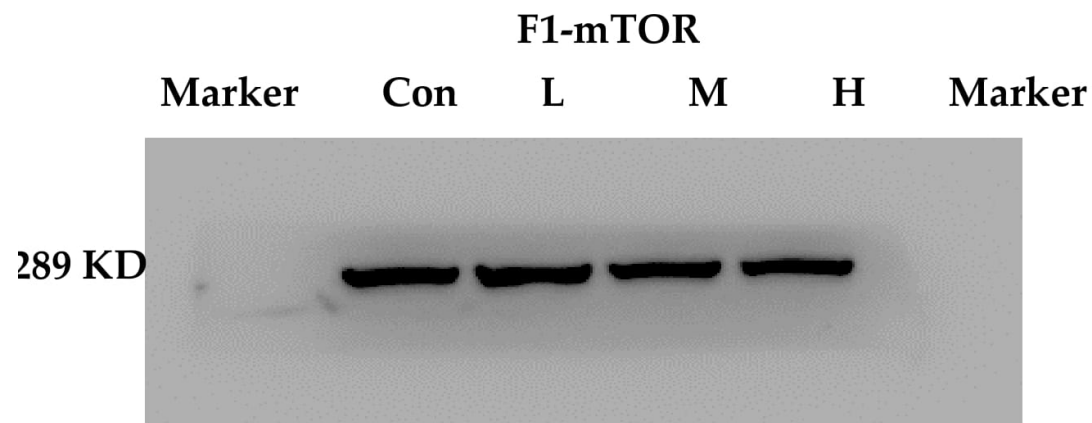
F3-p-GSK-3β (Ser9)

Marker    Con      L      M      H      Marker

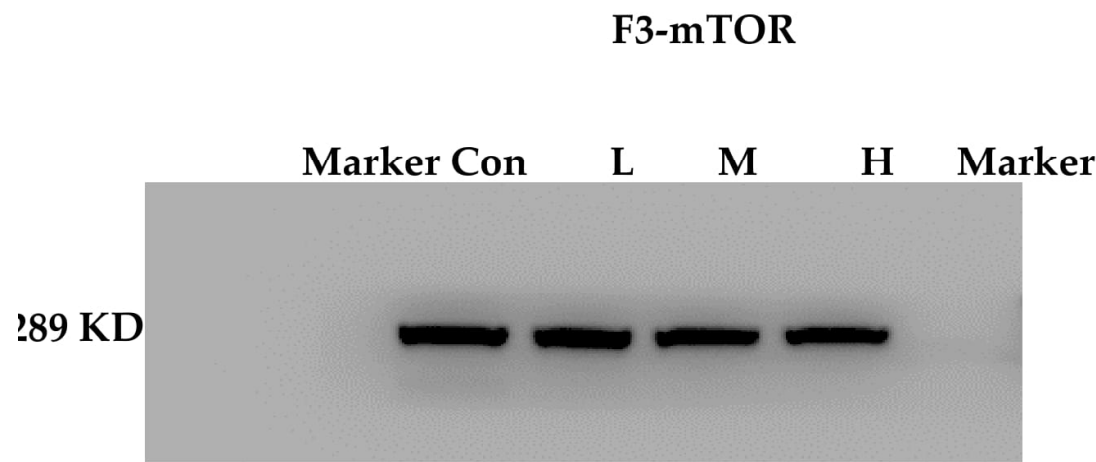


268496 : 192005 : 75913 : 100175

(correspondence to Figure 6A in the manuscript)

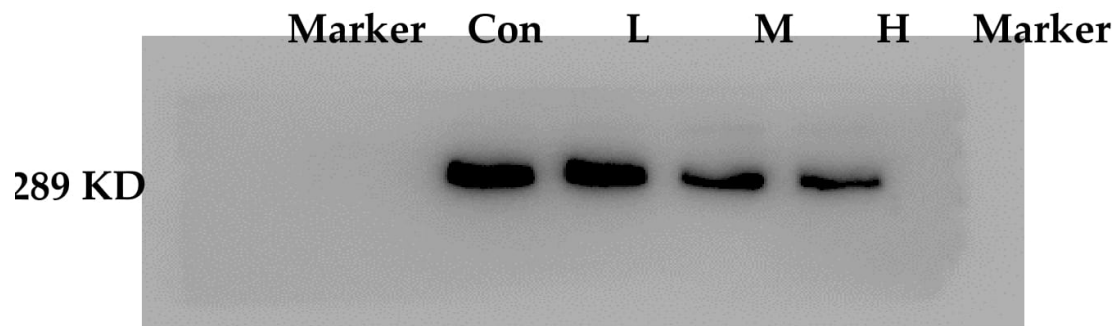


**201674 : 210486 : 181499 : 173692**  
(correspondence to Figure 6A in the manuscript)



**203392 : 181078 : 186718 : 174102**  
(correspondence to Figure 6A in the manuscript)

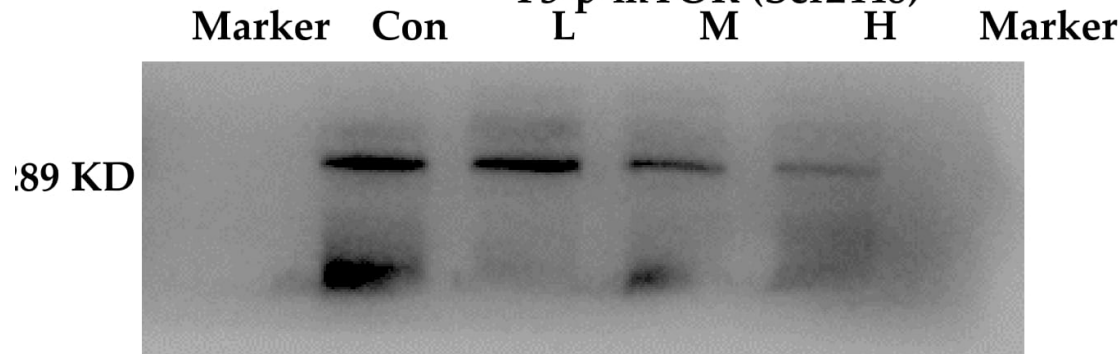
F1-p-mTOR (Ser2448)



245940 : 235718 : 163981 : 138698

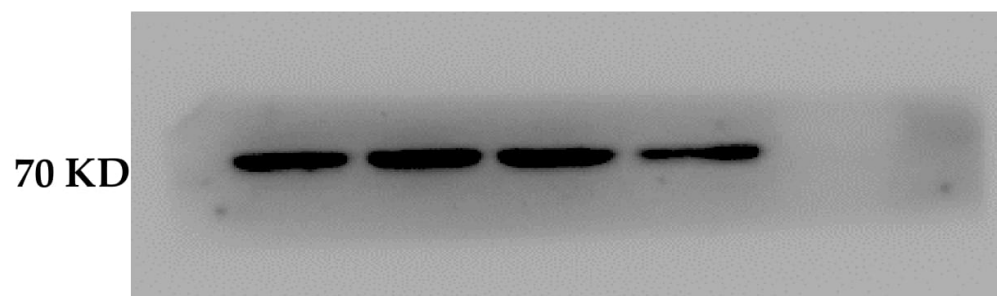
(correspondence to Figure 6A in the manuscript)

F3-p-mTOR (Ser2448)

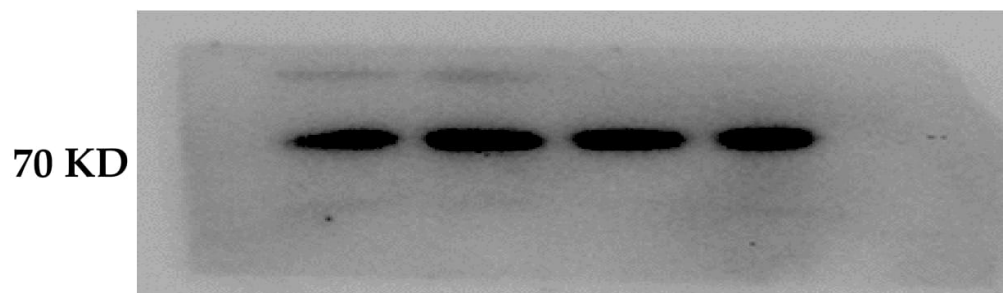


102890 : 73647 : 60219 : 44887

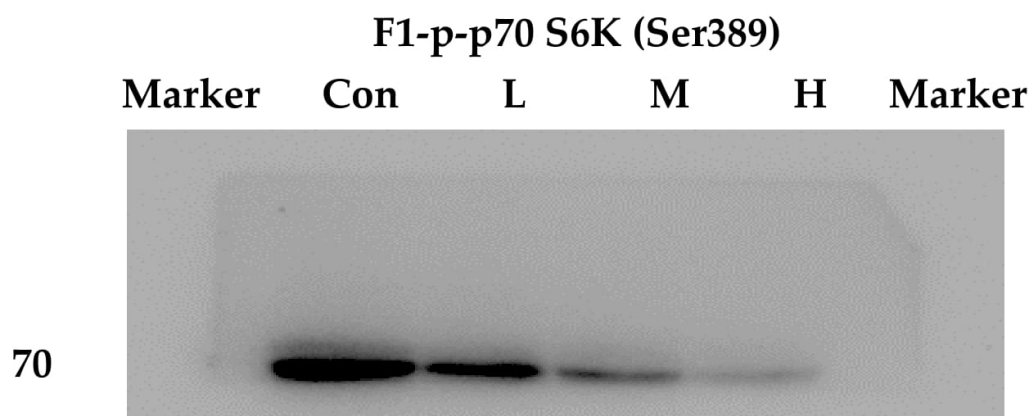
(correspondence to Figure 6A in the manuscript)

**F1-p70 S6K****Marker Con L M H Marker****206628 : 192554 : 191760 : 176193**

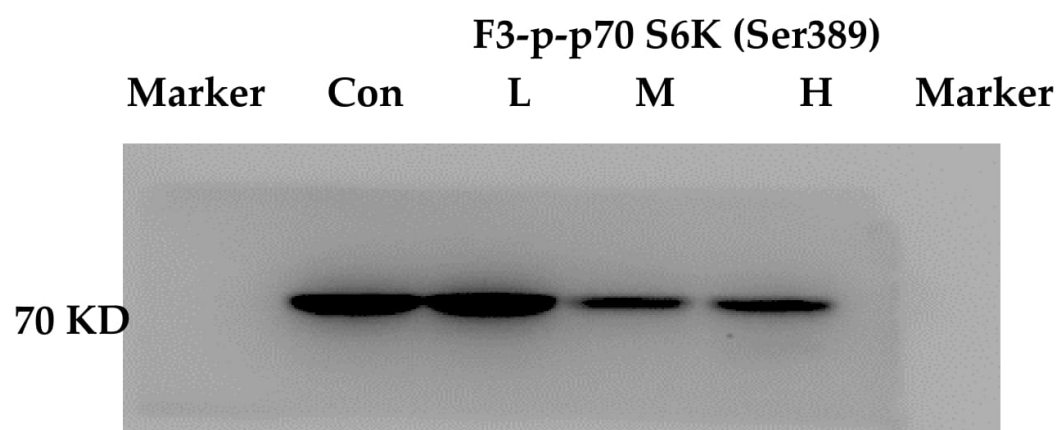
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**F3-p70 S6K****Marker Con L M H Marker****180636 : 226475 : 202978 : 181401**

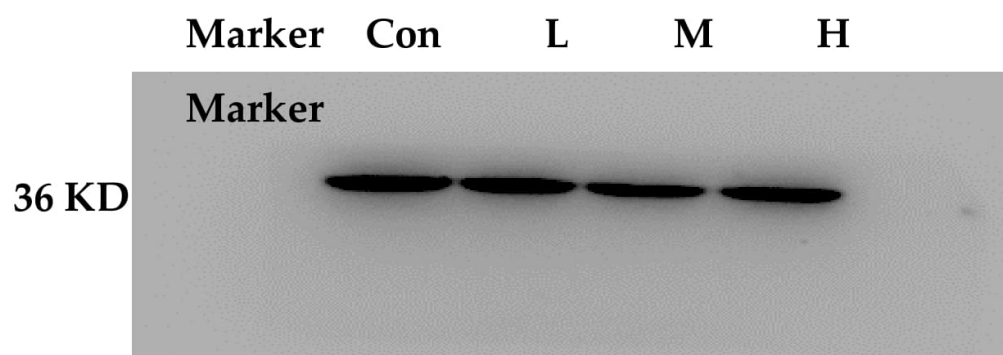
(correspondence to Figure 6A in the manuscript)



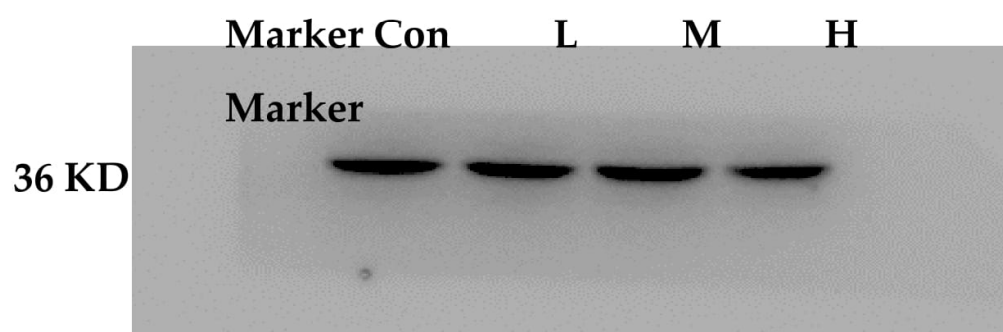
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(correspondence to Figure 6A in the manuscript)



**180387 : 191867 : 94395 : 116945**  
(correspondence to Figure 6A in the manuscript)

**F1-GAPDH****227084 : 208304 : 185087 : 210380**

(correspondence to Figure 6A in the manuscript)

**F3-GAPDH****171067 : 166928 : 156244 : 121406**

(correspondence to Figure 6A in the manuscript)

**Figure S3.** Detailed information of protein expression analysis by Western blot.