

Celastrol suppresses motility of TNBC cells by inhibiting IL-1 β -induced IL-8 expression via decreasing ERK phosphorylation

Yisun Jeong

Department of Health Sciences and Technology, SAIHST,
Sungkyunkwan University

Inflammation in cancer

- IL-1/TNF/IL-6
- Chemokines
- IL-10/TGF- β
- CSF
- VEGF

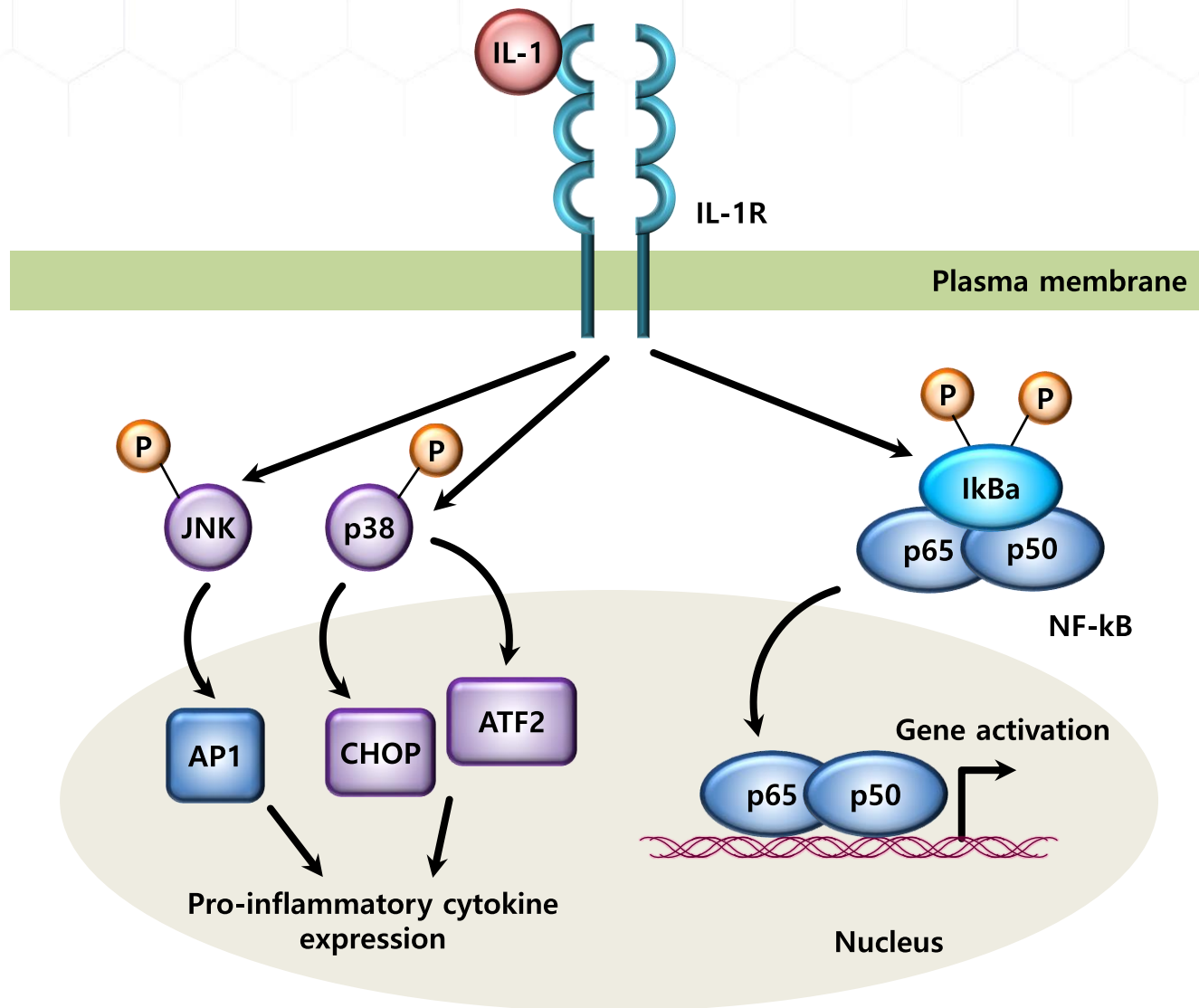


Inflammation
in cancer



- Tumor growth
- Angiogenesis
- Invasion
- Metastasis
- Adaptive Immunity
- Response to hormone

IL-1 β signal pathway



Celastrol



- Quinine methide triterpene
- Isolation from the root extracts of the ***Thunder God Vine*** (*Tripterygium wilfordii*)
- Inhibition of cell proliferation, angiogenesis, tumor and inflammation
- Potent inhibitor of various cancer such as breast, lung, and gastric cancer

Pharmacological roles of celastrol

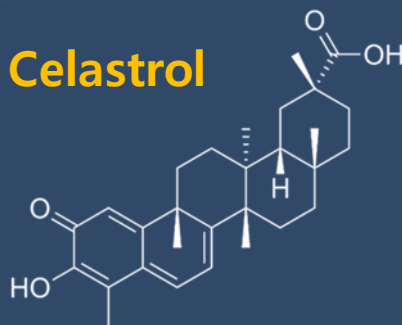
Anti-Inflammation

- IL-10
- TNF- α

Anti-Cancer

- AKT/mTOR
- NF- κ B
- VEGFR

Celastrol



Neuroprotective

- Hsp70
- ROS

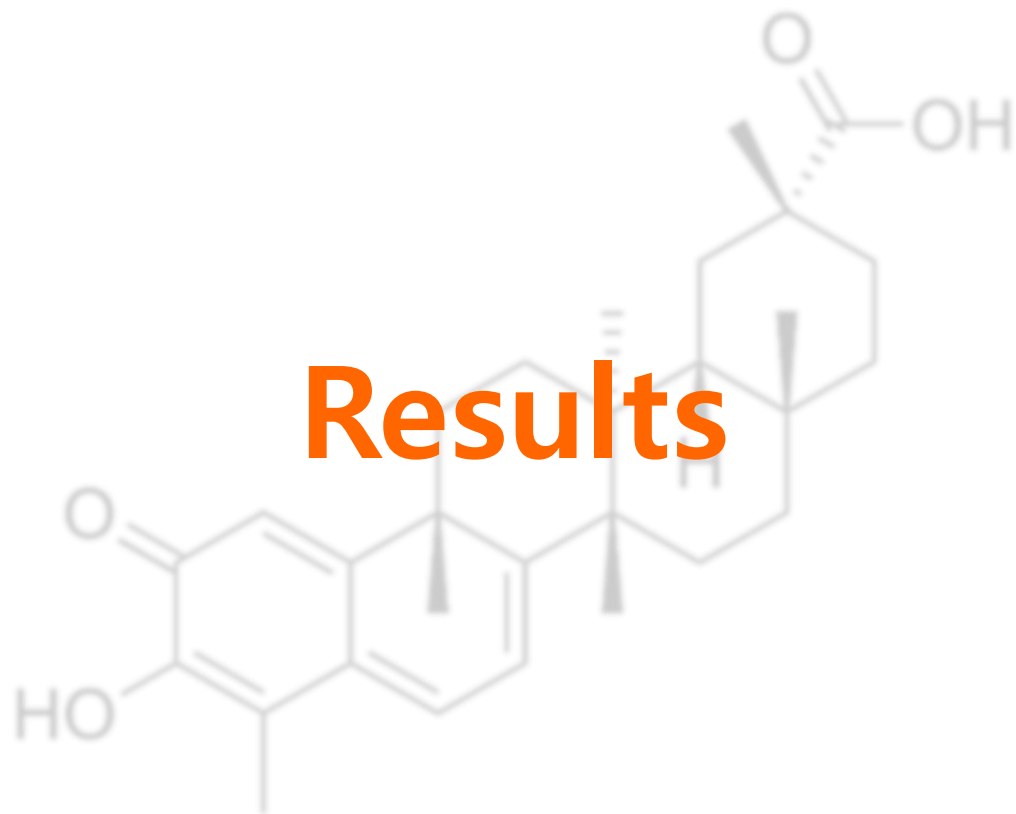
Anti-Obesity

- Leptin
- NADPH oxidase

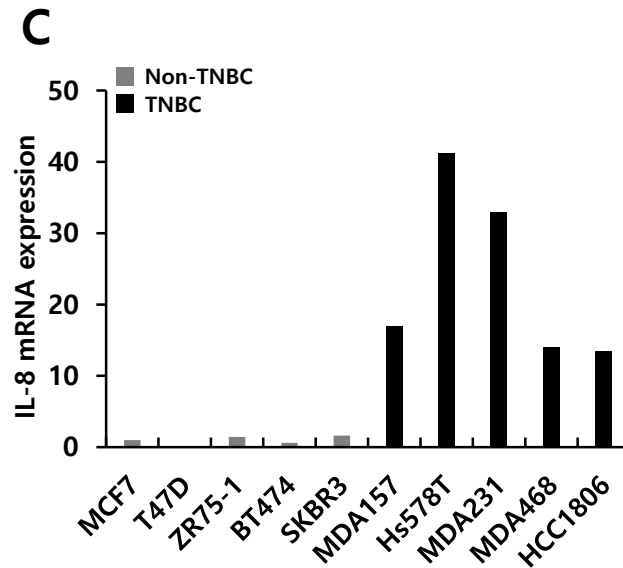
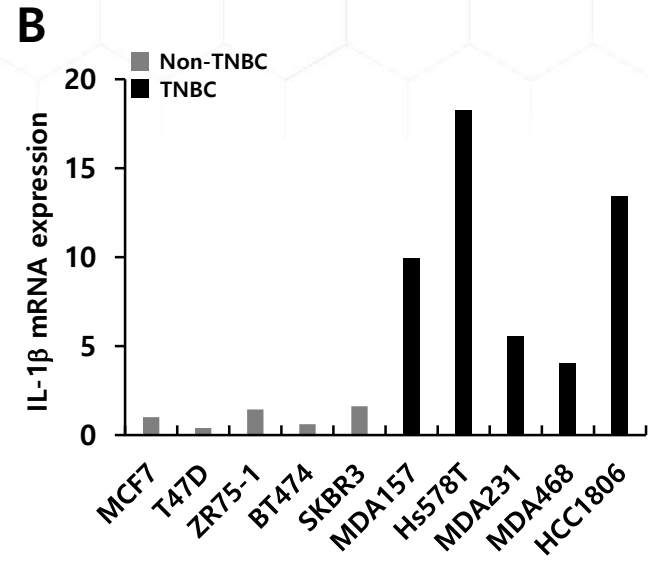
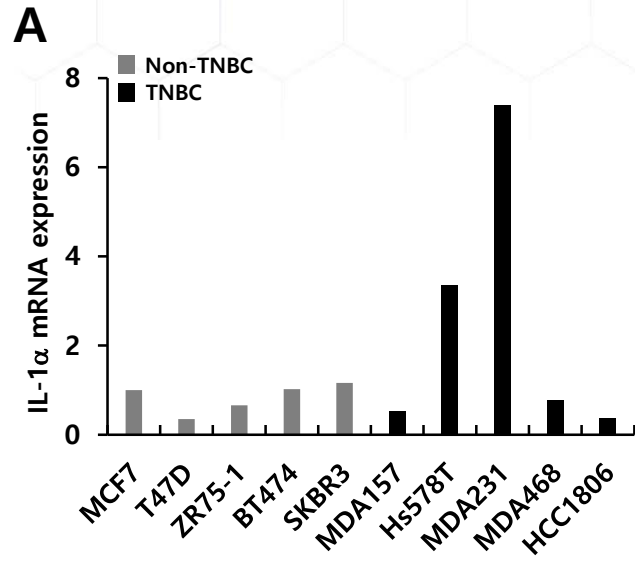
Anti-Diabetic

- AMPK
- GLUT4 translocation

Results

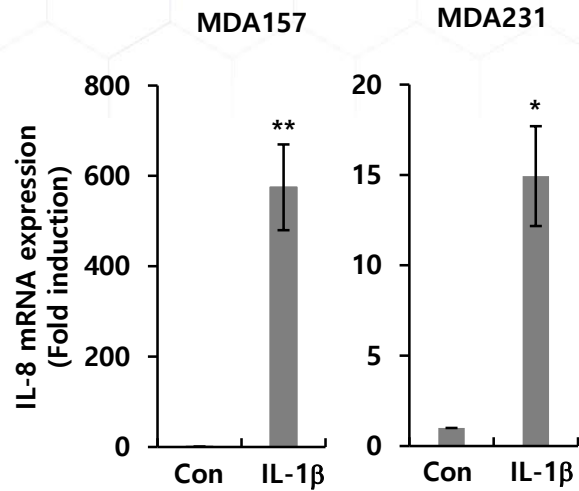


IL-1 α , IL-1 β , and IL-8 mRNA expression in breast cancer cells

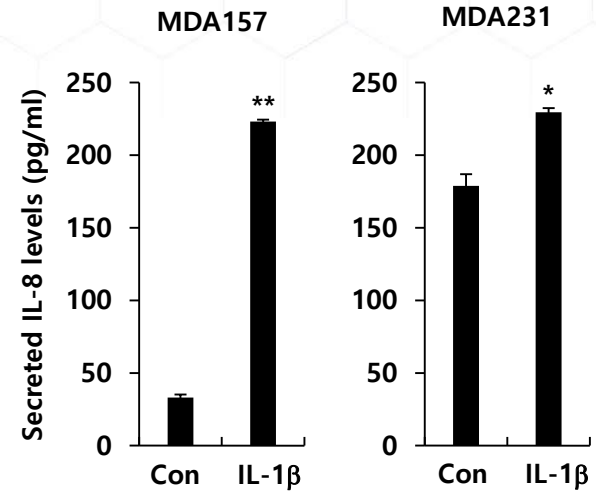


IL-1 β enhances IL-8 expression in TNBC cells

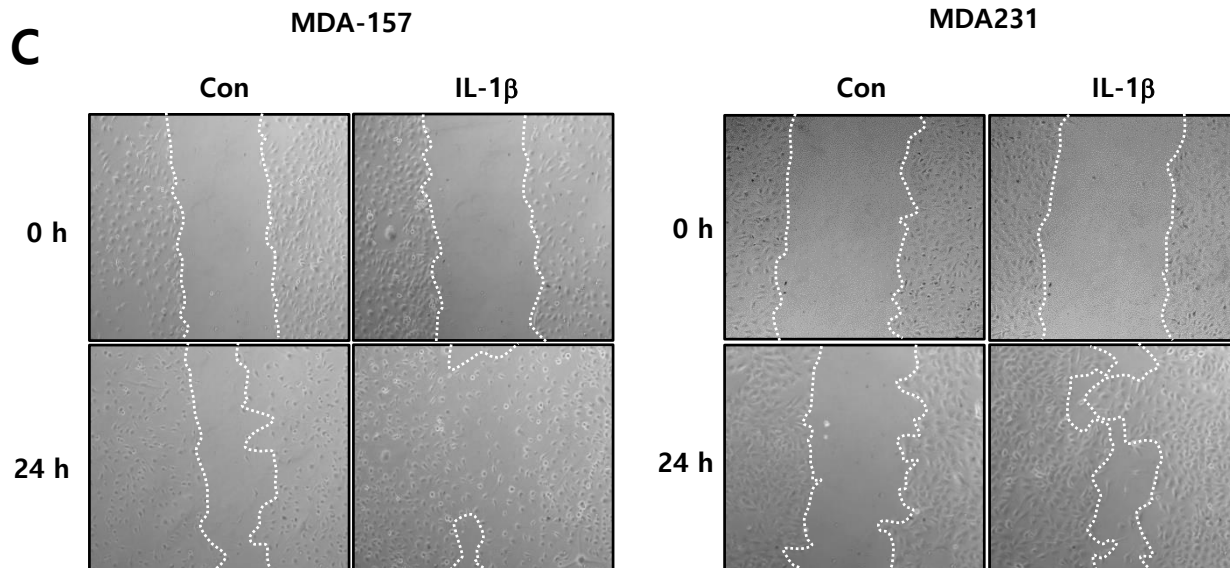
A



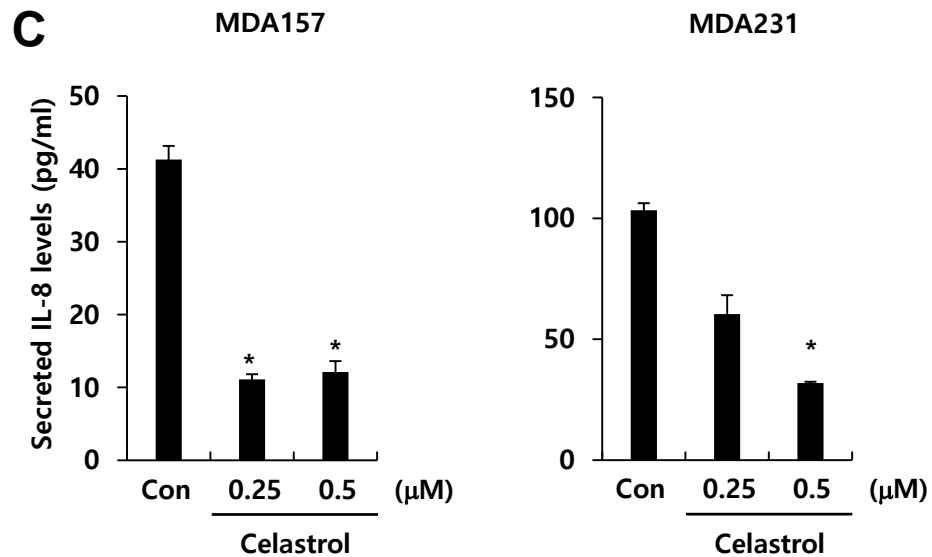
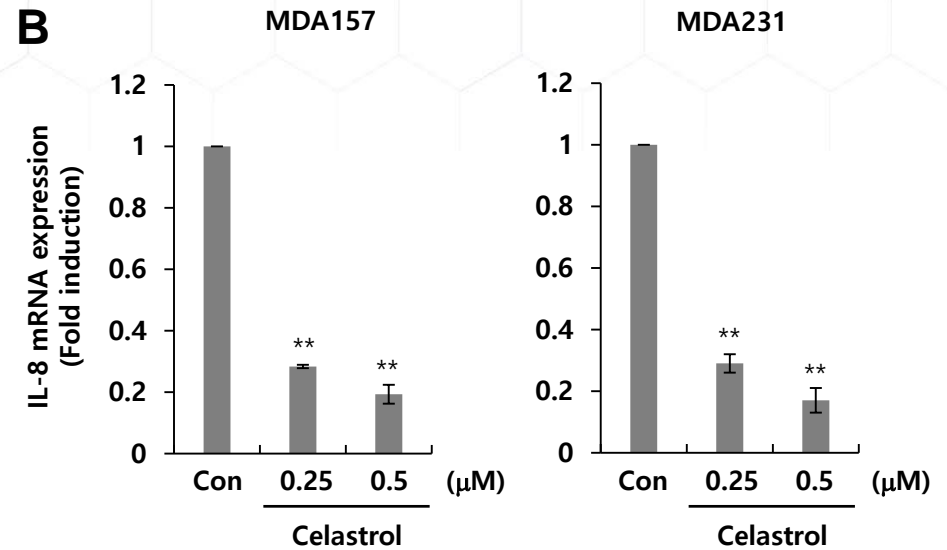
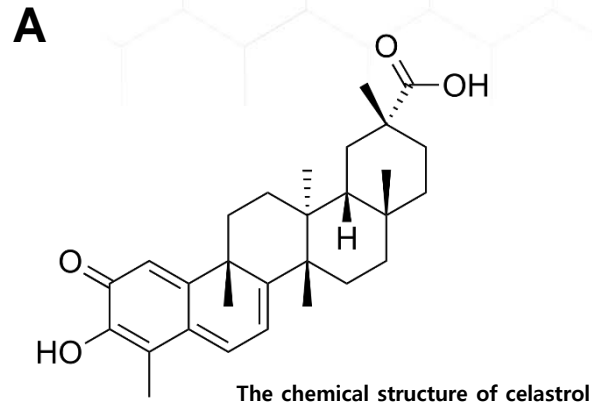
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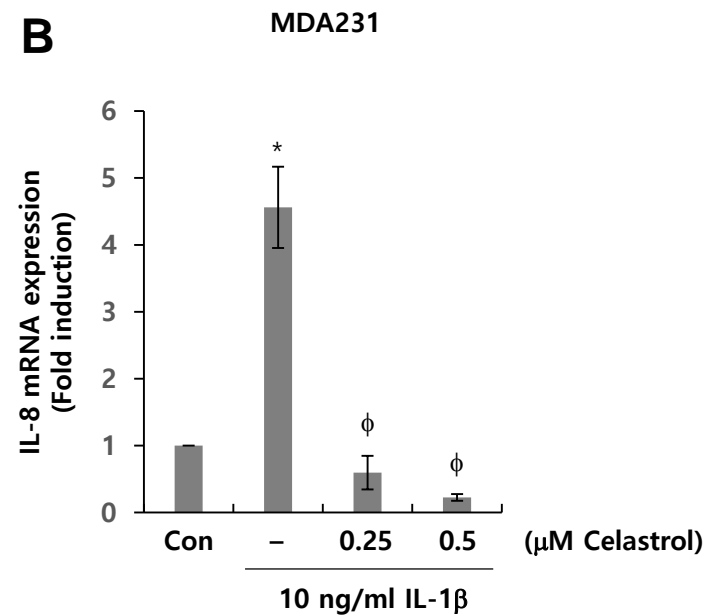
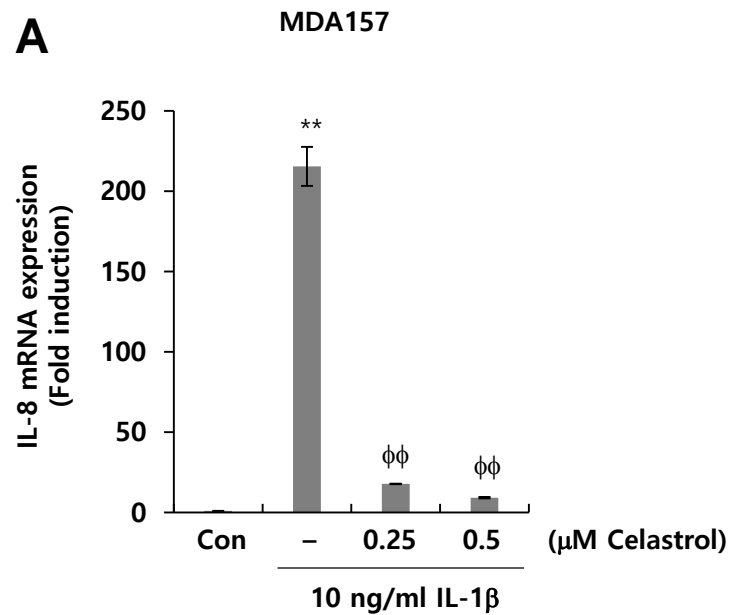
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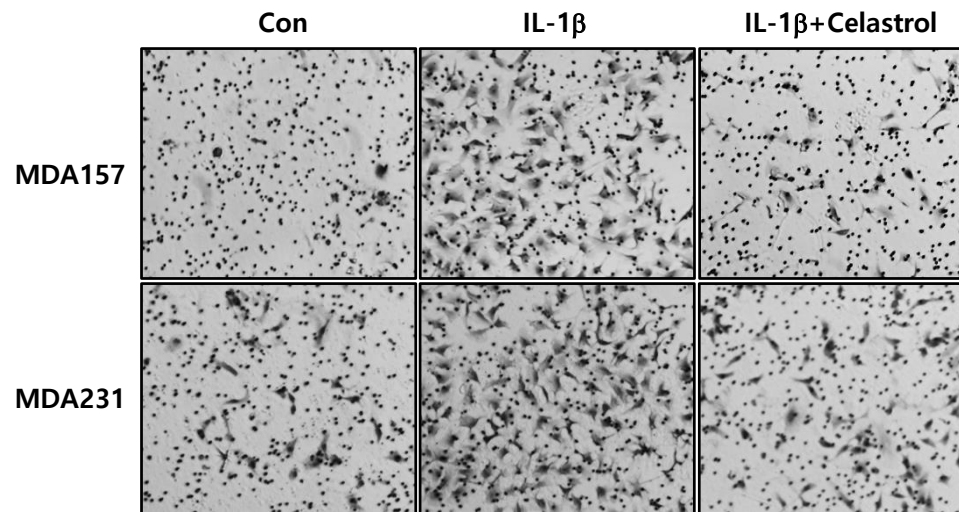
Celastrol dose-dependently decreases basal levels of IL-8 expression



Celastrol decreases IL-1 β -induced IL-8 expression in TNBC cells



Celastrol inhibits IL-1 β -induced cell invasion

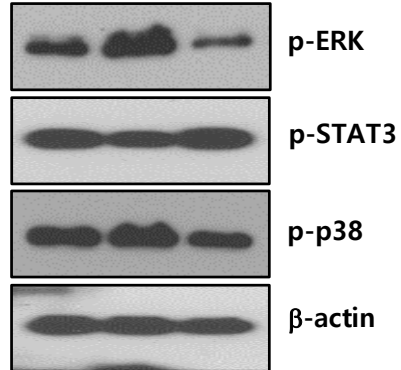


Celastrol decreases IL-1 β -induced ERK activation

A

MDA157

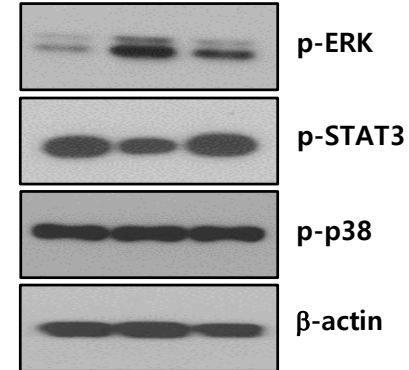
-	+	+	(10 ng/ml IL-1 β)
-	-	+	(0.5 μ M Celastrol)



B

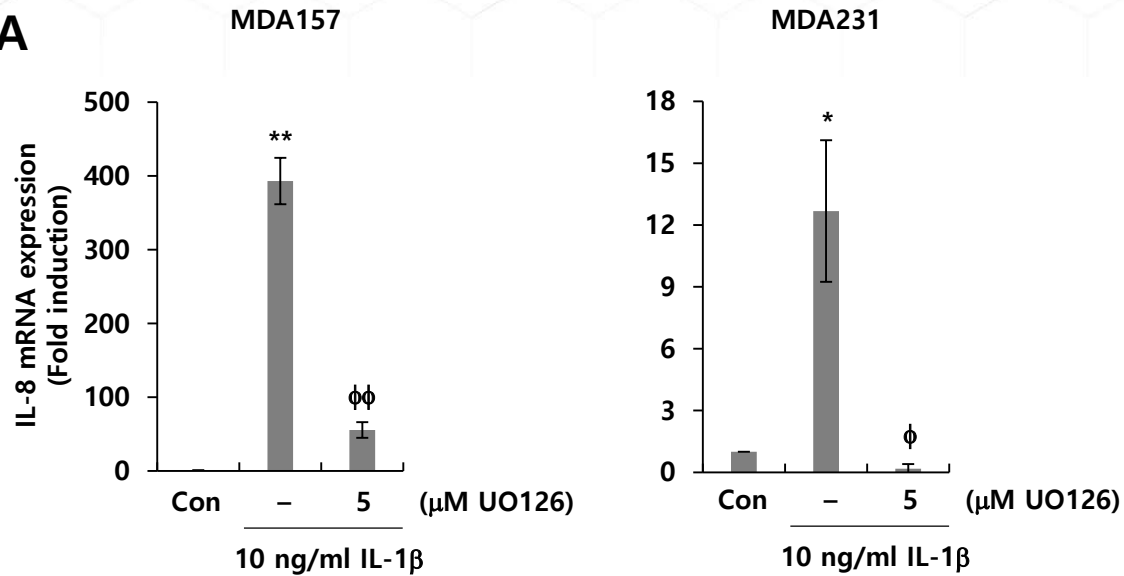
MDA231

-	+	+	(10 ng/ml IL-1 β)
-	-	+	(0.5 μ M Celastrol)



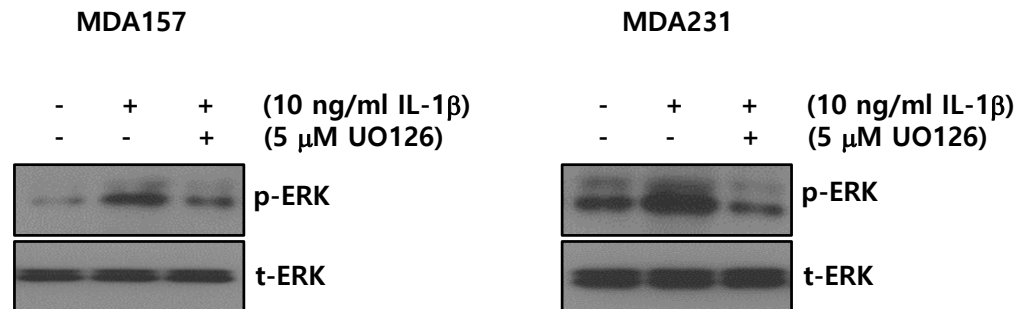
IL-1 β -induced IL-8 expression is regulated through MEK/ERK pathway

A

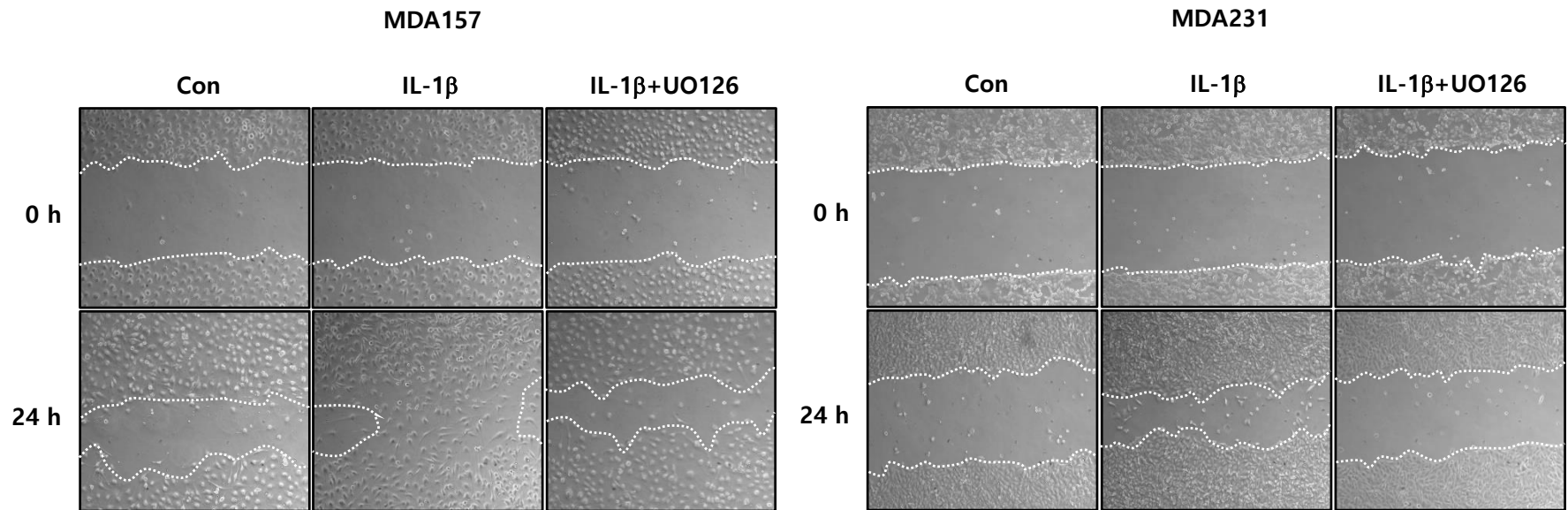


* UO126: MEK inhibitor

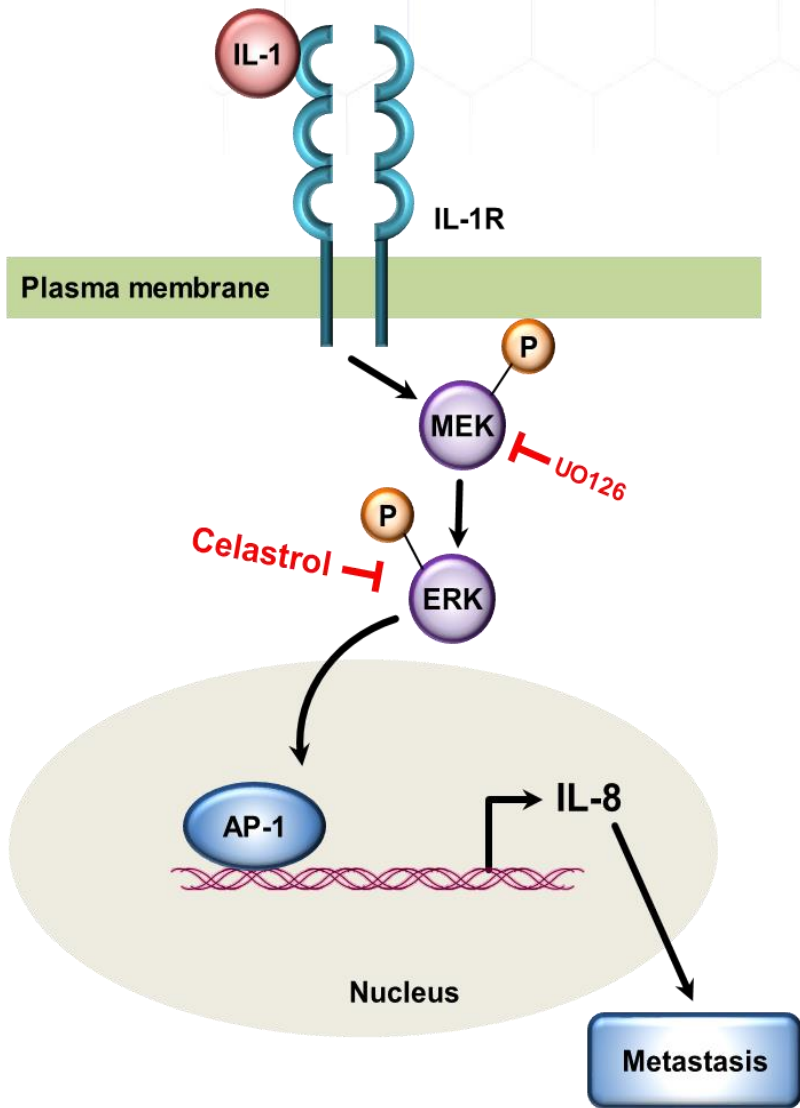
B



IL-1 β -induced cell migration is regulated through MEK/ERK pathway



Conclusion



- IL-1 β and IL-8 expression levels are significantly increased in TNBC cells.
- IL-1 β enhances IL-8 expression and cell motility.
- Celastrol suppresses IL-1 β -induced IL-8 expression and cell motility through inhibition of ERK activity.
- Celastrol has an anti-inflammatory effect in TNBC cells by inhibiting IL-1 β signaling pathways.

Thank you for your attention

