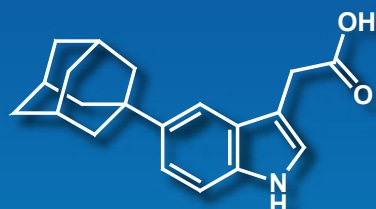


# Synthetic Auxin for Inducing Targeted Protein Degradation in Low Concentration

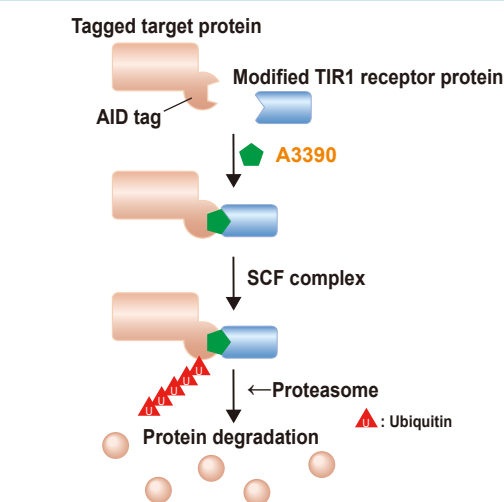


**5-Adamantyl-IAA**  
10mg / 50mg  
[A3390]

## Advantages

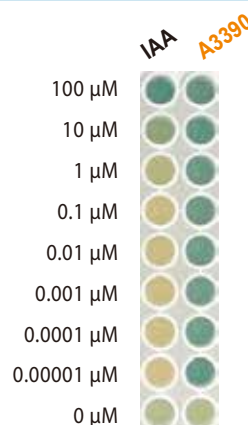
- Selectively binds to the modified auxin receptor
- Shows 1000-fold stronger binding affinity than the natural auxin
- Induces protein degradation in lower concentration than the original AID system

An auxin-inducible degron (AID) system is a technique to induce degradation of target protein which has an AID tag for binding to auxin, because auxin receptor protein (TIR1) acts as a F-box protein constituting the SCF complex in the ubiquitin-proteasome system (Fig. 1).<sup>1)</sup> 5-Adamantyl-IAA [A3390] has 1000-fold stronger affinity with the modified TIR receptor protein than natural auxin (Fig. 2).<sup>2)</sup> These make it possible to induce protein degradation in the 1/1000 auxin concentration of the original AID system, and a low-toxic protein degradation has been reported in mouse and human cells.<sup>3)</sup>



**Figure 1. Targeted protein degradation using synthetic auxin and modified receptor.**

References 1) K. Nishimura, T. Fukagawa, H. Takisawa, T. Kakimoto, M. Kanemaki, *Nature Methods* **2009**, 6, 917. <https://doi.org/10.1038/nmeth.1401>  
2) R. Yamada, S. Hagihara, et al., *Plant Cell Physiol.* **2018**, 59, 1538. <https://doi.org/10.1093/pcp/pcy127>  
3) K. Nishimura, T. Fukagawa, et al., *Nucleic Acids Res.* **2020**, 48, 108. <https://doi.org/10.1093/nar/gkaa748>



**Figure 2. Interactions between modified receptor and AID tag protein in each chemical concentration by yeast two-hybrid assay.**

A3390 induces interaction between modified receptor and AID tag protein in quite lower concentration (10 pM) compared with natural auxin (IAA). Expressed galactosidase is detected by the chromogenic substrate.

\*The data has been provided by Dr. Hagiwara.

## Related Products

Proteasome inhibitor

Proteasome inhibitor

Synthetic auxin to modified receptor

Plant Tissue-Clearing Reagent

Plant Tissue-Clearing Reagent

**Celastrol**

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**Tissue-Clearing Reagent iTOMEI-D [for Plants]**

25mg [C2737]

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10mg / 50mg [M3141]

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5mL / 25mL [T3940]

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