

## Post-translational regulation of Axin in Wnt signaling

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Wnt signaling plays key roles in embryonic development and tissue homeostasis. Abnormal Wnt signaling causes many human diseases including cancers. Axin is a scaffold protein and functions as a negative regulator in Wnt signaling pathway. As the concentration of Axin is much lower than the other components, tight regulation of Axin is important for Wnt signaling. Many studies have demonstrated that Axin expression is reduced upon Wnt stimulation, but the underlying mechanism remains unclear. Here we reported that Axin degradation occurred at the protein level, not the mRNA level. Knockdown of calcium-dependent protease inhibited Axin degradation. Calcium-dependent protease protein level increases upon Wnt stimulation and localizes to cell membrane that Axin degradation occurs. The C terminus of Axin is responsible for its proteolysis by the protease. *In vitro* degradation assay showed that calcium-dependent protease can directly degrade Axin and this degradation can be inhibited by specific inhibitor. Therefore, we concluded that Axin is post-translationally regulated by calcium-dependent protease in Wnt signaling.