

Bax Degradation Assay for Tumor Survival and Progression

Researchers at the University of South Florida have developed a simple method to measure degradation of the Bax protein in a tumor sample. Information generated by this assay enables the user to investigate the mechanism of tumor survival, determine tumor grade, or screen for anti-cancer agents.

Currently, cancer treatments are administered based upon the type and grade of a tumor and, if it is possible to determine, the mechanism by which the tumor is surviving and proliferating.

In healthy, normal cells, the Bax protein promotes programmed cell death (apoptosis). In some cancers, however, increased Bax degradation by the proteasome has been observed, which allows the cell to evade death.

Our investigators' method has multiple applications. Clinicians are able to determine whether tumor cells are surviving because of decreased Bax. The Bax degradation rate can help predict the most effective treatment for a tumor. Similarly, this assay is ideal for drug discovery programs screening for anti-cancer agents. In addition, the rate of Bax degradation has been correlated in literature to determining tumor grade, and could be developed as a clinical predictive tumor marker.

ADVANTAGES:

- Measures Bax degradation rate , rather than only the presence of or quantity in a sample, as current assays measure.
- Serves as a predictive tumor marker for determining the grade and potential treatment of cancer.
- Drug screening assay.

Measure Bax degradation as an indicator of tumor survival



Figure 1. 35S-labeled Bax protein was incubated at 37°C for 2h with either buffer Z only (lane 1) or 100 mg protein extract of MCF-7 cells grown exponentially (lane 2) or pretreated for 8h with 50 mM LLnV (lane 3).