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#7193

## PathScan® Phospho-Survivin (Thr34) Sandwich ELISA Kit

**Species Cross Reactivity:** H  
**UniProt ID:** #O15392  
**Entrez-Gene ID:** #332

**For Research Use Only. Not for Use in Diagnostic Procedures.**

| Product Includes                                       | Product # | Quantity | Color               | Storage Temp |
|--|-----------|----------|---------------------|--------------|
| Survivin Mouse Detection mAb                           | 14259     | 1 ea     | Green (Lyophilized) | +4C          |
| Anti-mouse IgG, HRP-linked Antibody (ELISA Formulated) | 13304     | 1 ea     | Red (Lyophilized)   | +4C          |
| Detection Antibody Diluent                             | 13339     | 11 ml    | Green               | +4C          |
| HRP Diluent  | 13515     | 11 ml    | Red                 | +4C          |
| TMB Substrate  | 7004      | 11 ml    | Colorless           | +4C          |
| STOP Solution  | 7002      | 11 ml    | Colorless           | +4C          |
| Sealing Tape   | 54503     | 2 ea     |                     | +4C          |
| ELISA Wash Buffer (20X)                                | 9801      | 25 ml    | Colorless           | +4C          |
| ELISA Sample Diluent                                   | 11083     | 25 ml    | Blue                | +4C          |
| Cell Lysis Buffer (10X)                                | 9803      | 15 ml    | Yellowish           | -20C         |

Kit contents scale proportionally with size, except sealing tape.

Example: The V1 kit contains 5X the listed quantities above, but will exclude the sealing tape.

The microwell plate is supplied as 12 8-well modules - Each module is designed to break apart for 8 tests.

### Description

The PathScan® Phospho-Survivin (Thr34) Sandwich ELISA Kit is a solid phase sandwich enzyme-linked immunosorbent assay (ELISA) that detects endogenous levels of survivin protein phosphorylated at Thr34. A phospho-survivin (Thr34) rabbit antibody has been coated onto the microwells. After incubation with cell lysates, phospho-survivin protein is captured by the coated antibody. Following extensive washing, a survivin mouse antibody is added to detect the captured phospho-survivin protein. Anti-mouse IgG, HRP-linked Antibody is then used to recognize the bound detection antibody. HRP substrate TMB is added to develop color. The magnitude of the absorbance for this developed color is proportional to the quantity of survivin phosphorylated at Thr34. Antibodies in kit are custom formulations specific to kit.

### Specificity/Sensitivity

CST's PathScan® Phospho-Survivin (Thr34) Sandwich ELISA Kit #7193 detects endogenous levels of survivin protein phosphorylated at Thr34 as shown in Figure 1. Kit sensitivity is shown in Figure 2. This kit detects proteins from the indicated species, as determined through in-house testing, but may also detect homologous proteins from other species.

### Background

Survivin is a 16 kDa anti-apoptotic protein highly expressed during fetal development and cancer cell malignancy (1). Survivin binds and inhibits caspase-3, controlling the checkpoint in the G2/M-phase of the cell cycle by inhibiting apoptosis and promoting cell division (2,3). This regulatory process requires the phosphorylation of survivin at Thr34 by p34 cdc2 kinase (4). Gene targeting using a Thr34 phosphorylation-defective survivin mutant, as well as antisense survivin, have been shown to inhibit tumor growth (5,6).

### Background References

1. Reed, J.C. and Reed, S.I. (1999) *Nature Cell Biol.* 1, 199-200.
2. Li, F. et al. (1998) *Nature* 396, 580-584.
3. Li, F. et al. (1999) *Nat. Cell Biol.* 1, 461-466.
4. O'Connor, D.S. et al. (2000) *Proc. Natl. Acad. Sci. USA* 97, 13103-13107.
5. Olie, R.A. et al. (2000) *Cancer Res.* 60, 2805-2809.
6. Grossman, D. et al. (2001) *Proc. Natl. Acad. Sci. USA* 98, 635-640.

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# #7193

## PathScan® Phospho-Survivin (Thr34) Sandwich ELISA Kit

### ELISA Colorimetric

**NOTE:** Refer to product-specific datasheets or product webpage for assay incubation temperature.

### A. Solutions and Reagents

**NOTE:** Prepare solutions with reverse osmosis deionized (RODI) or equivalent grade water.

1. **20X Phosphate Buffered Saline (PBS):** (#9808) To prepare 1 L PBS: add 50 ml 10X PBS to 950 ml dH<sub>2</sub>O, mix.
2. Bring all microwell strips to room temperature before use.
3. Prepare 1X Wash Buffer by diluting 20X Wash Buffer (included in each PathScan® Sandwich ELISA Kit) in dH<sub>2</sub>O.
4. **1X Cell Lysis Buffer:** 10X Cell Lysis Buffer (#9803): To prepare 10 ml of 1X Cell Lysis Buffer, add 1 ml of 10X Cell Lysis Buffer to 9 ml of dH<sub>2</sub>O, mix. Buffer can be stored at 4°C for short-term use (1-2 weeks).

**Recommended:** Add 1 mM phenylmethylsulfonyl fluoride (PMSF) (#8553) immediately before use.

**NOTE:** Refer to product-specific datasheet or webpage for lysis buffer recommendation.

5. **TMB Substrate:** (#7004).
6. **STOP Solution:** (#7002).

### B. Preparing Cell Lysates

#### For adherent cells

1. Aspirate media when the culture reaches 80–90% confluence. Treat cells by adding fresh media containing regulator for desired time.
2. Remove media and rinse cells once with ice-cold 1X PBS.
3. Remove PBS and add 0.5 ml ice-cold 1X cell lysis buffer plus 1 mM PMSF to each plate (10 cm diameter) and incubate the plate on ice for 5 min.
4. Scrape cells off the plate and transfer to an appropriate tube. Keep on ice.
5. Sonicate lysates on ice.
6. Microcentrifuge for 10 min (x14,000 rpm) at 4°C and transfer the supernatant to a new tube. The supernatant is the cell lysate. Store at -80°C in single-use aliquots.

#### For suspension cells

1. Remove media by low speed centrifugation (~1,200 rpm) when the culture reaches 0.5–1.0 x 10<sup>6</sup> viable cells/ml. Treat cells by adding fresh media containing regulator for desired time.
2. Collect cells by low speed centrifugation (~1,200 rpm) and wash once with 5–10 ml ice-cold 1X PBS.
3. Cells harvested from 50 ml of growth media can be lysed in 2.0 ml of 1X cell lysis buffer plus 1 mM PMSF.
4. Sonicate lysates on ice.
5. Microcentrifuge for 10 min (x14,000 rpm) at 4°C and transfer the supernatant to a new tube. The supernatant is the cell lysate. Store at -80°C in single-use aliquots.

### C. Test Procedure

1. After the microwell strips have reached room temperature, break off the required number of microwells. Place the microwells in the strip holder. Unused microwells must be resealed in the storage bag and stored at 4°C immediately.
2. Cell lysates can be undiluted or diluted with sample diluent (supplied in each PathScan® Sandwich ELISA Kit, blue color). Individual datasheets or product webpage for each kit provide information regarding an appropriate dilution factor for lysates and kit assay results.
3. Add 100 µl of each undiluted or diluted cell lysate to the appropriate well. Seal with tape and press firmly onto top of microwells. Incubate the plate for 2 hr at 37°C. Alternatively, the plate can be incubated overnight at 4°C.
4. **Gently remove the tape and wash wells:**
  1. Discard plate contents into a receptacle.
  2. Wash 4 times with 1X wash buffer, 200 µl each time per well.
  3. For each wash, strike plates on fresh paper towels hard enough to remove the residual solution in each well, but do not allow wells to completely dry at any time.
  4. Clean the underside of all wells with a lint-free tissue.
5. Add 100 µl of detection antibody (green color) to each well. Seal with tape and incubate the plate at 37°C for 1 hr.

6. Repeat wash procedure (Section C, Step 4).
7. Add 100  $\mu$ l of HRP-linked secondary antibody (red color) to each well. Seal with tape and incubate the plate for 30 min at 37°C.
8. Repeat wash procedure (Section C, Step 4).
9. Add 100  $\mu$ l of TMB substrate to each well. Seal with tape and incubate the plate for 10 min at 37°C or 30 min at 25°C.
10. Add 100  $\mu$ l of STOP solution to each well. Shake gently for a few seconds.

**NOTE:** Initial color of positive reaction is blue, which changes to yellow upon addition of STOP solution.

**11. Read results**

1. **Visual Determination:** Read within 30 min after adding STOP solution.
2. **Spectrophotometric Determination:** Wipe underside of wells with a lint-free tissue. Read absorbance at 450 nm within 30 min after adding STOP solution.

posted June 2005

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