Store at +4C

## FastScan<sup>™</sup> Phospho-Rb (Ser807/811) ELISA Kit



Orders: 877-616-CELL (2355)

orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com

cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

1 Kit (96 assays)

Species Cross Reactivity:

UniProt ID: Entrez-Gene Id:

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

53257 42223 61627 16076 28120	96 tests 1 ea 1 ea 3 ml	Green (Lyophilized) Red (Lyophilized) Green
61627 16076	1 ea 3 ml	Red (Lyophilized)
16076	3 ml	.,,,
		Green
28120	2 ml	
	3 1111	
7004	11 ml	
7002	11 ml	
54503	1 ea	
9801	25 ml	
69905	10 ml	
25243	1 ml	
87668	1 ea	
	7004 7002 54503 9801 69905 25243	7004 11 ml 7002 11 ml 54503 1 ea 9801 25 ml 69905 10 ml 25243 1 ml

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 FastScan™ Phospho-Rb (Ser807/811) ELISA Kit is a sandwich enzyme-linked immunosorbent assay (ELISA) that detects endogenous levels of Rb when phosphorylated at Ser807/811. To perform the assay, sample is incubated with a capture antibody conjugated with a proprietary tag and a second detection antibody linked to HRP, forming a sandwich with phospho-Rb (Ser807/811) in solution. This entire complex is immobilized to the plate via an anti-tag antibody. The wells are then washed to remove unbound material. TMB is then added. The magnitude of observed signal is proportional to the quantity of phospho-Rb (Ser807/811).

\*Antibodies in kit are custom formulations specific to kit.

### Specificity/Sensitivity

The FastScan™ Phospho-Rb (Ser807/811) ELISA Kit detects endogenous levels of Rb when phosphorylated at Ser807/811 as shown in Figure 1. This kit detects proteins from the indicated species, as determined through in-house testing, but may also detect homologous proteins from other species.

### **Background**

The retinoblastoma tumor suppressor protein Rb regulates cell proliferation by controlling progression through the restriction point within the G1-phase of the cell cycle (1). Rb has three functionally distinct binding domains and interacts with critical regulatory proteins including the E2F family of transcription factors, c-Abl tyrosine kinase, and proteins with a conserved LXCXE motif (2-4). Cell cycle-dependent phosphorylation by a CDK inhibits Rb target binding and allows cell cycle progression (5). Rb inactivation and subsequent cell cycle progression likely requires an initial phosphorylation by cyclin D-CDK4/6 followed by cyclin E-CDK2 phosphorylation (6). Specificity of different CDK/cyclin complexes has been observed *in vitro* (6-8) and cyclin D1 is required for Ser780 phosphorylation *in vivo* (9).

### **Background References**

- 1. Sherr, C.J. (1996) Science 274, 1672-7.
- 2. Nevins, J.R. (1992) Science 258, 424-9.
- 3. Welch, P.J. and Wang, J.Y. (1993) *Cell* 75, 779-90.
- 4. Hu, Q.J. et al. (1990) EMBO J 9, 1147-55.
- 5. Knudsen, E.S. and Wang, J.Y. (1997) Mol Cell Biol 17, 5771-83.
- 6. Lundberg, A.S. and Weinberg, R.A. (1998) *Mol Cell Biol* 18, 753-61.
- 7. Connell-Crowley, L. et al. (1997) Mol Biol Cell 8, 287-301.

### **Trademarks and Patents**

Cell Signaling Technology is a trademark of Cell Signaling Technology, Inc.

FastScan™ ELISA is a registered trademark of Cell Signaling Technology, Inc.

U.S. Patents 9,086,407, 9,261,500, and 9,476,874, foreign equivalents, and child patents deriving therefrom.

All other trademarks are the property of their respective owners. Visit cellsignal.com/trademarks for more information.

### **Limited Uses**

Except as otherwise expressly agreed in a writing signed by a legally authorized representative of CST, the following terms apply to Products provided by CST, its affiliates or its distributors. Any Customer's terms and conditions that are in addition to, or different from, those contained herein, unless separately accepted in writing by a legally authorized representative of CST, are rejected and are of no force or effect.

Products are labeled with For Research Use Only or a similar labeling statement and have not been approved, cleared, or licensed by the FDA or other regulatory foreign or domestic entity, for any purpose. Customer shall not use any Product for any diagnostic or therapeutic purpose, or otherwise in any manner that conflicts with its labeling statement. Products sold or licensed by CST are provided for Customer as the end-user and solely for research and development uses. Any use of Product for diagnostic, prophylactic or therapeutic purposes, or any purchase of Product for resale (alone or as a component) or other commercial purpose, requires a separate license from CST. Customer shall (a) not sell, license, loan, donate or otherwise transfer or make available any Product to any third party, whether alone or in combination with other materials, or use the Products to manufacture any commercial products, (b) not copy, modify, reverse engineer, decompile, disassemble or otherwise attempt to discover the underlying structure or technology of the Products, or use the Products for the purpose of developing any products or services that would compete with CST products or services, (c) not alter or remove from the Products any trademarks, trade names, logos, patent or copyright notices or markings, (d) use the Products solely in accordance with CST Product Terms of Sale and any applicable documentation, and (e) comply with any license, terms of service or similar agreement with respect to any third party products or services used by Customer in connection with the Products.

Orders: 877-616-CELL (2355) • orders@cellsignal.com • Support: 877-678-TECH (8324) • info@cellsignal.com • Web: cellsignal.com

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

# #10754

## FastScan<sup>™</sup> Phospho-Rb (Ser807/811) ELISA Kit



### FastScan™ ELISA Protocol

## A. Solutions and Reagents

**NOTE**: Prepare solutions with deionized/purified water or equivalent. Prepare only as much reagent as needed on the day of the experiment.

- FastScan™ ELISA Microwell Strip Plate, 96 well (#53257): Bring all to room temperature before opening bag/use. Unused microwell strips should be returned to the original re-sealable bag containing the desiccant pack and stored at 4°C.
- 1X ELISA Wash Buffer: Prepare by diluting ELISA Wash Buffer (20X) (included in each kit) to 1X with deionized water.
- 3. **1X Cell Extraction Buffer**: Prepare by diluting FastScan™ ELISA Cell Extraction Buffer (5X) #69905 and FastScan™ ELISA Cell Extraction Enhancer Solution (50X) #25243\* to 1X with deionized water. This buffer can be stored at 4°C for short-term use (1-2 weeks). To make 10 mL 1X Cell Extraction Buffer, combine 7.8 mL deionized water, 2 mL FastScan™ ELISA Cell Extraction Buffer (5X), and 200 µL FastScan™ ELISA Cell Extraction Enhancer Solution (50X). Alternatively, Enhancer Solution may be added to the Cell Extraction Buffer after extraction of cells or tissue. When using the 1X Cell Extraction Buffer as a sample diluent for the assay, it is recommended to equilibrate it to room temperature prior to use.

\*IMPORTANT: The provided FastScan™ ELISA Cell Extraction Enhancer Solution (50X) may precipitate when stored at 4°C. To dissolve, warm briefly at 37°C and mix gently. The FastScan™ ELISA Cell Extraction Enhancer Solution (50X) can be stored at room temperature to avoid precipitation.

**NOTE**: The 1X Cell Extraction Buffer contains phosphatase inhibitors. Protease inhibitors should be added to the 1X Cell Extraction Buffer immediately prior to lysing cells. Additional phosphatase inhibitors can also be added (e.g. Protease/Phosphatase Inhibitor Cocktail (100X) #5872, not supplied).

- 4. FastScan™ ELISA Capture Antibody Diluent: Green diluent for reconstitution of the Capture Antibody.
- FastScan™ ELISA HRP Antibody Diluent: Diluent (amber bottle) for reconstitution of the HRP-linked Antibody.
  Protect from light.
- 6. **4X Capture Antibody**: Reconstitute lyophilized Capture Antibody (green colored cake) with 3 mL FastScan™ ELISA Capture Antibody Diluent (green diluent). Incubate at room temperature for 5 min with occasional gentle mixing to fully reconstitute. For best results, use immediately following antibody reconstitution. Unused reconstituted 4X Capture Antibody may be stored for up to 4 weeks at 4°C, although there may be some loss of signal compared to freshly reconstituted antibody.
- 7. **4X HRP-linked Antibodý**: Reconstitute lyophilized HRP-linked Antibody (red colored cake) with 3 mL FastScan™ ELISA HRP Antibody Diluent. Incubate at room temperature for 5 min with occasional gentle mixing to fully reconstitute. For best results, use immediately following antibody reconstitution. Unused reconstituted 4X HRP-linked Antibody may be stored for up to 4 weeks at 4°C protected from light, although there may be some loss of signal compared to freshly reconstituted antibody.
- 8. **Antibody Cocktail**: Combine equal volumes of the reconstituted 4X Capture and 4X HRP-linked Antibodies immediately prior to assay and mix. To make 6 mL of the Antibody Cocktail (enough for 1x 96-well plate), combine 3 mL 4X Capture Antibody with 3 mL 4X HRP-linked Antibody.
- 9. **Positive Control**: Reconstitute 1 vial of lyophilized Positive Control (refer to product datasheet or vial label to determine which type of Positive Control is included with the kit):
  - i. For Positive Control Type 1, add 250 µL deionized water.
  - ii. For Positive Control Type 2, add 500 µL 1X Cell Extraction Buffer.

Mix thoroughly and gently, hold at room temperature for 1 minute and then follow the steps outlined below in the "Test Procedure" section. Positive Controls are recommended to be used immediately after reconstituting, however remaining material may be stored at -80°C (there may be some loss of the positive control signal if freeze/thawed). Positive Controls are supplied as a control reagent, not as an absolute quantitation measure.

NOTE: A select number of FastScan™ ELISA kits do not contain a positive control, please refer to Product Includes table on the datasheet for a list of included reagents. Should you need support on how to generate a positive control for those kits, contact CST technical support at support@cellsignal.com.

- 10. TMB Substrate (#7004): Bring to room temperature before use.
- 11. **STOP Solution (#7002)**: Bring to room temperature before use.

## **B. Preparing Cell Lysates**

### For adherent cells

- 1. Aspirate media when the culture reaches 80-90% confluence.
- 2. Remove media and rinse cells once with ice-cold 1X PBS.

- 3. Remove PBS and add 0.5 mL ice-cold 1X Cell Extraction Buffer (recommended to supplement with protease inhibitors and additional phosphatase inhibitors as needed) 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 5 min (x14,000 rpm) at 4°C and transfer the supernatant to a new tube. The supernatant is the cell lysate. Store at  $-80^{\circ}$ C in single-use aliquots.

#### For suspension cells

- 1. Remove media by low speed centrifugation (~1200 rpm) when the culture reaches 0.5-1.0 x 10<sup>6</sup> yiable cells/ml.
- 2. Wash once with ice-cold 1X PBS.
- 3. Cells harvested from 50 mL of growth media can be lysed in 2.0 mL of 1X Cell Extraction Buffer (recommended to supplement with protease inhibitors and additional phosphatase inhibitors as needed).
- 4. Sonicate lysates on ice.
- 5. Microcentrifuge for 5 min (x14,000 rpm) at 4°C and transfer the supernatant to a new tube. The supernatant is the cell lysate. Store at  $-80^{\circ}$ C in single-use aliquots.

## C. Test Procedure

NOTE: Equilibrate all materials and prepared reagents to room temperature prior to running the assay.

- 1. Prepare all reagents as indicated above (Section A).
- 2. Samples should be undiluted or diluted with 1X Cell Extraction Buffer to a 2X protein concentration in order to achieve a final 1X protein concentration upon addition of the antibody cocktail. Individual datasheets for each kit provide a sensitivity curve that serves as a reference for selection of an appropriate starting lysate concentration. The sensitivity curve shows typical results across a range of lysate concentration points.
- 3. Add 50 µL of each sample or Positive Control to the appropriate wells.
- 4. Add 50 µL of the Antibody Cocktail to each well.
- 5. Seal the plate with the supplied sealing tape and incubate for 1 hour at room temperature on a plate shaker set to 400 rpm (moderate agitation).
- 6. Gently remove the tape and wash wells:
  - a. Discard plate contents into a receptacle.
  - b. Wash 3 times\* with 1X ELISA Wash Buffer, 200 µL each time for every well. After each wash, aspirate or decant from wells. Invert the plate and blot it against clean paper towels to remove the residual solution in each well, but do not allow wells to completely dry at any time.
  - c. Clean the underside of all wells with a lint-free tissue.

\*NOTE: Certain FastScan™ ELISA Kits may require additional washes at this step. Any requirements for additional washes will be specifically noted in the product "Description" of the kit's datasheet.

- 7. Add 100 uL of TMB Substrate to each well. Seal with tape and incubate the plate in the dark for 15 min at room temperature on a plate shaker (400 rpm, moderate agitation) or alternatively for 10 min at 37°C without shaking.
- 8. Add 100 µL 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.

- 9. Read results:
  - a. Visual Determination: Read within 30 min after adding STOP Solution.
  - b. Spectrophotometric Determination: Wipe underside of wells with a lint-free tissue. Read absorbance at 450 nm within 30 min after adding STOP Solution.

posted May 2018

revised November 2019

Orders: 877-616-CELL (2355) • orders@cellsignal.com • Support: 877-678-TECH (8324) • info@cellsignal.com • Web: cellsignal.com For Research Use Only. Not for Use in Diagnostic Procedures.