



CAGE (E-20): sc-67461

BACKGROUND

CAGE (cancer-associated gene protein), also known as DEAD box protein 53 (DDX53) or DEAD box protein CAGE, belongs to the DEAD box helicase family. It contains one helicase ATP-binding domain, one helicase C-terminal domain and one KH domain. CAGE localizes to the nucleus and, in normal adult tissues, is exclusively expressed in testis but it has also been found in a wide variety of cancer tissues and cell lines. Overexpression of CAGE leads to the activation of FAK, ERK and p38 MAPK along with a reduction in reactive oxygen species (ROS). It is also responsible for inducing catalase activity and therefore enhancing cell motility. This suggests that CAGE may enhance the migration of cancer cells. In addition, hypomethylation of the CAGE promoter region is associated with tumor progression and may serve as a valuable marker in cancer diagnosis.

REFERENCES

1. Cho, B., Lim, Y., Lee, D.Y., Park, S.Y., Lee, H., Kim, W.H., Yang, H., Bang, Y.J. and Jeoung, D.I. 2002. Identification and characterization of a novel cancer/testis antigen gene CAGE. *Biochem. Biophys. Res. Commun.* 292: 715-726.
2. Cho, B., Lee, H., Jeong, S., Bang, Y.J., Lee, H.J., Hwang, K.S., Kim, H.Y., Lee, Y.S., Kang, G.H. and Jeoung, D.I. 2003. Promoter hypomethylation of a novel cancer/testis antigen gene CAGE is correlated with its aberrant expression and is seen in premalignant stage of gastric carcinoma. *Biochem. Biophys. Res. Commun.* 307: 52-63.
3. Iwata, T., Fujita, T., Hirao, N., Matsuzaki, Y., Okada, T., Mochimaru, H., Susumu, N., Matsumoto, E., Sugano, K., Yamashita, N., Nozawa, S. and Kawakami, Y. 2005. Frequent immune responses to a cancer/testis antigen, CAGE, in patients with microsatellite instability-positive endometrial cancer. *Clin. Cancer Res.* 11: 3949-3957.
4. Chen, Y.T., Scanlan, M.J., Venditti, C.A., Chua, R., Theiler, G., Stevenson, B.J., Iseli, C., Gure, A.O., Vasicek, T., Strausberg, R.L., Jongeneel, C.V., Old, L.J. and Simpson, A.J. 2005. Identification of cancer/testis-antigen genes by massively parallel signature sequencing. *Proc. Natl. Acad. Sci. USA* 102: 7940-7945.
5. Shim, H., Shim, E., Lee, H., Hahn, J., Kang, D., Lee, Y.S. and Jeoung, D. 2006. CAGE, a novel cancer/testis antigen gene, promotes cell motility by activation ERK and p38 MAPK and downregulating ROS. *Mol. Cells* 21: 367-375.
6. Shim, E., Shim, H., Bae, J., Lee, H. and Jeoung, D. 2006. CAGE displays oncogenic potential and induces cytolytic T lymphocyte activity. *Biotechnol. Lett.* 28: 515-522.
7. Linder, P. 2006. Dead-box proteins: a family affair—active and passive players in RNP-remodeling. *Nucleic Acids Res.* 34: 4168-4180.
8. Shim, H., Lee, H. and Jeoung, D. 2006. Cancer/testis antigen cancer-associated gene (CAGE) promotes motility of cancer cells through activation of focal adhesion kinase (FAK). *Biotechnol. Lett.* 28: 2057-2063.
9. Shukla, V., Coumoul, X., Cao, L., Wang, R.H., Xiao, C., Xu, X., Andò, S., Yakar, S., Leroith, D. and Deng, C. 2006. Absence of the full-length breast cancer-associated gene-1 leads to increased expression of insulin-like growth factor signaling axis members. *Cancer Res.* 66: 7151-7157.

CHROMOSOMAL LOCATION

Genetic locus: DDX53 (human) mapping to Xp22.11.

SOURCE

CAGE (E-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of CAGE of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-67461 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-67461 X, 200 µg/0.1 ml.

APPLICATIONS

CAGE (E-20) is recommended for detection of CAGE (also designated as DDX53) of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for CAGE siRNA (h): sc-62056.

CAGE (E-20) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of CAGE: 71 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.