SANTA CRUZ BIOTECHNOLOGY, INC.

HSV-1 Thymidine Kinase (vN-20): sc-28037

BACKGROUND

Herpes Simplex virus type 1 thymidine kinase (HSV1 TK) phosphorylates thymidine (dT) to thymidine monophosphate (dTMP), playing a key role in reactivation from the latency and replication phases of herpes simplex viruses. The antiviral agents acyclovir and ganciclovir act as substrates for HSV TK1, but not related human kinases, with cytotoxic consequences. Thus transfecting tumor cells with adenoviral or retroviral vectors containing HSV1 TK confers a specific susceptibility to the drugs. This mechanism provides the basis for "suicide gene therapy", which correlates with improved survival in *in vitro* and *in vivo* studies.

REFERENCES

1. Tong, X.W., et al. 1997. Human epithelial ovarian cancer xenotransplants into nude mice can be cured by adenovirus-mediated thymidine kinase gene therapy. Anticancer Res. 17: 811-813.
2. Marveggio, S., et al. 1997. 9-(2-Hydroxypropyl)adenine: a novel fraudulent substrate of HSV-1-thymidine kinase. An interdisciplinary study. First International Electronic Conference on Synthetic Organic Chemistry (ECSOC-1), www.mdpi.org/ecsoc/
3. Fecci, P.E., et al. 2002. Viruses in the treatment of brain tumors. Neuroimaging Clin. N. Am. 12: 553-570.
4. Anton, M., et al. 2004. Coexpression of herpesviral thymidine kinase reporter gene and VEGF gene for noninvasive monitoring of therapeutic gene transfer: an *in vitro* evaluation. J. Nucl. Med. 45: 1743-1746.
5. Miyagawa, M., et al. 2004. PET of cardiac transgene expression: comparison of two approaches based on herpesviral thymidine kinase reporter gene. J. Nucl. Med. 45: 1917-1923.
6. Choi, S.R., et al. 2005. SPECT imaging of herpes simplex virus type1 thymidine kinase gene expression by [(123)I]FIAU(1). Acad. Radiol. 12: 798-805.
7. Cho, S.Y., et al. 2005. Evaluation of (76)Br-FBAU as a PET reporter probe for HSV-1 TK gene expression imaging using mouse models of human glioma. J. Nucl. Med. 46: 1923-1930.

SOURCE

HSV-1 Thymidine Kinase (vN-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of HSV-1 Thymidine Kinase.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-28037 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

HSV-1 Thymidine Kinase (vN-20) is recommended for detection of HSV1 and HSV2 Thymidine Kinase of HSV1 origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

SELECT PRODUCT CITATIONS

1. Duan, R., et al. 2008. Acyclovir-resistant corneal HSV-1 isolates from patients with herpetic keratitis. J. Infect. Dis. 198: 659-663.
2. Zheng, F.Q., et al. 2009. Combination effect of oncolytic adenovirus therapy and herpes simplex virus thymidine kinase/ganciclovir in hepatic carcinoma animal models. Acta Pharmacol. Sin. 30: 617-627.
3. Chen, Y., et al. 2011. Double-targeted and double-enhanced suicide gene therapy mediated by generation 5 polyamidoamine dendrimers for prostate cancer. Mol. Carcinog. 52: 237-246.
4. van Velzen, M., et al. 2012. Latent acyclovir-resistant herpes simplex virus type 1 in trigeminal ganglia of immunocompetent individuals. J. Infect. Dis. 205: 1539-1543.
5. Redaelli, M., et al. 2012. Herpes simplex virus type 1 thymidine kinase-armed bovine herpesvirus type 4-based vector displays enhanced oncolytic properties in immunocompetent orthotopic syngenic mouse and rat glioma models. Neuro Oncol. 14: 288-301.

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.