



NIH AIDS Reagent Program

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DATA SHEET

Reagent:	Red Alga Griffithsia sp. Griffithsin Recombinant Protein
Catalog Number:	11610
Lot Number:	2 080096
Provided:	0.5 ml aliquots of a 1 mg/ml solution of GRFT in 50mM sodium phosphate buffer containing 300mM sodium chloride and 0.01% sodium azide (pH = 7.0).
Molecular Weight:	Monomeric MW = 14,499 daltons (14.5 kDa), GRFT is an obligate homo-dimer (dimer MW = 29 kDa) in its native state.
Purity:	>95% pure as determined by SDS-PAGE analysis.
Description:	Recombinant His-tagged GRFT, a non-glycosylated protein, was produced in E.coli. The protein is active against HIV-1, HIV-2, SIV and the SARS coronavirus. GRFT has been shown to be directly virucidal and prevents viral fusion and entry via direct association with oligosaccharides present on HIV gp120 and gp41 (Mori et al., 2005). The protein has been fully sequenced and its three-dimensional structure both his-tagged and native has been determined (Ziólkowska et al. 2006). The structure of GRFT bound to specific oligosaccharides has also been determined (Ziólkowska et al. 2007). GRFT is stable to multiple freeze-thaw cycles, organic solvents, room temperature and is stable >3 yrs at the suggested storage temperature.
Special Characteristics:	GRFT is active against most strains of HIV-1 as well as HIV-2 and SIV (Mori et al., 2005). The provided sample has been tested directly against HIV-1RF in a whole lymphoblastic cell assay system for HIV-1 induced cytopathicity which resulted in an EC50 = 0.15nM.
Recommended Storage:	-20°C
Contributor:	Drs. Barry O'Keefe and James McMahon

ALL RECIPIENTS OF THIS MATERIAL MUST COMPLY WITH ALL APPLICABLE BIOLOGICAL, CHEMICAL, AND/OR RADIOCHEMICAL SAFETY STANDARDS INCLUDING SPECIAL PRACTICES, EQUIPMENT, FACILITIES, AND REGULATIONS. NOT FOR USE IN HUMANS.

References:

1. Mori T, O'Keefe BR, Sowder RC 2nd, Bringans S, Gardella R, Berg S, Cochran P, Turpin JA, Buckheit RW Jr, McMahon JB, Boyd MR. Isolation and characterization of griffithsin, a novel HIV-inactivating protein, from the red alga *Griffithsia* sp. *J Biol Chem*. 280(10):9345-53, 2005.
2. Emau P, Tian B, O'Keefe BR, Mori T, McMahon JB, Palmer KE, Jiang Y, Bekele G, Tsai CC. Griffithsin, a potent HIV entry inhibitor, is an excellent candidate for anti-HIV microbicide. *J Med Primatol*. 36(4-5):244-53, 2007.
3. Ziólkowska NE, O'Keefe BR, Mori T, Zhu C, Giomarelli B, Vojdani F, Palmer KE, McMahon JB, Wlodawer A. Domain-swapped structure of the potent antiviral protein griffithsin and its mode of carbohydrate binding. *Structure*. 14(7):1127-35, 2006.
4. Ziólkowska NE, Shenoy SR, O'Keefe BR, McMahon JB, Palmer KE, Dwek RA, Wormald MR, Wlodawer A. Crystallographic, thermodynamic, and molecular modeling studies of the mode of binding of oligosaccharides to the potent antiviral protein griffithsin. *Proteins*. 67(3):661-70, 2007.

NOTE:

Acknowledgment for publications should read "The following reagent was obtained through the NIH AIDS Reagent Program, Division of AIDS, NIAID, NIH: Red Alga *Griffithsia* sp. Griffithsin Recombinant Protein from Drs. Barry O'Keefe and James McMahon." Also include the reference cited above in any publications.

Strictly limited to one aliquot per lab. This reagent is patented by the U.S. Government. Additional supplies may require licensing agreement.

Scientists at for-profit institutions, or who intend commercial use of this reagent must contact Dr. Sally H. Hu, Technology Licensing Specialist, NIH Office of Technology Transfer, 6011 Executive Boulevard, Suite 325, Rockville, MD 20852-3804, Tel: (301) 435-5606, Fax: (301) 402-0220, Email: hus@mail.nih.gov, before the reagent can be released.

Last Updated:

July 13, 2017

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