



### HPV 58型E7蛋白特异结合多肽的筛选及分析

范久松<sup>1,2</sup>, 赵洪彬<sup>3</sup>, 林洁<sup>3</sup>, 马岚<sup>2</sup>

1. 清华大学生命科学学院, 北京100084;
2. 清华大学深圳研究生院生命与健康学部, 广东深圳518055;
3. 云南大学生命科学学院, 云南昆明650091

### Screening and analysis peptides that bind specifically to HPV 58 E7 protein

FAN Jiu-song<sup>1,2</sup>, ZHAO Hong-bin<sup>3</sup>, LIN Jie<sup>3</sup>, MA Lan<sup>2</sup>

1. School of Life Sciences, Tsinghua University, Beijing 100084, China;
2. Division of Life Science & Health, Graduate School at Shenzhen, Tsinghua University, Shenzhen 518055, China;
3. School of Life Sciences, Yunnan University, Kunming 650091, China

- 摘要
- 参考文献
- 相关文章

全文: PDF ( KB) HTML ( KB) 输出: BibTeX | EndNote (RIS) 背景资料

**摘要** 利用M13噬菌体展示技术筛选HPV 58型E7蛋白特异性结合12肽,对这些多肽的序列比对分析得出其共有序列,同时通过BLASTP序列对比分析获得能与E7结合的内源蛋白.利用GST-E7融合表达蛋白为正筛靶分子,GST蛋白为负筛靶分子进行4轮的正负亲和筛选,经过ELISA活性鉴定获得71株阳性克隆,通过DNA测序和序列分析,得到2个能与E7蛋白发生特异性结合的共有序列NHXXANPQQXPQ和TMGFTAPRF-PHY.通过BLASTP分析所有71个多肽在体内的同源蛋白,它们能为对E7蛋白的致癌机理研究提供方向.

**关键词:** 噬菌体展示 E7蛋白 多肽

**Abstract:** By using M13 phage display techniques,12-mer peptide ligands that bind specifically to HPV 58 E7 protein were isolated,and then we compared all the sequences to get consensus sequences,moreover,through BLASTP endogenous proteins which probably interact with E7 protein were found.Using GET-E7 fusion protein as a positive screening target and GST protein as a negative one,we took four rounds of negative-positive selection,after that,71 positive clones were selected.By DNA sequencing and sequence analysis,we got two consensus sequences:NHXXANPQQXPQ and TMGFTAPRFPHY.We analyzed the homologous proteins of the 71 peptides by BLASTP,which will be very helpful in the study of E7 carcinogenesis.

**Key words:** phage display HPV E7 peptides

收稿日期: 2011-05-24;

基金资助: 云南大学理(工)校级科研项目资助(2009C13R)

通讯作者: 马岚(1965- ), 云南人, 副教授, 主要从事宫颈癌抗体药物及治疗性疫苗等研究.

引用本文:

范久松,赵洪彬,林洁等. HPV 58型E7蛋白特异结合多肽的筛选及分析[J]. 云南大学学报(自然科学版), 2011, (5): 615-620.

FAN Jiu-song,ZHAO Hong-bin,LIN Jie et al. Screening and analysis peptides that bind specifically to HPV 58 E7 protein[J]. , 2011, (5): 615-620.

[1] 朱晓亮,曾抗.人乳头瘤病毒与宫颈癌关系研究进展 [J].广东医学,2003,24(12):1 282-1 283.

[2] 王平,彭芝兰,王和,等.宫颈癌组织中乳头瘤病毒 16型E7蛋白致癌机理初探[J].中华实验和临床病毒学杂志,2000,14(2): 117-120.

[3] SMITH G P,SCOTT J K.Libraries of peptides and pro-teins displayed on filamentous phage[J].Methods in Enzmology,1993,217: 228-257.





[4] HUANG P Y,CARBONELL R G.Affinity purification of proteins using ligands derived from peptide libraries [J].Biotechnology and Bioengineering,1995,47(3): 288-297.

#### 服务

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ E-mail Alert
- ▶ RSS

#### 作者相关文章

- ▶ 范久松
- ▶ 赵洪彬
- ▶ 林洁
- ▶ 马岚

- [5] 韩炯,张晓光,刘新平,等.从噬菌体展示随机12肽 库中筛选与IRS-1PH结构域相结合的多肽模体 [J].生物技术通讯,2004,15(5):437-440.
- [6] 杨海捷,段光杰,刘友生,等.运用噬菌体展示随机肽 库筛选与内毒素结合的高亲和性多肽[J].第三军 医大学学报,2008,30(24):2 262-2 266.
- [7] SHIMADA T,MORIUCHI R,MORI T,et al.Identifica-tion of NADH dehydrogenase 1 alpha subcomplex 5 ca-pable to transforms murine fibroblasts and overex-pressed in human cervical carcinoma cell lines[J].Bio-chemical and Biophysical Research Communications, 2006,339(3):852-857. 
- [8] MALDONADO E,CABREJOS M E,BANKS L,et al. Human papillomavirus-16 E7 protein inhibits the DNA interaction of the TATA binding transcription fac-tor[J].J Cell Biochem,2002,85(4):663-669. 
- [9] DARVAS K,ROSENBERGER S,BRENNER D,et al. Histone deacetylase inhibitor-induced sensitization to TNF alpha/TRAIL-mediated apoptosis in cervical car-cinoma cells is dependent on HPV oncogene expression [J].International Journal of Cancer,2010,127(6): 1 384-1 392. 
- [10] BOCCARDO E,Manzini Baldi C V,CARVALHO A F, et al.Expression of human papillomavirus type 16 E7 oncoprotein alters keratinocytes expression profile in re-sponse to tumor necrosis factor-alpha[J].Carcinogen-esis,2010,31(3):521-531. 
- [11] NGUYEN C L,McLaughlin-Drubin M E,MÜNGER K.Delocalization of the microtubule motor Dynein from mitotic spindles by the human papillomavirus E7 oncop-rotein is not sufficient for induction of multipolar mito-ses[J].Cancer Res,2008,68(21):8 715-8 722.
- [12] NAIR P,SOMASUNDARAM K,KRISHNA S.Activated Notch1 inhibits p53-induced apoptosis and sustains transformation by human papillomavirus type 16 E6 and E7 oncogenes through a PI3K-PKB/Akt-dependent pathway[J].J Virol,2003,77(12):7 106-7 112.
- [13] NAUENBURG S,ZWERSCHKE W,Jansen-Durr P. Induction of apoptosis in cervical carcinoma cells by peptide aptamers that bind to the HPV-16 E7 oncop-rotein[J].FASEB Journal,2001,15(3):592-594.

没有找到本文相关文献

版权所有 © 《云南大学学报(自然科学版)》编辑部

编辑出版: 云南大学学报编辑部 (昆明市翠湖北路2号, 650091)

电话: 0871-5033829(传真) 5031498 5031662 E-mail: yndxxb@ynu.edu.cn yndxxb@163.com