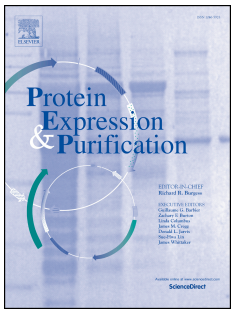
Accepted Manuscript



Expression and activity analysis of β Gallinacin-3 in Arabidopsis

Libo Jin, Yunpeng Wang, Nuo Xu, Dezhong Wang, Xiuming Liu, Renyi Peng, Chao Jiang, Xiaokun Li

PII: S1046-5928(17)30415-1

DOI: 10.1016/j.pep.2017.09.006

Reference: YPREP 5158

To appear in: *Protein Expression and Purification*

Received Date: 16 July 2017

Revised Date: 13 September 2017

Accepted Date: 13 September 2017

Please cite this article as: L. Jin, Y. Wang, N. Xu, D. Wang, X. Liu, R. Peng, C. Jiang, X. Li, Expression and activity analysis of β Gallinacin-3 in Arabidopsis, *Protein Expression and Purification* (2017), doi: 10.1016/j.pep.2017.09.006.

Title: Expression and activity analysis of β Gallinacin-3 in Arabidopsis

Libo Jin[1, 2], Yunpeng Wang[1, 3], Nuo Xu[1], Dezhong Wang[1], Xiuming Liu[2], Renyi Peng[1], Chao Jiang[1, 2], Xiaokun Li[1,3]

1、Institute of life sciences Wen Zhou University, Wen Zhou, 325035;

2、Engineering Research Center of Bioreactor and Pharmaceutical Development Ministry of Education, Jilin Agricultural University, Changchun 130118;

3、Jilin Academy of Agricultural Sciences, Changchun 130118, 130124.

Email of each co-author:

Libo9518@126.com

wangypbio@163.com

Seer.sino@hotmail.com

ran-air@163.com

xiuming1211@163.com

pengrenyi2008@126.com

chaojiang10@hotmail.com

xiaokunli@163.net

Corresponding author: Xiaokun Li

Address: Institute of life sciences Wen Zhou University, Wen Zhou, 325035, China

e-mail: xiaokunli@163.net

Abstract

β Gallinacin-3 (β Gal-3) is an antimicrobial peptide with strong antibacterial activity against *Escherichia coli*, *Staphylococcus aureus* and *Salmonella typhimurium*. In this study, the *β Gal-3* gene was transferred into a plant genome by genetic engineering techniques. These transgenic plants can be used as feed additives to prevent poultry diseases and them might replace the antibiotics used in poultry industry. To ensure the β Gal-3 expresses effectively in *Arabidopsis* seeds, the expression was driven by promoter Ppha cloned from the β-phaseolin storage protein gene. A total of 294 transgenic lines were obtained by Agrobacterium-mediated transformation into Arabidopsis, and five transgenic lines were selected in which the expression levels of β Gal-3 were more than 0.10% of the total soluble proteins. The transgenic lines with single locus were identified by Southern blotting. The expression of β Gal-3 and the highest protein accumulation level (about 4.76 mg /g fresh weight with a maximum of 0.27% of total soluble proteins) was