



Characteristics of *cathelicidin-Bg*, a novel gene expressed in the ear-side gland of *Bufo gargarizans*

F. Gao^{1,2}, W.F. Xu¹, L.P. Tang¹, M.M. Wang¹, X.J. Wang^{1,2} and Y.C. Qian^{1,3}

¹Traditional Chinese Medicine Unit, School of Forestry and Biotechnology, Zhejiang A&F University, Lin'an, Zhejiang, China

²Nurturing Station for the State Key Laboratory of Subtropical Silviculture, Zhejiang Agricultural and Forestry University, Lin'an, China

³Department of Veterinary Integrative Biosciences, Texas A&M University, TX, USA

Correspondent authors: Y.C. Qian / X.J. Wang
E-mail: qian3906@zafu.edu.cn / gfei1981@live.com

Genet. Mol. Res. 15 (3): gmr.15038481

Received January 25, 2016

Accepted March 11, 2016

Published August 5, 2016

DOI <http://dx.doi.org/10.4238/gmr.15038481>

Copyright © 2016 The Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution ShareAlike (CC BY-SA) 4.0 License.

ABSTRACT. The traditional Chinese medicine Chan Su (toad venom) comprises dried secretions of the ear-side gland of *Bufo gargarizans*. Chan Su is known for its small molecular components, which include telocinobufagin, marinobufagin, and bufalin, while in other amphibians, studies mainly focus on peptide components. Until recently, no genes expressed in the ear-side gland of *B. gargarizans* gland had been cloned. In this study, *cathelicidin-Bg*, a coding sequence of anti-microbial peptide (AMP), was cloned. The predicted amino acid sequence of *cathelicidin-Bg* was very similar to that from other amphibians, with a 34-amino acid mature peptide predicted in the C-terminus. The functions of this mature peptide were verified by microbe and tumor

cell inhibition assays. Our results showed that the mature peptide of cathelicidin-Bg could inhibit the proliferation of *Staphylococcus aureus* and *Pseudomonas aeruginosa*. The mature peptide was also shown to selectively inhibit tumor cells. These results indicate that the identified coding sequence represents an active peptide of Chan Su.

Key words: Cathelicidin-Bg; *Bufo gargarizans*; Anti-microbial peptide; Tumor