Selection of Reference Genes for Quantitative RT-PCR Studies in Beluga Whale (*Delphinapterus leucas*) Blood

陳怡樺[1]、李宗賢[2]、詹孟羚[3]、張文炳[2]、王建雄[1]、周世認[1]、吳永惠[4]、楊瑋誠[1]

I-Hua Chen[1], Tsung-Hsien Li[2], Molly Zhan[3], Wen-Been Chang[2], Jiann-Hsiung Wang[1], Shih-Jen Chou[1], Yeong-Huey Wu[4], Wei-Cheng Yang[1]

[1]國立嘉義大學獸醫學系 [2]國立海洋生物博物館 [3]海景世界企業股份有限公司

[4]國立屏東科技大學獸醫學院

[1]*Department of Veterinary Medicine, National Chiayi University, Chiayi, 600,Taiwan, ROC.*

[2]*National Museum of Marine Biology and Aquarium, Pingtung, 944, Taiwan, ROC.*

[3]*Hi-Scene World Enterprise Co., LTD., Pingtung, 944, Taiwan, ROC.*

[4]*Collage of veterinary medicine, National Pingtung University of Science and Technology, Pingtung, 912, Taiwan, ROC.*

Quantitative RT-PCR is often used for research in gene expression, and it is vital to choose appropriate housekeeping genes (HKGs) as reference genes to obtain correct result. To date, there is no study on selection of reference genes in cetacean blood. The purpose of this study is to determine stably-expressed HKGs in blood, which can be the appropriate reference genes in relative quantification in gene expression research. Thirty-two EDTA-anticoagulated blood samples were taken monthly from 4 beluga whales (*Delphinapterus leucas*) in National Museum of Marine Biology and Aquarium and preserved in RNA*later*® (Ambion) immediately. Total RNA was extracted then following by cDNA synthesis and qPCR for candidate genes (ACTB, B2M, GAPDH, HPRT1, LDHB, PGK1, RPL4, RPL8, RPL18, RPS9, RPS18, TFRC, YWHAZ). And the stability values of the HKGs were determined by *geNorm* and *NormFinder* software. The results revealed that ACTB and RPL4 are the most stable HKGs in beluga whale blood. Blood can serve as an indication of health status in cetaceans because changes of gene expression in blood is prior to hematology and chemistry findings. This research provides recommendation of reference gene selection, which may contribute to further mRNA relative quantification research in the peripheral blood leukocytes in belugas.