



# **Corrigendum: Berberine Improves Benign Prostatic Hyperplasia via Suppression of 5 Alpha Reductase and Extracellular Signal-Regulated Kinase** *in Vivo* **and** *in Vitro*

Dong-Hyun Youn<sup>1,2</sup>, Jinbong Park<sup>1,2</sup>, Hye-Lin Kim<sup>1</sup>, Yunu Jung<sup>1,2</sup>, JongWook Kang<sup>1,2</sup>, Seona Lim<sup>1,2</sup>, Gahee Song<sup>1,2</sup>, Hyun Jeong Kwak<sup>1</sup> and Jae-Young Um<sup>1,2\*</sup>

<sup>1</sup> Department of Pharmacology and Basic Research Laboratory for Comorbidity Regulation, College of Korean Medicine,

Kyung Hee University, Seoul, South Korea, <sup>2</sup> Department of Science in Korean Medicine, Graduate School, Kyung Hee

### **OPEN ACCESS**

#### Edited and reviewed by:

Salvatore Salomone, Università degli Studi di Catania, Italy

\*Correspondence:

University, Seoul, South Korea

A Corrigendum on

protein kinase, extracellular signal-regulated kinase

Jae-Young Um jyum@khu.ac.kr

#### Specialty section:

This article was submitted to Experimental Pharmacology and Drug Discovery, a section of the journal Frontiers in Pharmacology

> Received: 28 March 2019 Accepted: 30 April 2019 Published: 22 May 2019

#### Citation:

Youn D-H, Park J, Kim H-L, Jung Y, Kang J, Lim S, Song G, Kwak HJ and Um J-Y (2019) Corrigendum: Berberine Improves Benign Prostatic Hyperplasia via Suppression of 5 Alpha Reductase and Extracellular Signal-Regulated Kinase in Vivo and in Vitro. Front. Pharmacol. 10:541. doi: 10.3389/fphar.2019.00541

## Berberine Improves Benign Prostatic Hyperplasia via Suppression of 5 Alpha Reductase and Extracellular Signal-Regulated Kinase *in Vivo* and *in Vitro*

Keywords: berberine, benign prostatic hyperplasia, 5 alpha reductase, androgen receptor, mitogen-activated

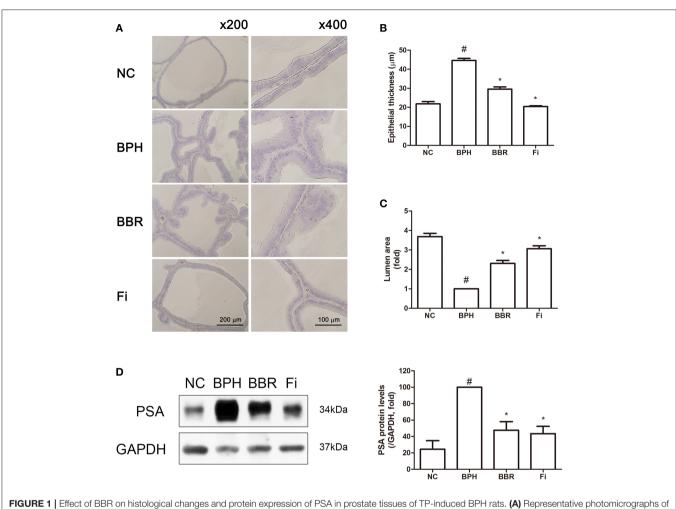
*by* Youn, D.-H, Park, J., Kim, H.-L., Jung, Y., Kang, J., Lim, S., et al. (2018) Front. Pharmacol. 9:773. *doi:* 10.3389/fphar.2018.00773

In the original article, there was a mistake in the legend for **Figure 1** as published. The magnifications of **Figure 1A** were stated as  $\times 100$  and  $\times 400$ , when they were actually  $\times 200$  and  $\times 400$ . The correct legend appears below.

In the original article, there was a mistake in **Figure 1** as published. The wrong photomicrographs of prostate tissues were presented by mistake. The corrected **Figure 1** appears below. The authors apologize for this error and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

Copyright © 2019 Youn, Park, Kim, Jung, Kang, Lim, Song, Kwak and Um. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

1



**FIGURE 1** [Effect of BBR on histological changes and protein expression of PSA in prostate tissues of TP-induced BPH rats. (A) Representative photomicrographs of H&E stained prostate tissues (left panels, magnification  $\times 200$ ; right panels, magnification  $\times 400$ ) are shown. (B) The epithelial thickness and (C) the relative lumen area of the prostate tissues were measured using Image J software. Values are mean  $\pm$  S.D. of ten or more separate measurements. (D) The protein expression of PSA was analyzed by a western blot analysis. Values are mean  $\pm$  S.D. of three or more separate measurements. #P < 0.05 when compared to RC;  $^*P < 0.05$  when compared to BPH. The protein expression differences are normalized to GAPDH. NC, normal control group; BPH, TP-induced BPH group; BBR, BBR-treated BPH group.