

Metformin Decreases Insulin Resistance in Type I Diabetes Through Regulating P53 and RAP2A in vitro and in vivo [Retraction]

Ren GF, Xiao LL, Ma XJ, Yan YS, Jiao PF. *Drug Des Devel Ther.* 2020;14:2381–2392.

The Editor-in-chief and Publisher of *Drug Design, Development and Therapy* wish to retract the published article. The journal was notified of alleged image manipulation relating to the western blot images presented in the article. Specifically:

- The background of the western blot images shown in Figure 2C panels p53 and RAP2A appear to show repeated features.
- The background of the western blot image shown in Figure 2C panel β -actin appears to show repeated features.
- The background of the western blot images shown in Figure 3A panels IR3K, p-PI3K and p-Akt appear to show repeated features.
- The background of the western blot image shown in Figure 3A panel β -actin appears to show repeated features.
- The background of the western blot images shown in Figure 3B panels IR3K, p-PI3K and p-Akt appear to show repeated features.
- The background of the western blot images shown in Figure 4A panels Caspase 3, Caspase 9, Bax and Bcl2 appear to show repeated features.

- The background of the western blot images shown in Figure 4B panels Caspase 3, Caspase 9, Bax and Bcl2 appear to show repeated features.
- The background of the western blot images shown in Figure 5A panels NF- κ B p65, TNF- α , IL-8 and IL-6 appear to show repeated features.
- The background of the western blot images shown in Figure 5A panel β -actin appears to show repeated features.
- The background of the western blot images shown in Figure 5B panels NF- κ B p65, TNF- α , IL-8 and IL-6 appear to show repeated features.

Despite multiple attempts the authors were unable to be contacted and could not provide an explanation for the alleged duplication. The decision was made to retract the paper.

Our decision-making was informed by our policy on publishing ethics and integrity and the COPE guidelines on retraction.

The retracted article will remain online to maintain the scholarly record, but it will be digitally watermarked on each page as “Retracted”.