Calreticulin inhibits commitment to adipocyte differentiation

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The editors of *The Journal of Cell Biology* have been notified by Dr. Michal Opas that he and the other authors of the paper referenced above retract the paper. As a result of this retraction, no data in this paper should be cited in the scientific literature. University of Toronto supports this retraction.

The authors provided the following statement:

Due to errors in image placement and data presentation during figure preparation, four figure parts (Fig. 1 C, Fig. 3 C, Fig. 7 A, and Fig. 7 E) contain incorrect data and/or presentation errors, as articulated below. Due to the inability of the authors to locate the correct data for Fig. 7 E, the quantification in Fig. 7 F cannot be validated. Due to an error in experimental design, the Western blot data in Fig. 4 D are not sufficient to support the quantification in Fig. 4 D. The other figures in the paper and the other parts of the figures listed above (Fig. 1, A, B, and D–F; Fig. 2; Fig. 3, A, B, D, and E; Fig. 4, A–C and E–H; Fig. 5; Fig. 6; Fig. 7, B–D and G–I; Fig. S1; and Fig. S2) were not affected by these errors.

Authors Eva Szabo and Michal Opas take full responsibility for these errors. Authors Yuanyuan Qiu, Shairaz Baksh, and Marek Michalak did not participate in data collection or figure preparation for any of the figures for which errors have been identified.

The errors identified were the following:

(1) The text fails to note the intentional duplication of the top GAPDH panel in Fig. 1 C with the top GAPDH panel in Fig. 7 A.

(2) Two panels in Fig. 1 C do not accurately represent the original data. Specifically, the PPARγ2 panel and the corresponding GAPDH panel do not properly show that lanes 1 and 2 are derived from a different gel than lanes 3 and 4. In addition, the image for the left two GAPDH lanes is flipped horizontally in the figure relative to the original data.

(3) Two panels in Fig. 3 C do not accurately represent the original data. Specifically, lanes 1 and 2 of the bottom GAPDH panel in the untreated dataset, which are identical to lanes 3 and 4 of the top GAPDH panel in the untreated dataset, are incorrectly presented with a splice line between the lanes. Lanes 1 and 2 of the C/EBPα panel in the untreated dataset, lanes 3 and 4 of the C/EBPα panel in the untreated dataset, and lanes 3 and 4 of the bottom GAPDH panel in the untreated data also are incorrectly presented with splice lines between the lanes. Lastly, lanes 1 and 2 of the bottom GAPDH panel should be presented as lanes 3 and 4 and vice versa.

(4) The text fails to note the intentional duplication in Fig. 3 C of the WT and G45$crt^{-/-}$ data in the top and bottom GAPDH panels for the untreated dataset, once corrected as per point 3 above.

(5) Three panels in Fig. 3 C do not contain the correct data. Specifically, all three L32 panels are placeholder images that were not replaced with the corresponding experimental data before publication.

(6) The +BAPTA-AM C/EBPα panel in Fig. 4 D is a duplicate of the +BAPTA-AM PPARγ2 panel in the same figure. The correct C/EBPα data were derived from a separate gel than the untreated C/EBPα data and thus cannot be used to support the quantification in Fig. 4 D.

(7) Three panels in Fig. 7 A do not properly represent the original data. Both GAPDH panels and the CaMK II Thr286 panel fail to contain the necessary splice lines between lanes 2 and 3. In addition, the data in lanes 3 and 4 of the top GAPDH panel are flipped horizontally relative to the original data.

(8) Five panels in Fig. 7 E do not contain the correct data. Specifically, all four L32 panels are placeholder images that were not replaced with the corresponding experimental data before publication. In addition, the data shown in the top GAPDH panel in the untreated dataset, which is identical but flipped 180 degrees relative to the bottom GAPDH panel

in the KN-93–treated sample, are not the correct data. The correct GAPDH data corresponding to the PPARγ2 panel in the untreated dataset could not be located. As a result, the quantification in Fig. 7 F cannot be validated.

(9) The text incorrectly states that quantification of aP2 levels is shown in the graph in Fig. 7 F.

As a result of these errors, the conclusion that BAPTA-AM treatment increased C/EBPα expression in all cell lines and was indicative of restored adipogenic potential in G45[P+C] cells (Fig. 4 D) cannot be validated. In addition, the conclusions that inhibition of CaMK II in CGR8$^{+/+}$, G45$^{-/-}$, L7$^{+/-}$, or L7$^{-/-}$ cells decreased PPARγ2 expression (Fig. 7, E and F); that treatment with KN-92 had no effect on PPARγ2 expression in CGR8$^{+/+}$, G45$^{-/-}$, L7$^{+/-}$, or L7$^{-/-}$ cells (Fig. 7, E and F); and that these findings were indicative of an important role for the calmodulin–CaMK II pathway during adipogenesis in embryonic stem cells cannot be validated.

The authors apologize for any confusion these errors may have caused to the research community.