Follistatin induction by nitric oxide through cyclic GMP: a tightly regulated signaling pathway that controls myoblast fusion

Addolarata Pisconti, Silvia Brunelli, Monica Di Padova, Clara De Palma, Daniela Deponti, Silvia Baesso, Vittorio Sartorelli, Giulio Cossu, and Emilio Clementi

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After concerns were raised by a reader, the Editors of *The Journal of Cell Biology* detected the following issues with the data in the above article:

(1) The top panel in Fig. 1 F (NOS-1μ) is identical to the top panel in Fig. 2 B (α-sGC).

(2) The bottom panel in Fig. 1 F (NOS-III) is identical to the bottom panel in Fig. 2 B (GAPDH).

(3) Lanes 2 and 3 of the Follistatin panel for satellite cells in Fig. 4 A are identical to lanes 1 and 2 of the Myostatin panel for satellite cells in the same figure.

(4) A band appears to have been erased from lane 4 of the Follistatin panel for satellite cells in Fig. 4 A.

(5) Lane 4 of the Myostatin panel for satellite cells in Fig. 4 A is identical to lane 1 of the Follistatin panel for E12.5/E15.5 in the same figure.

(6) The E9.5 explants and E12.5/E15.5 panels for GAPDH in Fig. 4 A are identical.

Given the above issues with the experimental data in Fig. 4 A, the quantification data in Fig. S1 A cannot be validated.

No issues were detected with the other figures in the paper nor with the other parts of the figures listed above (Fig. 1, A–E, G, and H; Fig. 2, A and C–E; Fig. 4 B; and Fig. S1 B).

The authors were contacted by the Executive Editor of the journal and provided the following statement:

"Given the time that has elapsed since the original date of publication, we are unable to find the original data used to prepare these figures and are not able to explain these observations. We thus retract the paper and apologize for any confusion it may have caused to the research community. Because of the issues noted above, the conclusions presented in this paper that changes in NOS activity are the consequence of activation and inhibition of enzyme activity and not of changes in protein expression (Fig. 1 F), that regulation of guanylate cyclase occurs through posttranslational events (Fig. 2 B), that there is a role for nitric oxide in expression of follistatin mRNA in cultured cells (Figs. 4 A and S1 A), and that there are roles for nitric oxide and cGMP in expression of follistatin mRNA in vivo (Figs. 4 A and S1 A) cannot be validated. The reported observations on the effects of nitric oxide and cGMP on myoblast fusion in cultured cells, of cGMP on myogenesis in vivo, of cGMP on expression of follistatin mRNA in cultured cells, of cGMP and nitric oxide on expression of follistatin protein in cultured cells, and of cGMP on expression of follistatin protein in vivo are not affected by the flaws detected in the figures."

As a result of this retraction, no data in this paper should be cited in the scientific literature.

The Authors and Editors have informed the University of Milan of this retraction.