Retraction

Protein Dynamics in Living Cells, by Julie E. Bryant, Juliette T. J. Lecomte, Andrew L. Lee, Gregory B. Young, and Gary J. Pielak, Volume 44, Number 26, July 5, 2005, pages 9275−9279.

Cytosol Has a Small Effect on Protein Backbone Dynamics, by Julie E. Bryant, Juliette T. J. Lecomte, Andrew L. Lee, Gregory B. Young, and Gary J. Pielak, Volume 45, Number 33, August 22, 2006, pages 10085−10091.

Results from the additional control experiments described below do not support the premise that the apocytochrome b_5 NMR signals as described in these papers come from inside the cells. As communicating author, therefore, I retract these papers. All the co-authors approve this retraction.

Two identical "in-cell" samples were prepared as described in the papers. The first sample was gently centrifuged (350*g* for 5 min) immediately after preparation. The supernatant was used to acquire a HSQC spectrum.

The second sample was used to acquire an in-cell HSQC spectrum as described in the papers. After acquisition, the sample was gently centrifuged, and the supernatant was used to acquire a HSQC spectrum. All three spectra were acquired using the same parameters.

All three samples give high-quality HSQC spectra of apocytochrome b_5. This observation strongly suggests that apocytochrome b_5 leaks from the cells. Furthermore, the sizes of the cross-peaks are similar in the three spectra. It is unclear, therefore, how much, if any, of the signal from the in-cell spectrum comes from apocytochrome b_5 inside the cells.

The apocytochrome b_5 in the supernatants is probably not the result of centrifugation because Coomassie-stained SDS−PAGE gels appear the same whether the sample is centrifuged at low or high speed. Furthermore, the amount of apocytochrome b_5 in the supernatant increases between 0 and 15 h.

These results also prove that the control experiment used in the papers, wherein 90% of the apocytochrome b_5 was found to be in the cells after the in-cell NMR experiment, is either invalid or insufficient for detecting the leaked apocytochrome b_5.

The results of the new control experiment described here are protein-dependent. We observed the same results for cells expressing chymotrypsin inhibitor-2, but only background cross-peaks from metabolites are detected in the supernatant for cells expressing FlgM or α-synuclein.

In the retracted papers, G.J.P. was in charge of the project, helped interpret the results, and helped write the papers, J.E.B. conducted the experiments, helped interpret the results, and helped write the papers, J.T.J.L. and A.L.L. helped interpret the results and write the papers, and G.B.Y. helped interpret the results and acquire the NMR spectra.

I thank Lila M. Gierasch and Qinghua Wang for bringing this matter to my attention and Dr. Wang for performing the initial experiments on protein leakage. I thank Lisa Charlton (G.J.P. laboratory) and Matthew Pond (J.T.J.L. laboratory) for performing the experiments described here. My co-authors and I sincerely regret the inconvenience that publication of these papers caused the journal, the referees, and other investigators.

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