

<https://doi.org/10.1038/s42003-023-05762-6>

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Author Correction: α -Synuclein emulsifies TDP-43 prion-like domain—RNA liquid droplets to promote heterotypic amyloid fibrils

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Correction to: *Communications Biology* <https://doi.org/10.1038/s42003-023-05608-1>, published online 05 December 2023.

In the original version of the Article, references to colors found in some charts were omitted from the Results and from the legend for Figure 3c.

The first paragraph of the Results should read:

“Fluorescence resonance recovery after photobleaching (FRAP) analysis on the colocalized puncta presumed to be SGs, showed partial recovery (~60%) with TDP-43PrLD, suggesting diminished internal mobility or in other words, gelation (red, ■; Fig. 1b). In contrast, α S showed no recovery in these puncta which suggests that it could be in an aggregated state (green, ●; Fig. 1b). Under non-stressed conditions, FRAP on the colocalized puncta showed significant attenuation of recovery for TDP-43PrLD (~40%) (red, ■; Fig. 1d) while α S did not show any (green, ●; Fig. 1d).”

The second paragraph of the Results should read:

“As expected, the turbidity values increase with the increase in RNA concentrations and peak at 75 μ g/mL in the absence of α S (grey, ●; Fig. 3c). Changes in α S concentrations did not alter this pattern to any significant extent but marginally increased the turbidity values between 50 and 100 μ g/mL RNA (blue, green & red, Fig. 3c).”

And further down in the same paragraph of the Results should read:

“Equimolar incubations with 10 μ M α S and TDP-43PrLD showed only 19% of total α S partitioning in the droplets (red; Fig. 3g), while sub-stoichiometric (5 μ M) and excess (20 μ M) α S showed 17% (blue and green; Fig. 3g) and were statistically insignificant from one another. The partitioning of α S with insignificant quantitative change despite stoichiometric variance could be attributed to the protein’s preferential localization on the surface of preformed TDP-43PrLD droplets preventing further recruitment from the bulk/dilute phase. Next, the degree of partitioning was determined as a function of RNA concentrations which showed a negative correlation between the two; 50 μ g/mL of RNA (red) showed maximal partitioning with 19% while incubations with 100 and 150 μ g/mL of RNA showed 12 and 8%, respectively (green and blue; Fig. 3h), suggesting charge-repulsion as a possible contributor for partitioning. To see what sequence determinants in α S are responsible for partitioning into TDP-43PrLD – RNA droplets, truncation constructs α S Δ NTD and α S Δ NAC were used. The N-terminal domain (NTD; 1-60) is highly charged and the central amyloid region (NAC; 61-95) is rich in hydrophobic residues therefore, deletion of these regions could provide clues about the contributions of electrostatic and hydrophobic forces, respectively. Both truncation mutants decreased the amount of α S partitioning by half (~9%) compared to the wild-type (red; Fig. 3i). Kinetics of partitioning, however, showed differences with α S Δ NTD displaying first-order exponential rate and α S Δ NAC showing second-order fits containing rapid and slower kinetic events with an overall slower rate than α S Δ NTD (cyan and orange; Fig. 3i).”

The fifth paragraph of the Results should read:

“The sample containing α S showed an increase in ThT from 20 hours (red; Fig. 6c) as opposed to the sample without α S which did not show an increase in ThT intensity even after 50 hours (black; Fig. 6c). The observed lag time could be due to the combined effects of α S-seeded TDP-43PrLD aggregation as well as the time taken to ThT to permeate into the droplets. Incubation of the sedimented droplets in the presence of 5 μ M TDP-43PrLD monomers further exacerbated the lag time difference between the droplets with and

without α S. The samples with α S showed a lag time of 8-9 hours (red; Fig. 6d) while the ones in its absence showed a lag time of ~25 hours (black; Fig. 6d).”

The legend for Figure 3c should read:

“Turbidity measurements based on absorbance measured at 600 nm on 10 μ M TDP-43PrLD samples with increasing poly-A RNA concentrations (0-200 μ g/mL) and increasing α S concentrations (grey, 0 μ M; green, 5 μ M; red, 10 μ M, and blue, 20 μ M), (n = 3).”

This has now been corrected in the PDF and HTML versions of the Article.

Published online: 09 January 2024



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