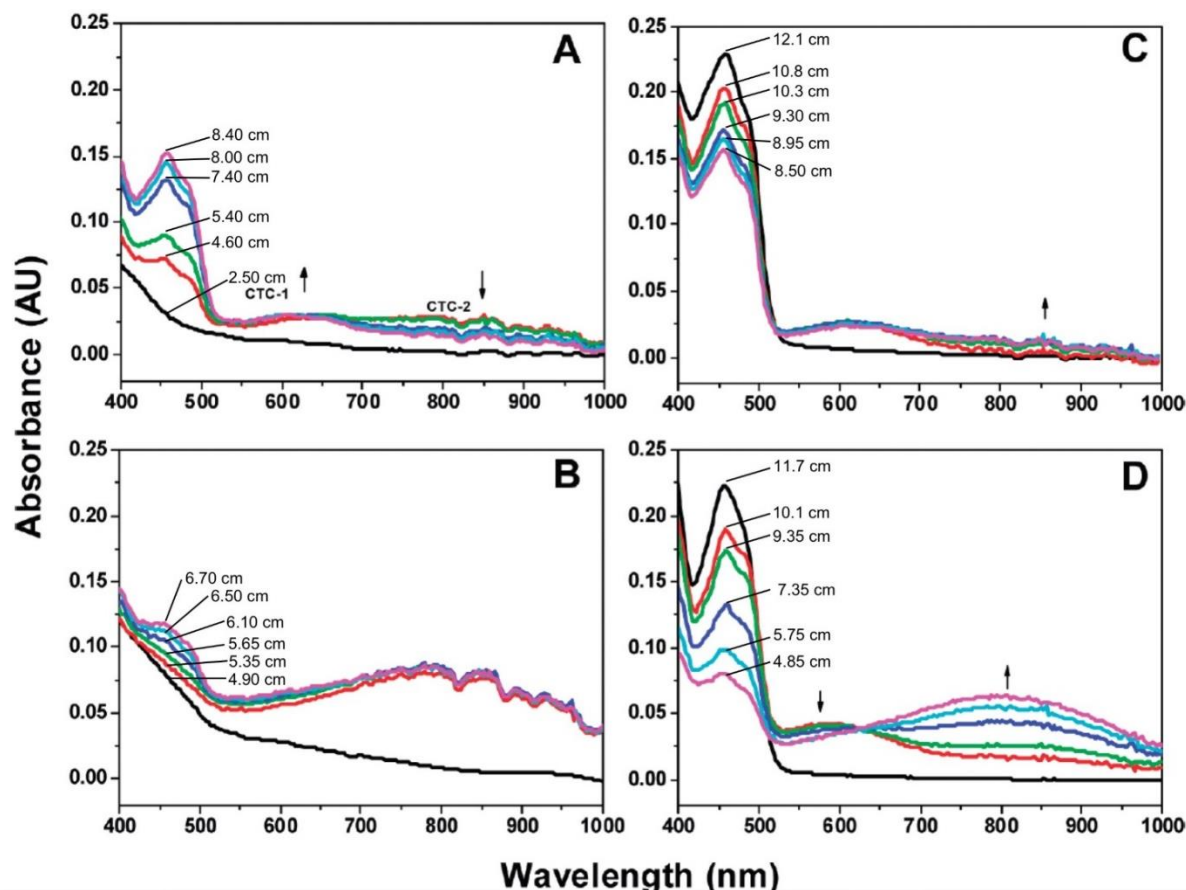


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**Figure S1. Measurements used for the reanalysis of *Anabaena* FNR Y303S and wild type kinetics.** Reproduction of Figure 3 from [1] showing time courses for the reaction of (A) WT FNR<sub>red</sub> with NADP<sup>+</sup>, (B) Y303S FNR<sub>red</sub> with NADP<sup>+</sup>, (C) WT FNR<sub>ox</sub> with NADPH, and (D) Y303S FNR<sub>ox</sub> with NADPH. Spectra were enlarged by ~345% and the height of each peak at ~460 nm corresponding to the major absorption band of oxidized FAD was measured in cm from the x-axis (-0.025 AU). The measured height is listed next to each spectrum. Before using the peak heights to derive concentrations of FNR<sub>red</sub> and FNR<sub>ox</sub> in the Y303S experiments, we corrected for the offset in the Y303S FNR<sub>red</sub> + NADP<sup>+</sup> spectra by subtracting from all Y303S FNR<sub>red</sub> + NADP<sup>+</sup> (panel B) measurements the difference of 1.85 cm that was seen between the final Y303S FNR spectra peak heights (purple traces in panels B and D).

## References

1. Lans, I., Peregrina, J. R., Medina, M., Garcia-Viloca, M., Gonzalez-Lafont, A. & Lluch, J. M. (2010) Mechanism of the hydride transfer between *Anabaena* Tyr303Ser FNR(rd)/FNR(ox) and NADP<sup>+</sup>/H. A combined pre-steady-state kinetic/ensemble-averaged transition-state theory with multidimensional tunneling study, *J Phys Chem B*. **114**, 3368-79.