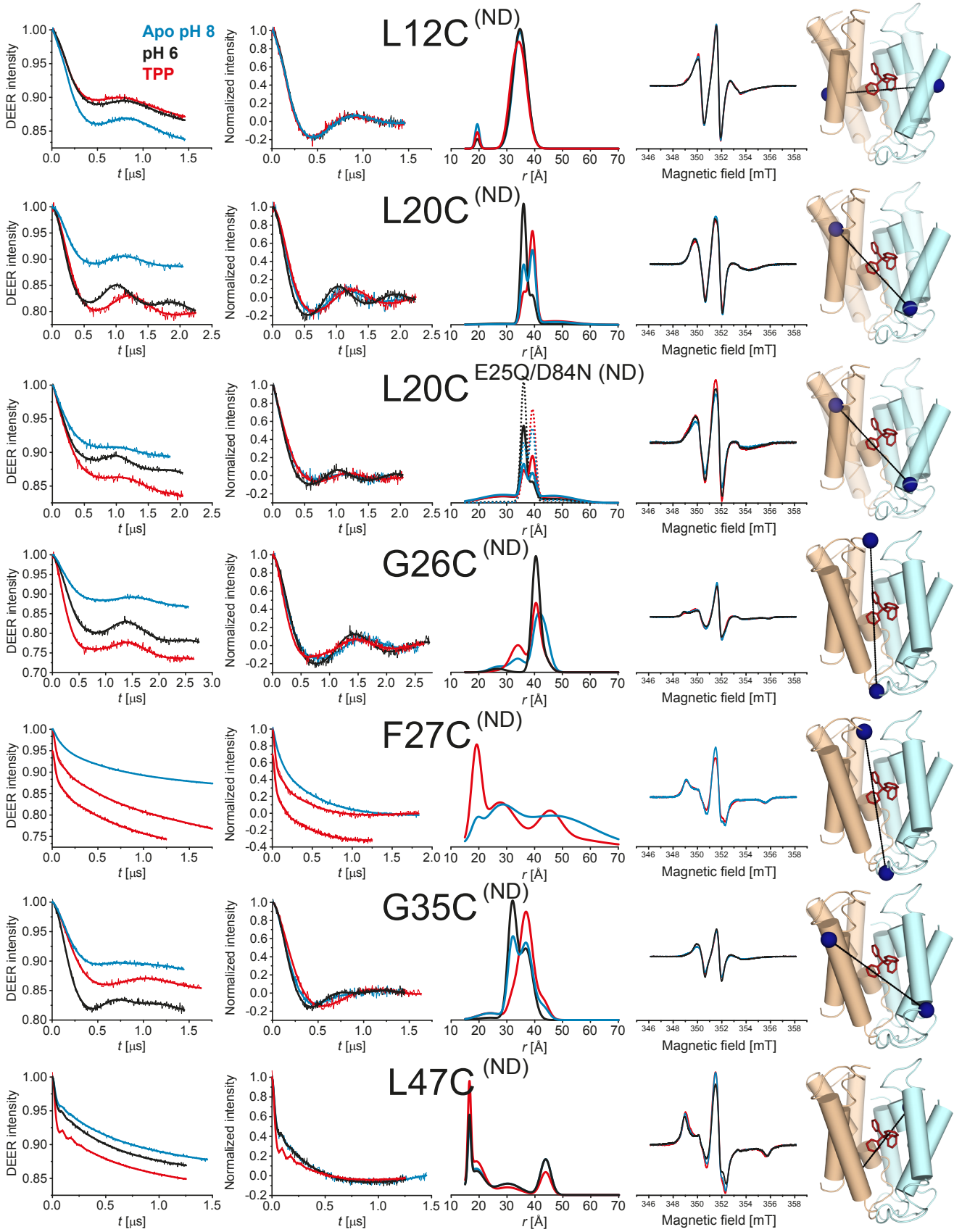
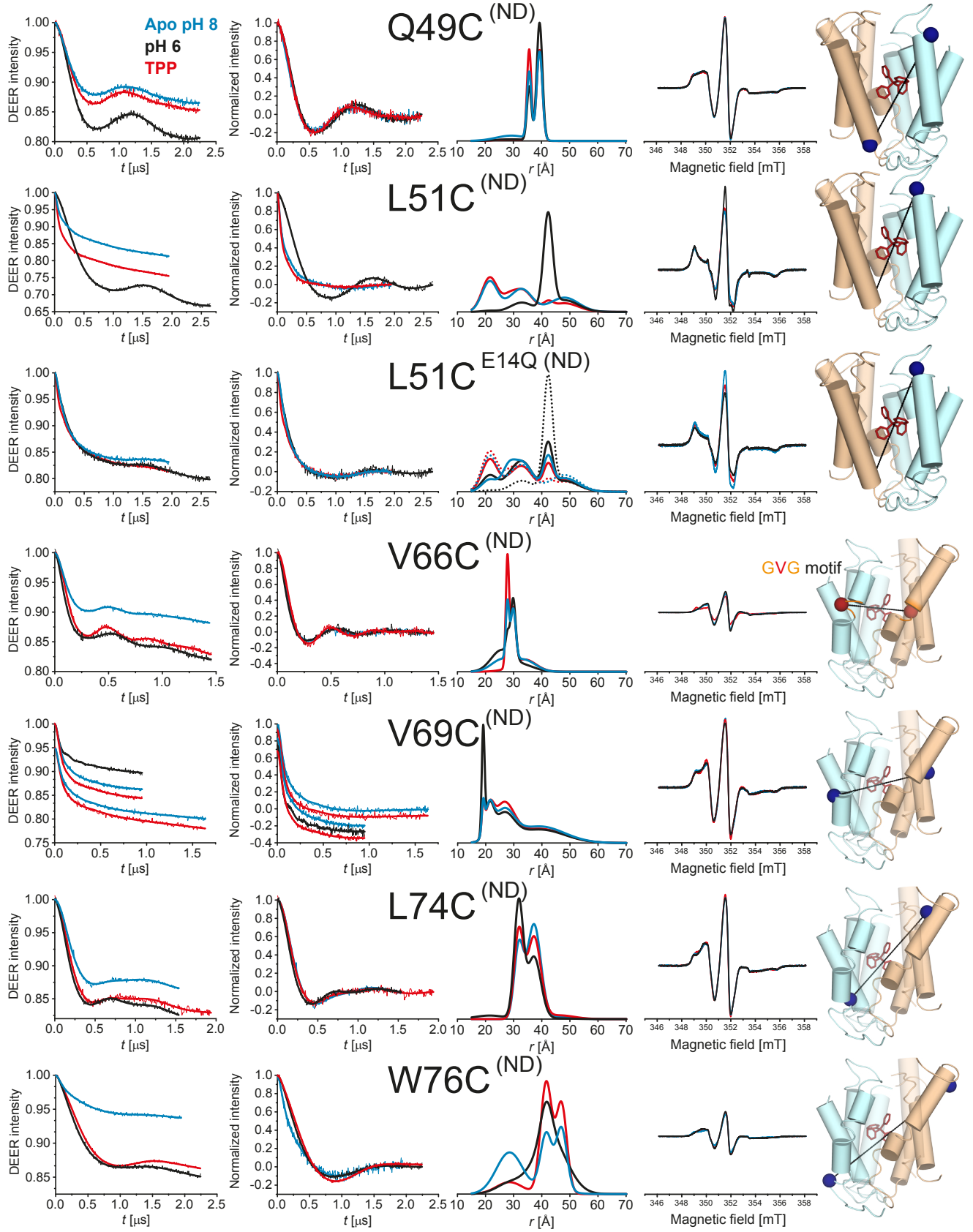
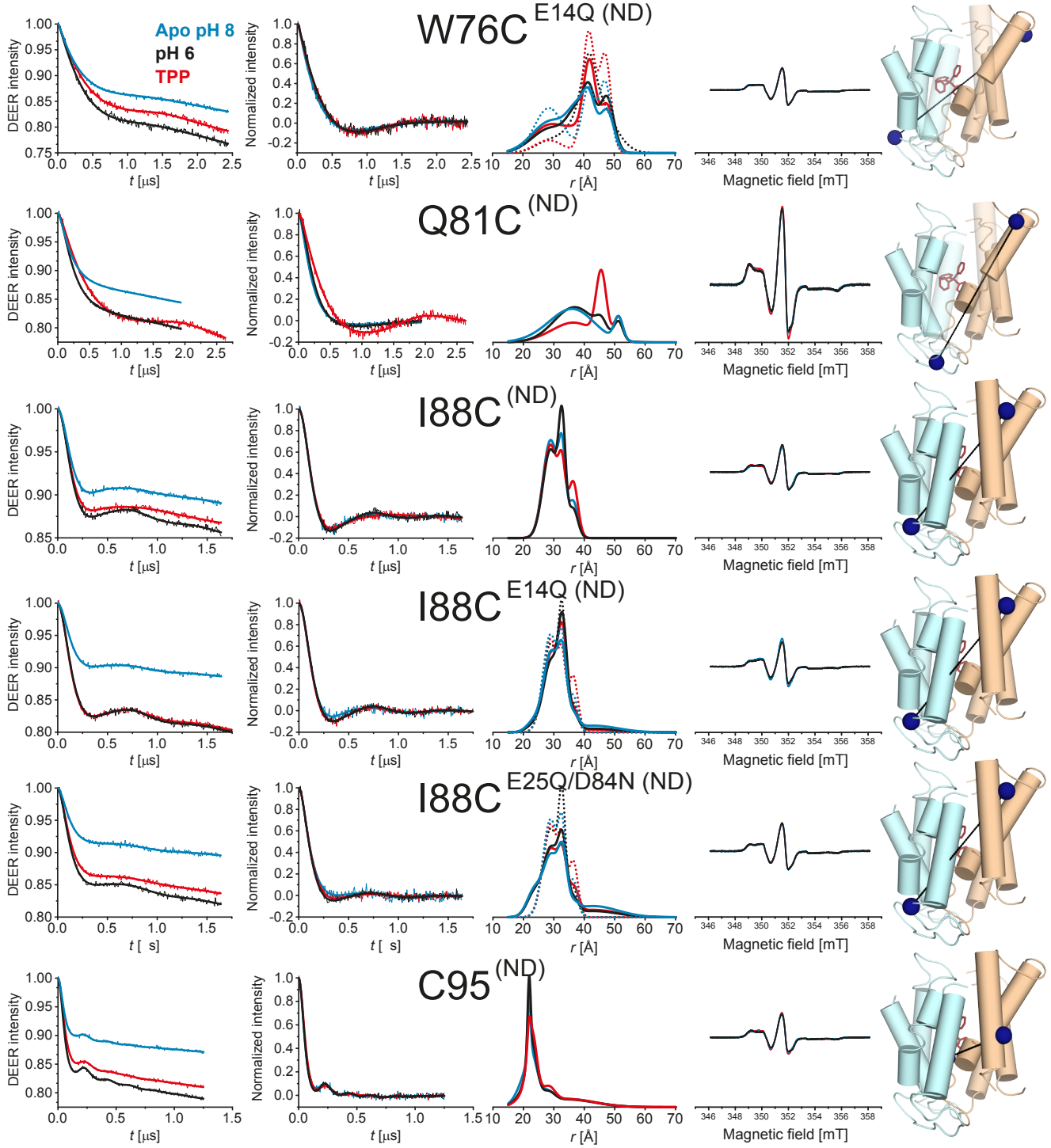


SI Appendix 2A. DEER data analysis for mutants reconstituted in nanodiscs (ND) composed of *E. coli* polar lipids. For each mutant, from left to right, primary DEER traces with the corresponding fits, baseline-corrected and normalized DEER traces along with the fits, distance distributions, the CW-EPR spectra, and the position of the mutated residue on the X-ray structure (PDB code 3B5D) are shown. The dotted distance distributions are the corresponding wild type distributions.



SI Appendix 2B. DEER data analysis for mutants reconstituted in nanodiscs (ND) composed of *E. coli* polar lipids. For each mutant, from left to right, primary DEER traces with the corresponding fits, baseline-corrected and normalized DEER traces along with the fits, distance distributions, the CW-EPR spectra, and the position of the mutated residue on the X-ray structure (PDB code 3B5D) are shown. The dotted distance distributions are the corresponding wild type distributions.



SI Appendix 2C. DEER data analysis for mutants reconstituted in nanodiscs (ND) composed of *E. coli* polar lipids. For each mutant, from left to right, primary DEER traces with the corresponding fits, baseline-corrected and normalized DEER traces along with the fits, distance distributions, the CW-EPR spectra, and the position of the mutated residue on the X-ray structure (PDB code 3B5D) are shown. The dotted distance distributions are the corresponding wild type distributions.