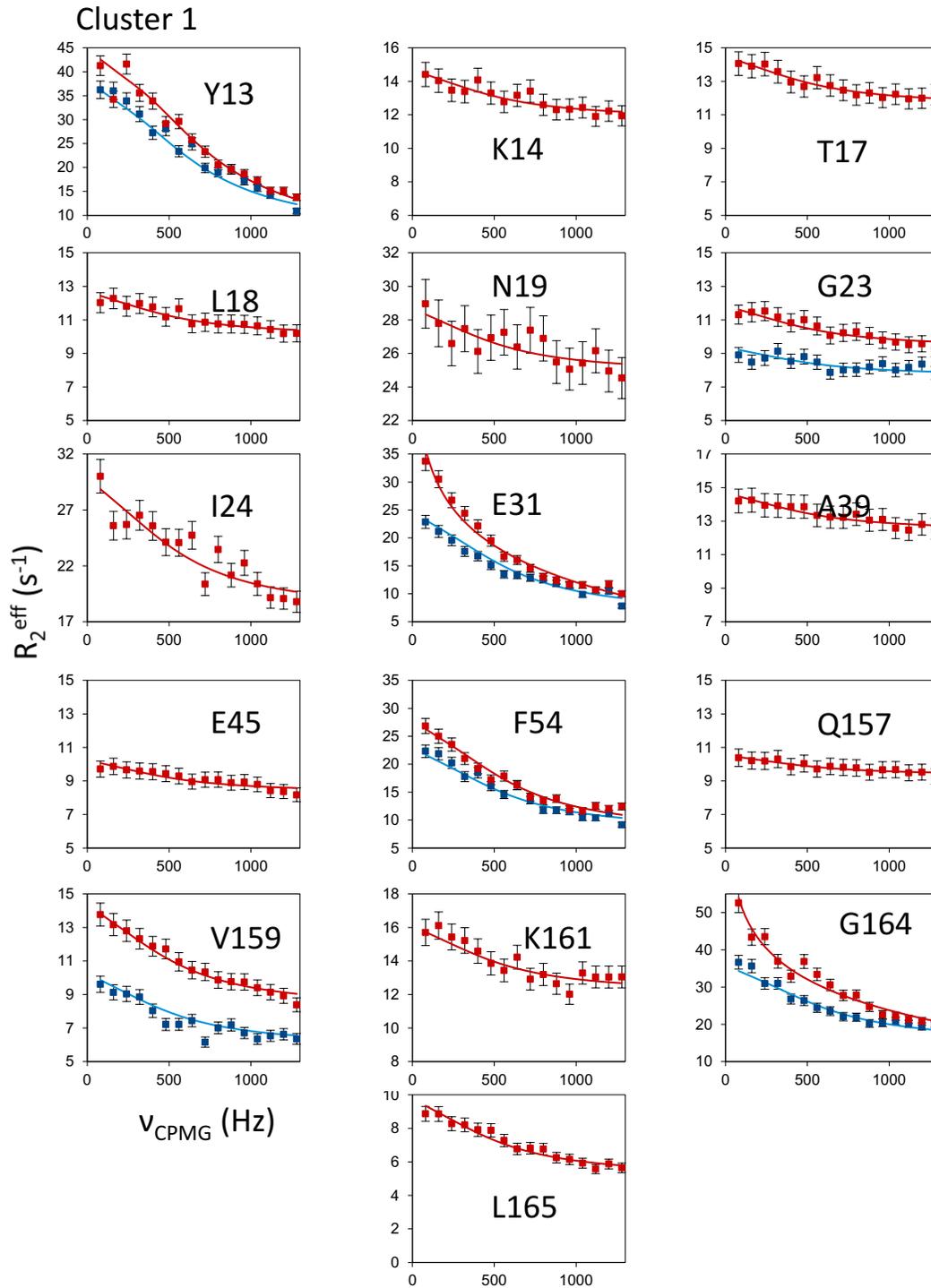


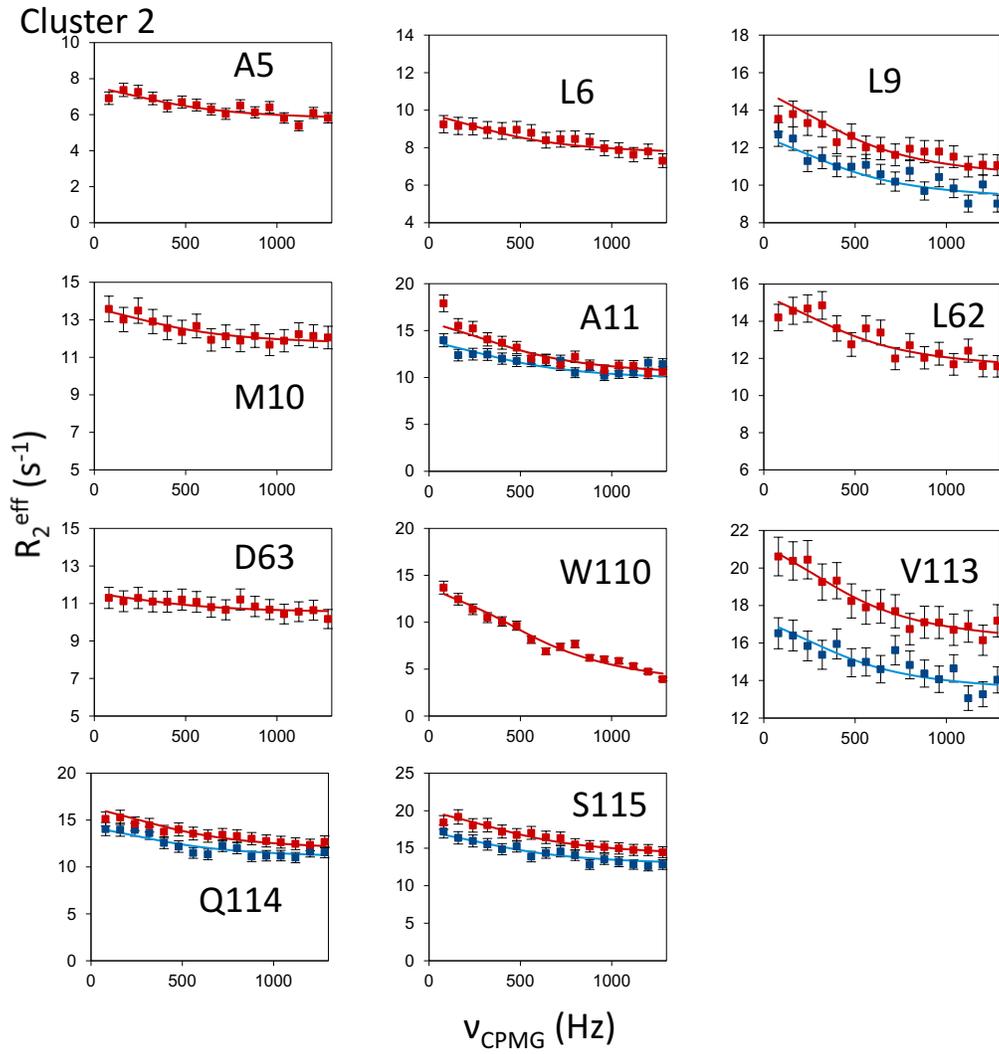
## Data Set 1 : Cluster 1

**Analyses of relaxation dispersion profiles of all exchanging residues in Ube2g2** (related to Figure 3 and Table S2).  $R_2$  relaxation dispersion profiles for free Ube2g2 ( $^2\text{H}$ ,  $^{15}\text{N}$  labeled) at 1.5 °C. Data was measured at  $^1\text{H}$  frequencies of 700 MHz (blue) and 850 MHz (red). Errors in  $R_2^{\text{eff}}$  were propagated from the noise in the reference and spin-locked spectra. *Dispersion profile of residues in cluster 1.*



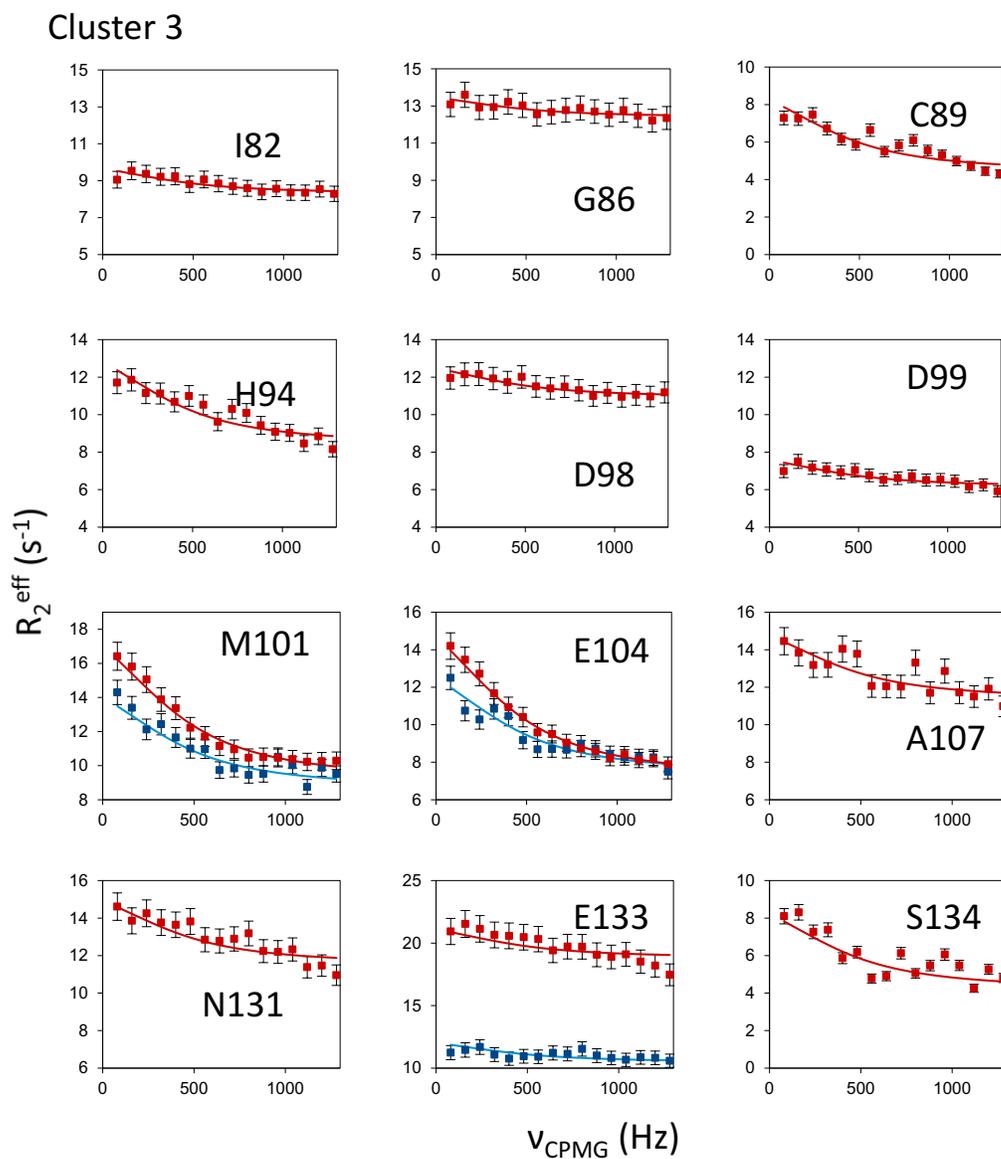
Data Set 1 : Cluster 2

**Analyses of relaxation dispersion profiles of all exchanging residues in Ube2g2** (related to Figure 3 and Table S2).  $R_2$  relaxation dispersion profiles for free Ube2g2 ( $^2\text{H}$ ,  $^{15}\text{N}$  labeled) at 1.5 °C. Data was measured at  $^1\text{H}$  frequencies of 700 MHz (blue) and 850 MHz (red). Errors in  $R_2^{\text{eff}}$  were propagated from the noise in the reference and spin-locked spectra. **Dispersion profile of residues in cluster 2.**



## Data Set 1 : Cluster 3

**Analyses of relaxation dispersion profiles of all exchanging residues in Ube2g2** (related to Figure 3 and Table S2).  $R_2$  relaxation dispersion profiles for free Ube2g2 ( $^2\text{H}$ ,  $^{15}\text{N}$  labeled) at 1.5 °C. Data was measured at  $^1\text{H}$  frequencies of 700 MHz (blue) and 850 MHz (red). Errors in  $R_2^{\text{eff}}$  were propagated from the noise in the reference and spin-locked spectra. **Dispersion profile of residues in cluster 3.**



## Data Set 1 : Cluster 4

**Analyses of relaxation dispersion profiles of all exchanging residues in Ube2g2** (related to Figure 3 and Table S2).  $R_2$  relaxation dispersion profiles for free Ube2g2 ( $^2\text{H}$ ,  $^{15}\text{N}$  labeled) at 1.5 °C. Data was measured at  $^1\text{H}$  frequencies of 700 MHz (blue) and 850 MHz (red). Errors in  $R_2^{\text{eff}}$  were propagated from the noise in the reference and spin-locked spectra. **Dispersion profile of residues in cluster 4.**

