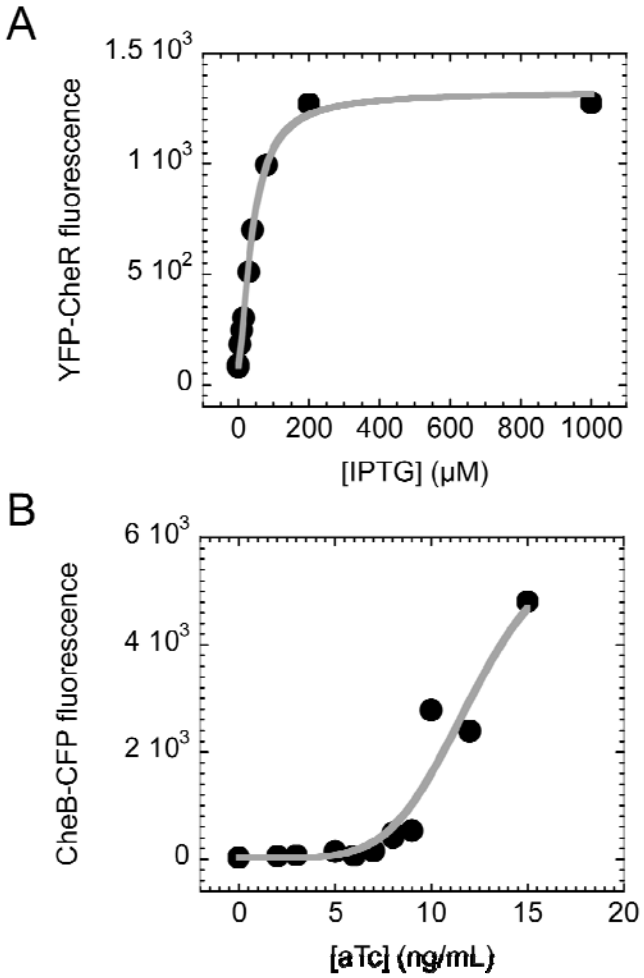

Fig. S1. Induction curves for YFP-CheR and CheB-CFP for single gene mutants in the capillary assay. (A) Fluorescence intensity of the YFP-CheR proteins as a function of the concentration of the inducer IPTG used in capillary experiments. The grey line is the best fitted Hill function to the data points: $A \cdot [IPTG]^N/([IPTG]^N + B^N) + C$, A=1239.0, B=41.1 μM, C=84.4 and N=1.5 with R^2=0.99. **(B)** Fluorescence intensity of the CheB-CFP proteins as a function of the concentration of the inducer aTc used in capillary experiments. The grey line is the best fitted Hill function to the data points: $A \cdot [aTc]^N/([aTc]^N + B^N) + C$, A=6299.3, B=12.3, C=24.4 and N=5.3 with R^2=0.92.

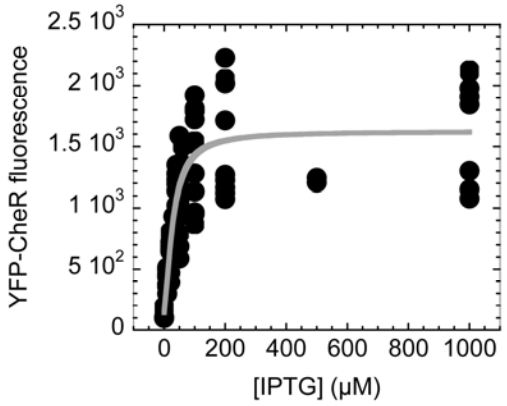

Fig. S2. The fluorescent intensity of YFP-CheR as a function of [IPTG] in capillary experiments with *ΔcheR-ΔcheB* cells.

We measured the fluorescence intensity of YFP-CheR from *ΔcheR-ΔcheB* cells in the capillary experiments. The grey line is the best fitted Hill function to the data points: $A\cdot[IPTG]^N/([IPTG]^N + B^N) + C$, A=1480.4, B=28.8 μM, C=143.3 and N=1.5 with R^2=0.76.

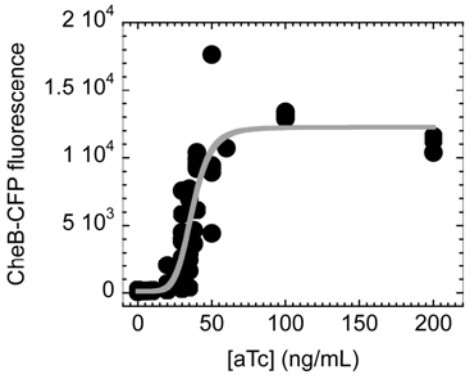

Fig. S3. The fluorescent intensity of CheB-CFP as a function of [aTc] in capillary experiments with ΔCheR-ΔCheB cells.

We measured the fluorescence intensity of CheB-CFP from *ΔcheR-ΔcheB* cells in the capillary experiments. The grey line is the best fitted Hill function to the data points: $A \cdot [aTc]^N/([aTc]^N + B^N) + C$, A=12129, B=37.0, C=123.7 and, N=6.0 with R^2=0.83.