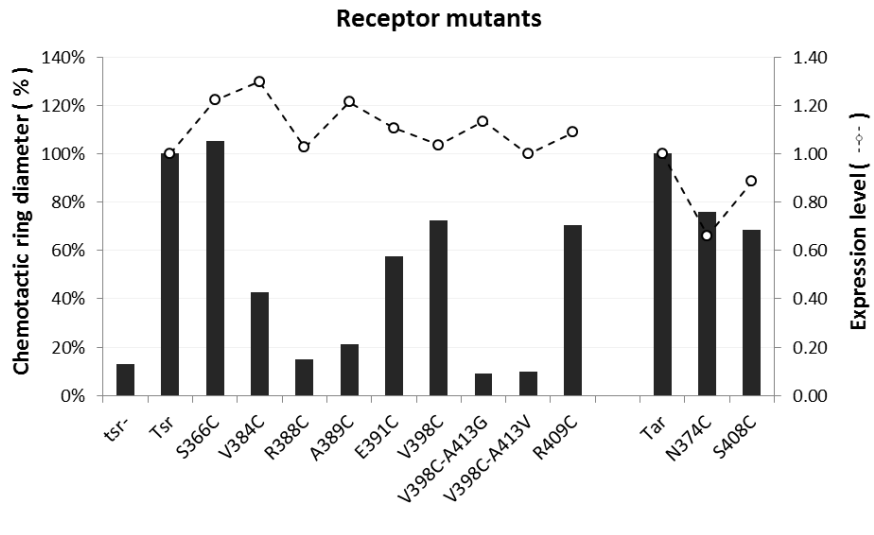
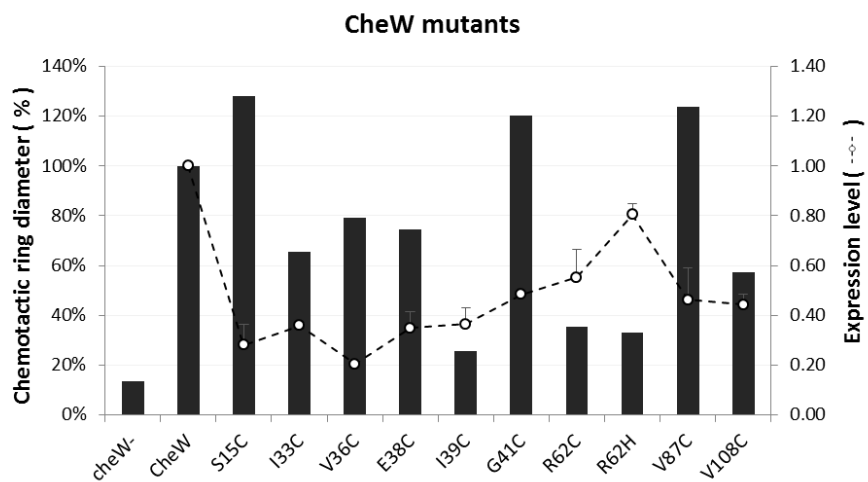


A**B**

Supplementary Figure 1. Characterization of CheW and receptor mutant proteins. A. UU2612 cells carrying pCS12 (wt Tsr), pCS66 (wt Tsr) or different mutant receptor derivatives were induced with sodium salicylate and analysed for chemotactic ability (black bars) in tryptone soft agar plates. Total receptor protein content (dashed lines) was analysed by SDS-PAGE followed by immunoblotting with an antibody against the conserved region of Tsr. Parameters were normalized relative to that of cells expressing the corresponding wild-type receptor. **B.** RP1078 cells carrying pPA770 (wt CheW) or different mutant CheW derivatives were induced with IPTG and analysed for chemotactic ability (black bars) in tryptone soft agar plates. Total CheW protein content (dashed lines) was analysed by SDS-PAGE followed by immunoblotting with anti-CheW. Parameters were normalized relative to that of cells expressing wild-type CheW.

CURRENT MODELS

Liu *et. al.* 2012

Docking of the atomic structures of *E.coli* Tsr, CheW and CheA onto a cryo-electron tomography density map.

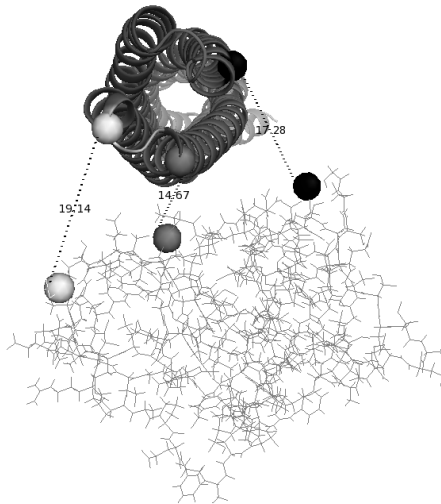
Tsr from *E.coli*

CheW from *E.coli*

CheW S15 – Tsr E391 (white spheres)

CheW I33 – Tsr R388 (grey spheres)

CheW R62 – Tsr V398 (black spheres)



Briegel *et. al.* 2012

X-ray crystallography of receptor-CheW-CheA P3-P4-P5 purified proteins + electron cryotomography of native arrays.

PDB: 3UR1 (4.5-Å resolution)

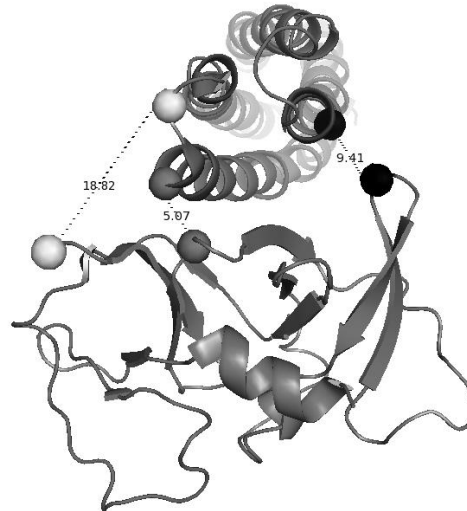
Tm14 from *T.maritima*

CheW from *T.maritima*

CheW K9 – Tm14 E149 (white spheres)

CheW V27 – Tm14 R146 (grey spheres)

CheW R56 – Tm14 I156 (black spheres)



Li *et. al.* 2013

X-ray crystallography of a *T.maritima* MCP protein interaction region in complex with the CheA P4-P5 and CheW.

PDB: 4JPB (3.2-Å resolution)

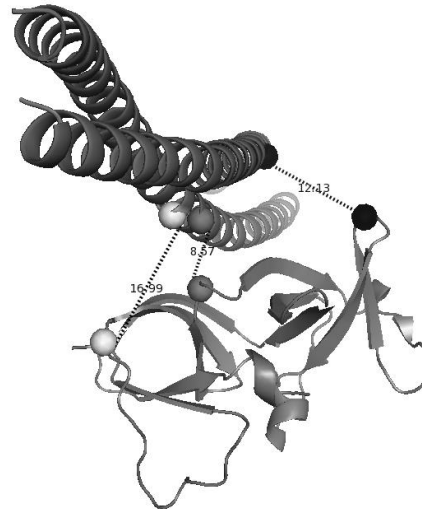
Tm14 from *T.maritima*

CheA P5 from *T.maritima*

CheA A542 – Tm14 E149 (white spheres)

CheA I560 – Tm14 R146 (grey spheres)

CheA R586 – Tm14 I156 (black spheres)



Supplementary Figure 2. View and distances from beta carbons of the crosslinking pairs described in this study in the current models.