

Supplementary Information

A novel DNA-binding protein, PhaR, plays a central role in the regulation of polyhydroxyalkanoate accumulation and granule formation in the haloarchaeon *Haloferax mediterranei*

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Figure S1 GFP expression profiles of *H. mediterranei* DF50 cells harboring the pRF reporter plasmid.

Figure S2 Multiple alignments of amino acid sequences of the representative PhaR homologs from 19 archaea species

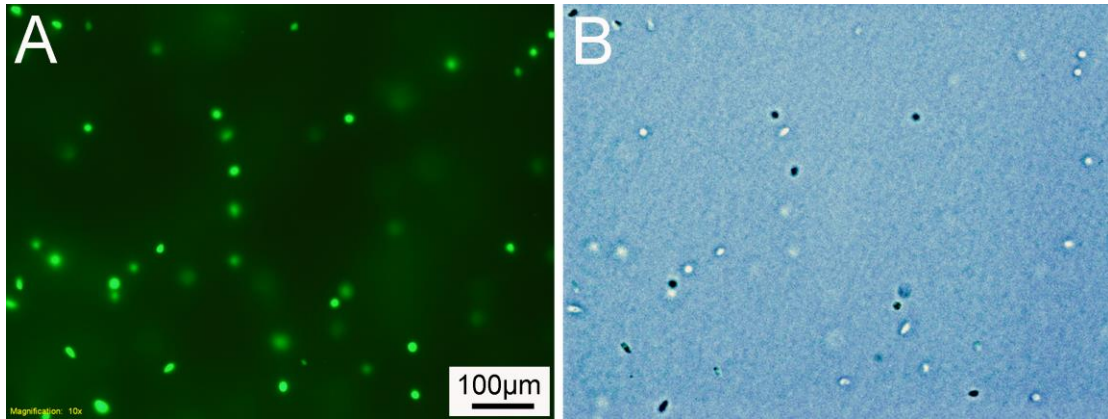


Figure S1. GFP expression profiles of *H. mediterranei* DF50 cells harboring the pRF reporter plasmid. The *gfp* gene was expressed under the control of the promoter of the *phaRP* operon. The cell cultures with an OD₆₀₀ of 1.0 were visualized by fluorescence (A) and bright-field (B) microscopy.

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* * *
HFX_5218 : --MTN-DSNDAR--W-PPALFASQMCKASEEFTQQQLRIFFEQLMTAGTGVSDSPSPMGD : 52
HacjB3_09610 : --MTN-DADGAW--W-PPAMFADQMGEASEEAAKRQQQLFAQWVSGMNPAGGRSMGGL : 52
Hqrw_2558 : --MTD-DSDDETPIW-S-PAAVAKQFOEATQKTTQSQQLFEQYDQTSMNAGG--LGDF : 52
Natpe_1216 : --MTD-DSDRSP--WFPPAMFTEQMGEAGEQVAQSQQEMMKOLLQASS--AN-PLEDT : 50
L593_00950 : --MTD-DNAGFP--W-PPAMFABEQOEASEDAMORQQELYKOWLS-MS-ADGTS-GGL : 49
Natgr_0368 : --MTD-DTDRSP--WFPPAMVTEQMGEAGEQVAQSQQEMIKQFMEATSTTSN-PFEEL : 52
Natoc_1374 : --MTD-DSDRSP--WFPPSMFABEQMSAGEQVAESQQEMLKOLLQEAGS--AN-PLESA : 50
NP0486A : -----MW-PPNLL-KTVQETSEQATKKQEBALQQLLGGGT-ATPDLGDL : 42
NJ7G_1487 : --MTD-DSDRST--WFPPAMFTEQMGEAGEQVAESQQEMMKOLLQATS--AN-PLENT : 50
Hmuk_0988 : --MTD-E-N-DVTMW-PP-MF-KGMOEASEQAIESQQEMLQOMMSAGSSMPGFD--- : 47
Halxa_2764 : --MTD-DSDRSP--WFPPAMF-EEMQEAGEQVAQSQQEMMTOLLQANS--AN-PLEDV : 49
Nmlp_3928 : MPEAN-E-NTDGLMW-PPNVM-KAIQETSEQATRKQEBALQNLFMSAGVGATPDLGNI : 54
Huta_2160 : --MTD-E-D-DGFPW-PPAMF-T---EASEKALEQQQEBFLQQ-MTGGG-AAGLDM--- : 43
rrnAC2883 : --MAD-E-D-DGLMW-PP-MF-KGMOEASENAMEQQQQLMKOMFASGG-MPSFDM--- : 46
HAH_0151 : --MAD-E-D-DGLLW-PP-MF-KGMOEASENAMEQQQQLMKOMFASGG-MPSFDM--- : 46
Htur_2458 : -----MFETEQMGEAGEQVAESQQEMFKKMMQASS--SN-PFDTG : 36
Hbor_29930 : --MTEQEENKQMOMW-PPA-FLEQMGEAGERTMEAQNRMYROFLSS---MTGSDVSGL : 51
HTIA_2076 : -----MF-T---EASEKALEQQQEBFVROLMSGGG-AAGLDM--- : 31
Ferp_1414 : -----MVMVEEYF-KEFQEFWNEMVKNQRELVKNLSSFEFL----- : 36

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HFX_5218 : FPDLGSMISLQTAFFKTRVQSGGRI SIPDAERDALDIEEGDLVQAVVPIKQSRGDSNE : 110
HacjB3_09610 : -SQLSAMSGAAAFKTRVQSGGRI SIPDAERREALDIEEGDIVQTVIPLDTGEDND-- : 107
Hqrw_2558 : -SQLSAMTMGTAMFKTRVQSGGRI SIPDAERREALDIEEGDIVQTVIIPVKRNR---- : 104
Natpe_1216 : -SAFGPMNMGTAFFKTRVQSGGRI SIPPEPERDALDIEEGDIVQTVVVPVKRNRDQS- : 106
L593_00950 : -SELSALSTGTATFKSRVQSGGRI SIPDAERREALDIEEGDIVQTVVVPVKRNRDSE-- : 104
Natgr_0368 : -PTFGPMNMGTAFFKTRVQSGGRI SIPGPERREALDIEEGDIVQTVVVPVKRNRNED-- : 107
Natoc_1374 : -SSEFGPMNMGTAFFKTRVQSGGRI SIPPEPERREALDIEEGDIVQTVVVPVKRNRRENS- : 106
NP0486A : SDQGTMSQ-MATEFKTRVQSGGRI SIPDAERREALDIEEGDIVQAVVVPVKRNR-DDD- : 97
NJ7G_1487 : -SAFGPMNMGTAFFKTRVQSGGRI SIPGPERREALDIEEGDIVQTVVVPVKRNRREDHS- : 106
Hmuk_0988 : -NQLGAMSQ-MATEFKTRVQSGGRI SIPDAERREALDIEEGDIVQTVVLPVKRNRTE--- : 100
Halxa_2764 : -SAFGPMNMGTAFFKTRVQSGGRI SIPPEPERREALDIEEGDIVQTVVVPVKRNRDDE--- : 103
Nmlp_3928 : SEQLGTMQ-MATEFKTRVQSGGRI SIPDAERREALDIEEGDIVQTVVVPVKRNRSDDE : 111
Huta_2160 : -NQLGAMSQ-LATEFKTRVQSGGRI SIPDAERREALDIEEGDIVQAVVLPVKRNRSD--- : 96
rrnAC2883 : -NQLGAMSQ-MATEFKTRVQSGGRI SIPDAERREALDIEEGDIVQAVVLPVTNNNE--- : 99
HAH_0151 : -NQLGAMSQ-MATEFKTRVQSGGRI SIPDAERREALDIEEGDIVQAVVLPVTNNNSE--- : 99
Htur_2458 : -SSEFGPMNMGTAFFKTRVQSGGRI SIPPEPERDALDIEEGDIVQTVVVPVKRNRDQS- : 92
Hbor_29930 : -GQIGWRDM--ATEFKTRVQSGGRI SIPDAERETLDIEEGDIVQTVIIPINRDE--- : 102
HTIA_2076 : -NQLGAMSQ-LATEFKTRVQSGGRI SIPDAERREALDIEEGDIVQAVVLPVKRNRSE--- : 84
Ferp_1414 : -SKENILRKDVAVFRAKTRVQSGGRI SIPADRQALGIEEGDLVKVIVIKKEEGDWNGI- : 92

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Figure S2. Multiple alignments of amino acid sequences of the representative PhaR homologs from 19 archaea species: *H. mediterranei* (HFX), *Halalkalicoccus jeotgali* (HacjB3), *Haloquadratum walsbyi* (Hqrw), *Natrinema pellirubrum* (Natpe), *Salinarchaeum sp.* Harcht-Bsk1 (L593), *Natronobacterium gregoryi* (Natgr), *Natronococcus occultus* (Natoc), *Natronomonas pharaonis* (NP), *Natrinema sp.* J7-2 (NJ7G), *Halomicrobium mukohataei* (Hmuk), *Halopiger xanaduensis* (Halxa), *Natronomonas moolapensis* (Nmlp), *Halorhabdus utahensis* (Huta), *Haloarcula marismortui* (rrnAC), *Haloarcula hispanica* (HAH), *Haloterrigena turkmenica* (Htur), *Halogeometricum borinquense* (Hbor), *Halorhabdus tiamatea* (HTIA), and *Ferroglobus placidus* (Ferp). The residues to be mutated are marked with asterisks.