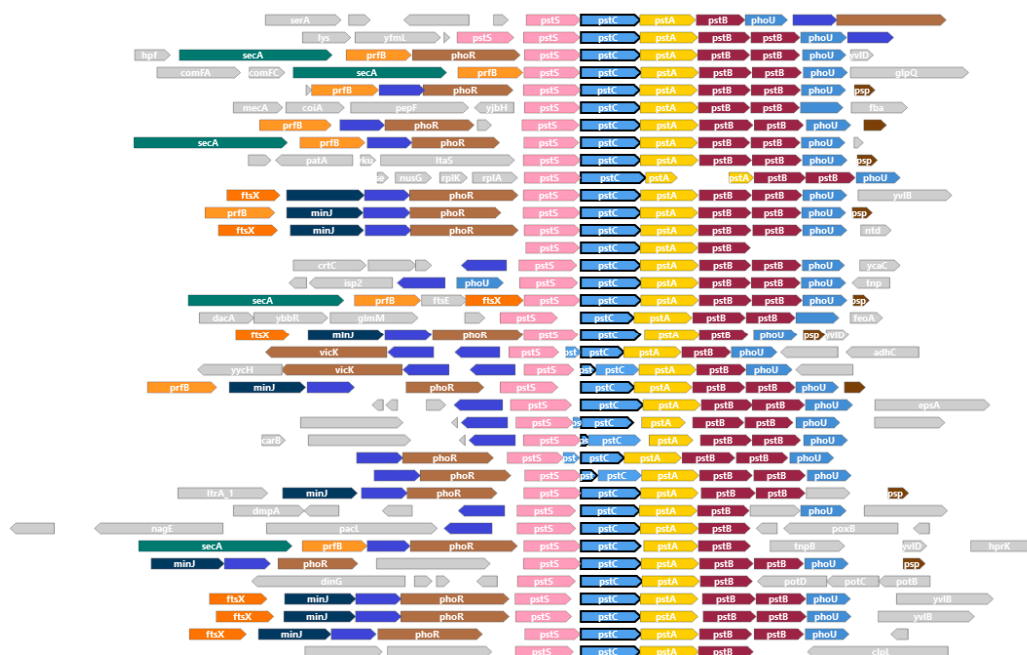
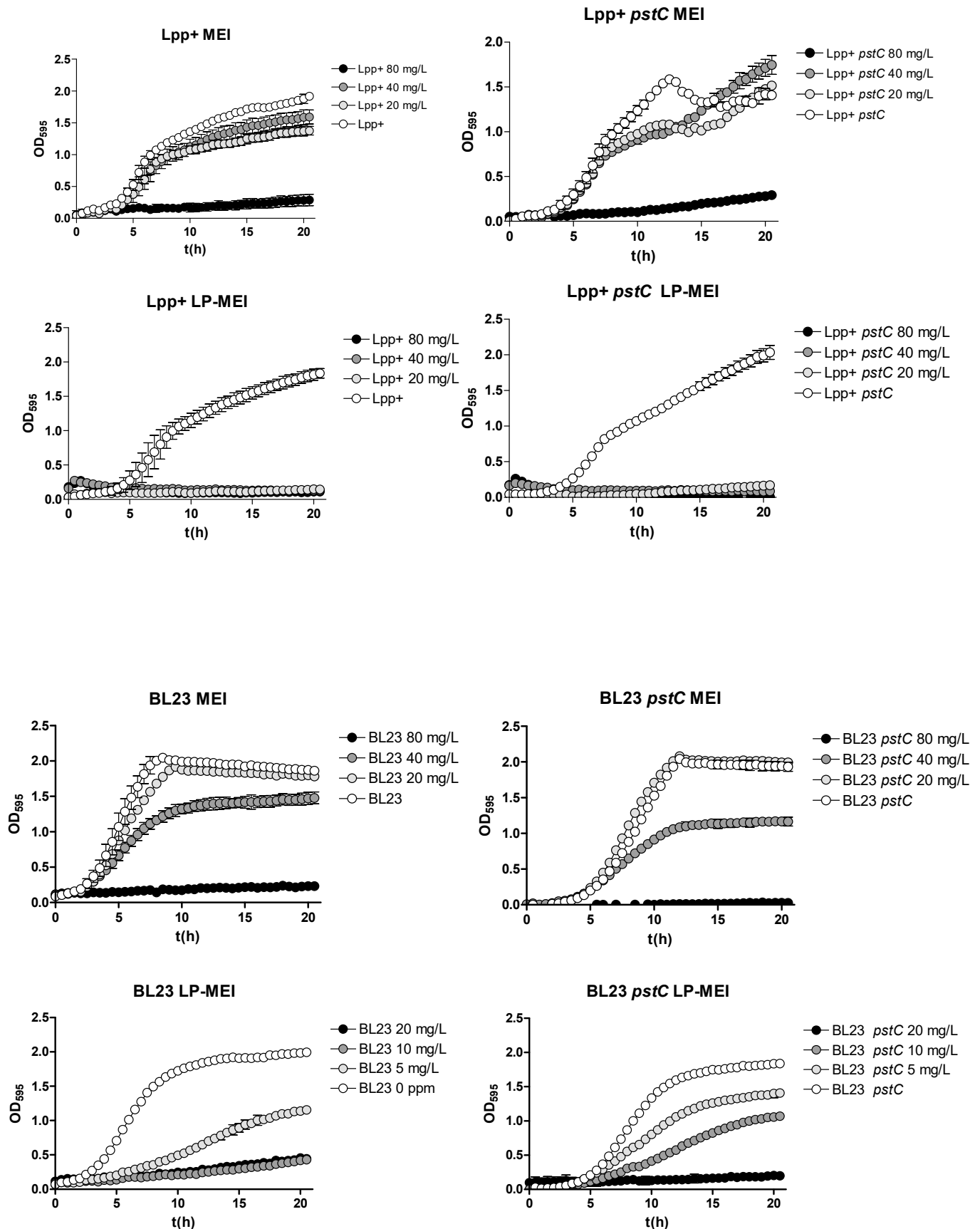


Supplementary Figure S1. Schematic representation of phosphate transport through the Pst transporter and signal transduction of PhoBR two component system in *E. coli*. When environmental phosphate is abundant, the Pst transporter signals through PhoU to induce PhoR phosphatase conformation. When Pi concentration is low, the transporter and PhoU induce PhoR autokinase conformation. The output of the signal transduction system relies on the phosphorylation state of the response regulator PhoB. Phospho-PhoB forms a dimer that binds specifically to DNA Pho boxes. Based on the model proposed by Gardner and McCleary (doi:10.1128/ecosalplus.ESP-0006-2019).

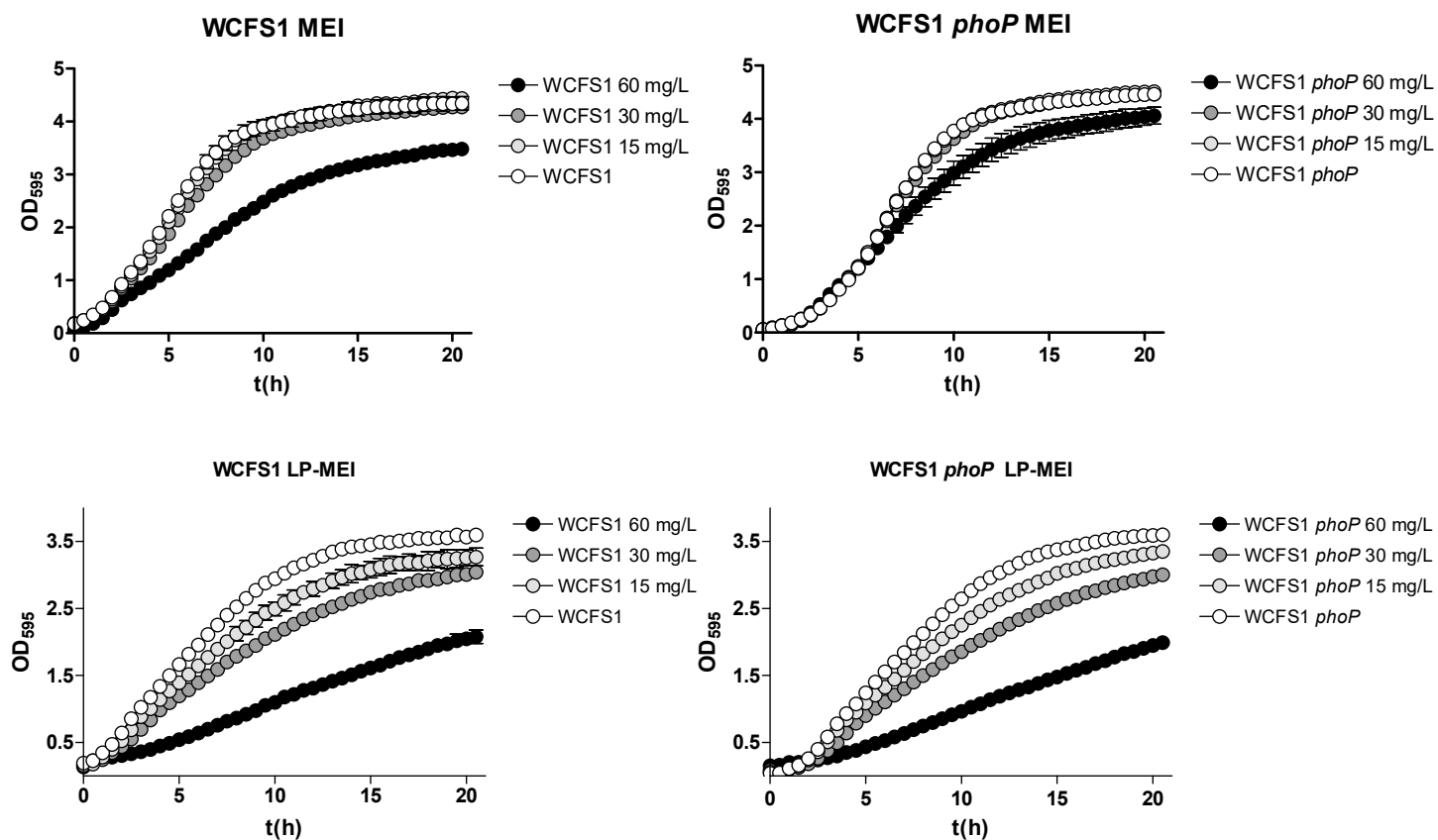
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- species_Aplactobacillus apinorum
- species_Bombilactobacillus mellei
- strain_Holzapfelia floricola DSM 23037 _JCM 16512
- strain_Pediococcus pentosaceus ATCC 25745
- strain_Ligilactobacillus salivarius UCC118
- strain_Furtunilactobacillus rossiae DSM 15814
- strain_Paucilactobacillus hokkaidonensis JCM 18461
- strain_Dellagloia algida DSM 15638
- species_Lactobacillus sp ASF360
- strain_Agilactobacillus composti DSM 18527 _JCM 14202
- strain_Lactocaseibacillus plantarum WCF51
- strain_Latilactobacillus sakei subsp sakei 23K
- strain_Loigolactobacillus biferrmentans DSM 20003
- strain_Loigolactobacillus biferrmentans DSM 20003
- strain_Amyolactobacillus amylophilus DSM 20533 _JCM 1125
- strain_Amyolactobacillus amylophilus DSM 20533 _JCM 1125
- strain_Liquorilactobacillus nagelli DSM 13675
- strain_Liquorilactobacillus nagelli DSM 13675
- strain_Limosilactobacillus pontis DSM 8475
- strain_Limosilactobacillus pontis DSM 8475
- strain_Lentilactobacillus buchneri ATCC 11577
- strain_Lentilactobacillus buchneri ATCC 11577
- strain_Fructilactobacillus florum DSM 22689 _JCM 16035
- strain_Fructilactobacillus florum DSM 22689 _JCM 16035
- species_Schleiferilactobacillus harbinensis
- species_Schleiferilactobacillus harbinensis
- species_Secundilactobacillus paracollinoides
- species_Secundilactobacillus paracollinoides
- species_Companilactobacillus hellongiangensis
- species_Companilactobacillus hellongiangensis
- species_Levilactobacillus parabrevis
- species_Levilactobacillus parabrevis
- species_Lactocaseibacillus rhamnosus
- strain_Lactocaseibacillus paracasei ATCC 334
- strain_Lactocaseibacillus pantheris DSM 15945 _JCM 12539 _NBRC 106106
- strain_Lactocaseibacillus pantheris DSM 15945 _JCM 12539 _NBRC 106106



Supplementary Figure S2. Genomic context of *pstSCAB* genes in members of family *Lactobacillaceae*. The *phoP* genes, which in most cases precede the gene encoding the sensor kinase PhoR are depicted in dark blue color. In some strains, two *pstSCBA* operons exists, in which one of them is clustered with *phoPR* genes. The gene encoding a putative transmembrane protein with a PDZ domain, located upstream *phoP*, is annotated in most genomes as *minJ*, due to the homologies with MinJ from *Bacillus subtilis*. The comparisons were carried out with The Genomic Context Visualizer (GeCoViz; <https://gecoviz.cgmlab.org/>; Jorge Botas, Álvaro Rodríguez del Río, Joaquín Giner-Lamia, and Jaime Huerta-Cepas. (2022). GeCoViz: genomic context visualisation of prokaryotic genes from a functional and evolutionary perspective. Nucleic Acids Research, 50, W352–W357; doi.org/10.1093/nar/gkac367).



Supplementary Figure S3. Growth of *Lp. plantarum* Lpp+ and *Lc. paracasei* BL23 strains and their derivative *pstC* mutants in MEI and LP-MEI media with different concentrations of As(V).



Supplementary Figure S4. Growth curves of *Lp. plantarum* WCFS1 and its derivative *phoP* mutant in MEI medium with different amounts of As(III).