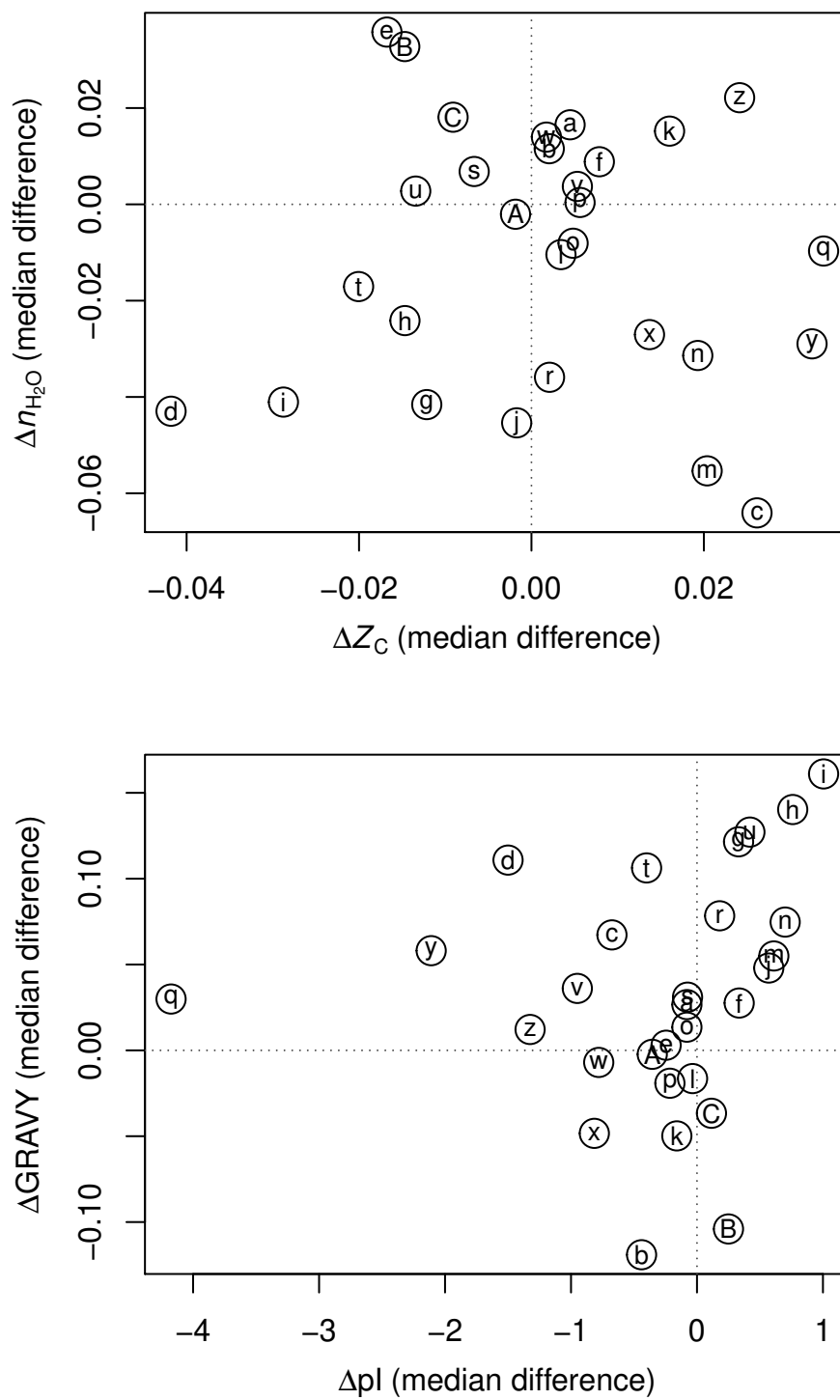


Figure S2: Analysis of bacterial proteomics data for hyperosmotic stress



Set	Reference	Description	Down	Up
a	PNWB09	<i>Synechocystis</i> sp. PCC6803 in 6% w/v NaCl vs no added salt	77	55
b	FTR+10	<i>Corynebacterium glutamicum</i> in 750 mM NaCl vs control medium	27	65
c	LPK+13	<i>Lactobacillus johnsonii</i> with vs without 0.1-0.3% bile salt	123	88
d	QHT+13	<i>Synechocystis</i> sp. PCC 6803 Protein in 4% w/v vs 0% added NaCl for 24 h	42	26
e	QHT+13	<i>Synechocystis</i> sp. PCC 6803 Protein in 4% w/v vs 0% added NaCl for 48 h	46	62
f	ADW+14	<i>Bifidobacterium longum</i> BBMN68 Protein with vs without 0.75 g/l ox bile	20	24
g	KKG+14	<i>Escherichia coli</i> Protein in NaCl (0.967 aw) vs control for immediate	30	158
h	KKG+14	<i>Escherichia coli</i> Protein in NaCl (0.967 aw) vs control for 30 min	21	162
i	KKG+14	<i>Escherichia coli</i> Protein in NaCl (0.967 aw) vs control for 80 min	37	126
j	KKG+14	<i>Escherichia coli</i> Protein in NaCl (0.967 aw) vs control for 310 min	12	399
k	PBP+14	<i>Listeria monocytogenes</i> in 3% NaCl vs control at 4.C	54	86
l	PBP+14	<i>Listeria monocytogenes</i> in 3% NaCl vs control at 37.C	60	25
m	KLB+15	<i>Caulobacter crescentus</i> Protein in 200 mM sucrose vs M2 minimal salts medium	33	33
n	KLB+15	<i>Caulobacter crescentus</i> Protein in 40/50 mM NaCl vs M2 minimal salts medium	33	27
o	SKV+16	<i>Escherichia coli</i> in Glucose vs LB	743	282
p	SKV+16	<i>Escherichia coli</i> in Osmotic.stress.glucose vs LB	978	343
q	KAK+17	<i>Lactobacillus fermentum</i> with vs without 1.2% w/v bile salts	106	81
r	LYS+17	<i>Lactobacillus salivarius</i> LI01 with vs without 0.15% ox bile	177	205
s	KSK+18	<i>Acidihalobacter prosperus</i> DSM 14174 30 g/L / 5 g/L NaCl	292	316
t	LJC+18	<i>Listeria monocytogenes</i> wt in 0.5 M NaCl vs control medium	65	66
u	LJC+18	<i>Listeria monocytogenes</i> mutant in 0.5 M NaCl vs control medium	37	30
v	TSC18	<i>Caulobacter crescentus</i> WT in 300 mM sucrose vs control	91	28
w	TSC18	<i>Caulobacter crescentus</i> GsrN in 300 mM sucrose vs control	99	107
x	LWS+19	<i>Lactobacillus plantarum</i> FS5-5 in 6-8% w/v vs 0% NaCl	72	46
y	MGF+19	<i>Staphylococcus aureus</i> in 10% vs 0% NaCl	88	58
z	MGF+19	<i>Staphylococcus aureus</i> in 20% vs 0% NaCl	184	99
A	AST+20	<i>Lactobacillus fermentum</i> with vs without 0.3% to 1.5% w/v bile salts	368	378
B	GBR+20	<i>Propionibacterium freudenreichii</i> CIRM129 in NaCl vs MMO	90	74
C	GBR+20	<i>Propionibacterium freudenreichii</i> CIRM1025 in NaCl vs MMO	64	78

**a.** Additional file 3: Table S2 of Pandhal et al. (2009). **b.** Supplementary Table 8 of Fränzel et al. (2010). Only proteins with consistent expression ratios (all > 1 or all < 1) at each time point (15, 60, and 180 min.) were included. **c.** Supporting Information Table 1 of Lee et al. (2013) (sheets “Up-Down Proteins” and “Unknown function”). **d. e.** Supplementary Tables S3A and S3B of Qiao et al. (2013). **f.** Table 1 (proteins) and supplemental Table S2 (genes) of An et al. (2014). **g. h. i. j.** Supporting Information Table S2 of Kocharunchitt et al. (2014). **k. l.** Additional file Table S2 of Kohler et al. (2015). **m. n.** Supplementary Table S6 of Schmidt et al. (2016), filtered to include proteins with fold change > 2 or < 0.5 for the ratios Glucose / LB (lysogeny broth) or Osmotic-stress glucose / LB. **o.** Supplementary Table 1 (sheets “0.76 fold down regulated” and “1.3 fold up regulated”) of Kaur et al. (2017). **p.** Supplemental Table S-2 of Lv et al. (2017), filtered to include proteins with log<sub>2</sub> fold change > 1 or < -1 and *p*-value < 0.05. **q.** Supplementary Table 1 of Khaleque et al. (2018) (amino acid compositions computed from protein sequences in the list of gene annotations). **r. s.** Tables S1–S6 of Lee et al. (2018). For each of the wild-type and *ΔsigB* mutant, only proteins that were identified in multicellular vesicles in a single condition (0.5 M salt stress or without salt stress) were included. **t. u.** Extracted from proteinGroups.txt in PRIDE project [PXD010072](https://www.ebi.ac.uk/pride/projects/PXD010072)/MaxQuantOutput.tar.gz (Tien et al., 2018), filtered to include proteins with non-zero LFQ intensity values for all replicates in each experiment; the medians of these values were used to compute fold changes; proteins with fold change > 1.5 or < 2/3 were kept. **v.** Table 2 of Li et al. (2019). **w. x.** Supplementary Tables S4 and S5 of Ming et al. (2019), filtered to include proteins with fold change ≥ 2 or ≤ 0.5. **y.** Supplementary Table 1 (sheets “>2.0 Fold” and “< 0.5 Fold”) of Ali et al. (2020). **z. A.** Supplementary Table 1 of Gaucher et al. (2020) (column “MMO+NaCl/MMO” for CIRM129 and CIRM1025).

## References

- Ali, S. A., Singh, P., Tomar, S. K., Mohanty, A. K. and Behare, P.: Proteomics fingerprints of systemic mechanisms of adaptation to bile in *Lactobacillus fermentum*, *Journal of Proteomics*, 213, 103600, doi:[10.1016/j.jprot.2019.103600](https://doi.org/10.1016/j.jprot.2019.103600), 2020.
- An, H., Douillard, F. P., Wang, G., Zhai, Z., Yang, J., Song, S., Cui, J., Ren, F., Luo, Y., Zhang, B. and Hao, Y.: Integrated transcriptomic and proteomic analysis of the bile stress response in a centenarian-

originated probiotic *Bifidobacterium longum* BBMN68, *Molecular & Cellular Proteomics*, 13(10), 2558–2572, doi:[10.1074/mcp.M114.039156](https://doi.org/10.1074/mcp.M114.039156), 2014.

Fränzel, B., Trötschel, C., Rückert, C., Kalinowski, J., Poetsch, A. and Wolters, D. A.: Adaptation of *Corynebacterium glutamicum* to salt-stress conditions, *Proteomics*, 10(3), 445–457, doi:[10.1002/pmic.200900482](https://doi.org/10.1002/pmic.200900482), 2010.

Gaucher, F., Bonnassie, S., Rabah, H., Leverrier, P., Pottier, S., Jardin, J., Briard-Bion, V., Marchand, P., Jeantet, R., Blanc, P. and Jan, G.: Data from a proteomic analysis highlight different osmoadaptations in two strain of *Propionibacterium freudenreichii*, *Data in Brief*, 28, 104932, doi:[10.1016/j.dib.2019.104932](https://doi.org/10.1016/j.dib.2019.104932), 2020.

Kaur, G., Ali, S. A., Kumar, S., Mohanty, A. K. and Behare, P.: Label-free quantitative proteomic analysis of *Lactobacillus fermentum* NCDC 400 during bile salt exposure, *Journal of Proteomics*, 167, 36–45, doi:[10.1016/j.jprot.2017.08.008](https://doi.org/10.1016/j.jprot.2017.08.008), 2017.

Khaleque, H. N., Shafique, R., Kaksonen, A. H., Boxall, N. J. and Watkin, E. L. J.: Quantitative proteomics using SWATH-MS identifies mechanisms of chloride tolerance in the halophilic acidophile *Acidihalobacter prosperus* DSM 14174, *Research in Microbiology*, 169(10), 638–648, doi:[10.1016/j.resmic.2018.07.002](https://doi.org/10.1016/j.resmic.2018.07.002), 2018.

Kocharunchitt, C., King, T., Gobius, K., Bowman, J. P. and Ross, T.: Global genome response of *Escherichia coli* O157:H7 Sakai during dynamic changes in growth kinetics induced by an abrupt downshift in water activity, *PLoS One*, 9(3), 1–13, doi:[10.1371/journal.pone.0090422](https://doi.org/10.1371/journal.pone.0090422), 2014.

Kohler, C., Lourenço, R. F., Bernhardt, J., Albrecht, D., Schüller, J., Hecker, M. and Gomes, S. L.: A comprehensive genomic, transcriptomic and proteomic analysis of a hyperosmotic stress sensitive  $\alpha$ -proteobacterium, *BMC Microbiology*, 15(1), 1–15, doi:[10.1186/s12866-015-0404-x](https://doi.org/10.1186/s12866-015-0404-x), 2015.

Lee, J. Y., Pajarillo, E. A. B., Kim, M. J., Chae, J. P. and Kang, D.-K.: Proteomic and transcriptional analysis of *Lactobacillus johnsonii* PF01 during bile salt exposure by iTRAQ shotgun proteomics and quantitative RT-PCR, *Journal of Proteome Research*, 12(1), 432–443, doi:[10.1021/pr300794y](https://doi.org/10.1021/pr300794y), 2013.

Lee, T., Jun, S. H., Choi, C. W., Kim, S. I., Lee, J. C. and Shin, J. H.: Salt stress affects global protein expression profiles of extracellular membrane-derived vesicles of *Listeria monocytogenes*, *Microbial Pathogenesis*, 115, 272–279, doi:[10.1016/j.micpath.2017.12.071](https://doi.org/10.1016/j.micpath.2017.12.071), 2018.

Li, M., Wang, Q., Song, X., Guo, J., Wu, J. and Wu, R.: iTRAQ-based proteomic analysis of responses of *Lactobacillus plantarum* fs5-5 to salt tolerance, *Annals of Microbiology*, 69(4), 377–394, doi:[10.1007/s13213-018-1425-0](https://doi.org/10.1007/s13213-018-1425-0), 2019.

Lv, L.-X., Yan, R., Shi, H.-Y., Shi, D., Fang, D.-Q., Jiang, H.-Y., Wu, W.-R., Guo, F.-F., Jiang, X.-W., Gu, S.-L., Chen, Y.-B., Yao, J. and Li, L.-J.: Integrated transcriptomic and proteomic analysis of the bile stress response in probiotic *Lactobacillus salivarius* LI01, *Journal of Proteomics*, 150, 216–229, doi:[10.1016/j.jprot.2016.08.021](https://doi.org/10.1016/j.jprot.2016.08.021), 2017.

Ming, T., Geng, L., Feng, Y., Lu, C., Zhou, J., Li, Y., Zhang, D., He, S., Li, Y., Cheong, L. and Su, X.: iTRAQ-based quantitative proteomic profiling of *Staphylococcus aureus* under different osmotic stress conditions, *Frontiers in Microbiology*, 10, 1082, doi:[10.3389/fmicb.2019.01082](https://doi.org/10.3389/fmicb.2019.01082), 2019.

Pandhal, J., Noirel, J., Wright, P. C. and Biggs, C. A.: A systems biology approach to investigate the response of *Synechocystis* sp. PCC6803 to a high salt environment, *Saline Systems*, 5(1), 8, doi:[10.1186/1746-1448-5-8](https://doi.org/10.1186/1746-1448-5-8), 2009.

Qiao, J., Huang, S., Te, R., Wang, J., Chen, L. and Zhang, W.: Integrated proteomic and transcriptomic analysis reveals novel genes and regulatory mechanisms involved in salt stress responses in *Synechocystis* sp. PCC 6803, *Applied Microbiology and Biotechnology*, 97(18), 8253–8264, doi:[10.1007/s00253-013-5139-8](https://doi.org/10.1007/s00253-013-5139-8), 2013.

Schmidt, A., Kochanowski, K., Vedelaar, S., Ahnér, E., Volkmer, B., Callipo, L., Knoops, K., Bauer, M., Aebbersold, R. and Heinemann, M.: The quantitative and condition-dependent *Escherichia coli* proteome, *Nature Biotechnology*, 34(1), 104–110, doi:[10.1038/nbt.3418](https://doi.org/10.1038/nbt.3418), 2016.

Tien, M. Z., Stein, B. J. and Crosson, S.: Coherent feedforward regulation of gene expression by *Caulobacter*  $\sigma^T$  and GsrN during hyperosmotic stress, *Journal of Bacteriology*, 200(19), e00349–18, doi:[10.1128/JB.00349-18](https://doi.org/10.1128/JB.00349-18), 2018.