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                                 .  .  .  .  .  .  .  .  .  10  .  .  .  .  .  .  .  .  .  20  .  .  .  .  .  .  .  .  .  30  .  .  .  .  .  .  .  .  .  40  .  .  .  .  .  .  .  .  .  50
Xanthomonas axonopodis    --------ML RVKDATQSLD FYTRVLGFRL LDARDFADAK FSLYFLALLP
Agrobacterium fabrum      M--RYLHTMV RVKDLGESLK FYVDLLGLTE IRRIENEKGR FTLVFLSARD
Ca. Regiella insecticolla M--KYLHTMI RVSNLDESLD FYCNKLGLVE VKRTEHEQGR FTLIFLAAPG
Liberibacter crescens     M--KYLHTMV RVKDLEHSLE FYTKILGLYE VDRLENTKGR YTLVFLAAPE
Escherichia coli          M--RLLHTML RVGDLQRSID FYTNVLGMKL LRTSENPEYK YSLAFVGYGP
Listeria monocytogenes    MTAKMLHTCI RVKNLTESIT FYEKALGLKE VRRKDFPDFE FTLVYMAFEE
                          6005366678 **67735*85 **455**735 7563844546 87*5877424

                                 .  .  .  .  .  .  .  .  .  60  .  .  .  .  .  .  .  .  .  70  .  .  .  .  .  .  .  .  .  80  .  .  .  .  .  .  .  .  .  90  .  .  .  .  .  .  .  .  .  100
Xanthomonas axonopodis    EDMAIPDDDA QRRLWMAGIP GVLELTHNHG TENQDGPVYH DGNSDPRGFG
Agrobacterium fabrum      DIAAAKEN-- --------KA PCLELTYNWD TE-D----YT GG----RNFG
Ca. Regiella insecticolla DLDKIEIS-- --------HG PLLELTYNWD TQ-T----YP EG----RYFG
Liberibacter crescens     DLEAAHQY-- --------RA PCLELTYNWD TE-D----YT TG----RNFG
Escherichia coli          ETEEA----- ---------- -VIELTYNWG VD-K----YE LG----TAYG
Listeria monocytogenes    G--GF----- ---------- -ELELTYNYD QKEA----YD LG----NGYG
                          6224511100 0000000011 239***8*56 66030000*3 2*0000638*

                                 .  .  .  .  .  .  .  .  .  110  .  .  .  .  .  .  .  .  .  120  .  .  .  .  .  .  .  .  .  130  .  .  .  .  .  .  .  .  .  140  .  .  .  .  .  .  .  .  .  150
Xanthomonas axonopodis    HICISVPDIH AACARFDSLN VPYQKRL--E DGRMKHLAFI KDPDGYWVEI
Agrobacterium fabrum      HLAYEVDNIY DFCARLQQSG IVINRPP--- --RDGHMAFV RSPDGISFEI
Ca. Regiella insecticolla HLAYCVDNIY ETCQCLKDAG VIINRPP--- --RDGYMAFI RSPDNISIEL
Liberibacter crescens     HIAYSVDNIY STCENFMKNN ITINRPP--- --RDGKMAFI LSPDKVSIEI
Escherichia coli          HIALSVDNAA EACEKIRQNG GNVTREAGPV KGGTTVIAFV EDPDGYKIEL
Listeria monocytogenes    HLAVGVPDVR ALLKEHQEAG FTVTDLK-GL PGEDPFYYFL TDPDGYKTEI
                          *8754*6774 5475344546 4375634000 02553367*8 46**5546*8

                                 .  .  .  .  .  .  .  .  .  160  .  .  .  .  .  .  .  .  .  170  .  .
Xanthomonas axonopodis    ISN------- TPLA------ --
Agrobacterium fabrum      LQKGESLAPA EPWISMQNTG SW
Ca. Regiella insecticolla LQKGERLPKQ EPWVSAPNIG HW
Liberibacter crescens     LQKNNPLEPK EPWLSMPNIG TW
Escherichia coli          IE-------- -EKDAGRGLG N-
Listeria monocytogenes    IQ-------- -DGAL----- --
                          8721102010 2534411224 12
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◆ Glutathione binding
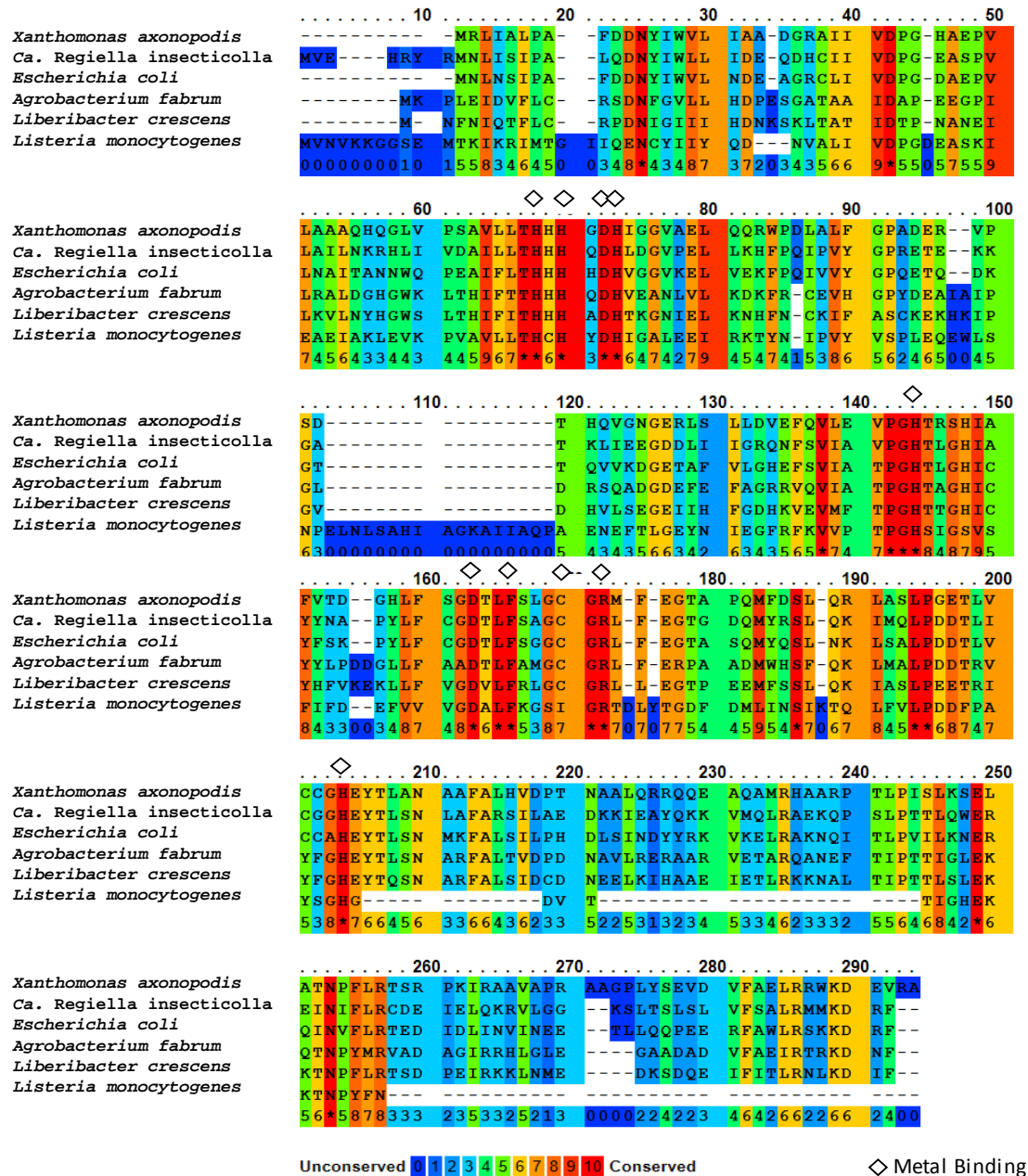◇ Metal Binding

Unconserved 0 1 2 3 4 5 6 7 8 9 10 Conserved

Supplemental Fig. S1: Glyoxalase I (GloA) sequence alignments were performed using the Centre for Integrative Bioinformatics PRALINE web tools (http://www.ibi.vu.nl/programs/pralinewww/). Default parameters were used for this analysis. The full-length reference sequences for GloA proteins used for sequence alignment were obtained from NCBI database: *Xanthomonas axonopodis* (AEO43772.1), *Agrobacterium fabrum* (NP_354787.2), *Ca.* Regiella insecticola (WP_043914972.1), *Liberibacter crescens* (AGA64439.1), *Listeria monocytogenes* (KRJ91490.1), and *Escherichia coli* (AEE56703.1).

Xanthomonas axonopodis / **Ca. Regiella insecticolla** / **Escherichia coli** / **Agrobacterium fabrum** / **Liberibacter crescens** / **Listeria monocytogenes**

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                         ..........10........20........30........40.........50
Xanthomonas axonopodis   ----------MRLIALPA--FDDNYIWVL IAA-DGRAII VDPG-HAEPV
Ca. Regiella insecticolla MVE----HRY RMNLISIPA--LQDNYIWLL IDE-QDHCII VDPG-EASPV
Escherichia coli         --------MNLNSIPA--FDDNYIWVL NDE-AGRCLI VDPG-DAEPV
Agrobacterium fabrum     -------MK PLEIDVFLC--RSDNFGVLL HDPESGATAA IDAP-EEGPI
Liberibacter crescens    --------M- NFNIQTFLC--RPDNIGIII HDNKSKLTAT IDTP-NANEI
Listeria monocytogenes   MVNVKKGGSE MTKIKRIMTG IIQENCYIIY QD---NVALI VDPGDEASKI
                         0000000010 1558346450 0348*43487 3720343566 9*55057559

                         ..........60........70........80........90.........100
Xanthomonas axonopodis   LAAAQHQGLV PSAVLLTHHH GDHIGGVAEL QQRWPDLALF GPADER--VP
Ca. Regiella insecticolla LAILNKRHLI VDAILLTHHH QDHLDGVPEL LKHFPQIPVY GPRETE--KK
Escherichia coli         LNAITANNWQ PEAIFLTHHH HDHVGGVKEL VEKFPQIVVY GPQETQ--DK
Agrobacterium fabrum     LRALDGHGWK LTHIFTTHHH QDHVEANLVL KDKFR-CEVH GPYDEAIAIP
Liberibacter crescens    LKVLNYHGWS LTHIFITHHH ADHTKGNIEL KNHFN-CKIF ASCKEKHKIP
Listeria monocytogenes   EAEIAKLEVK PVAVLLTHCH YDHIGALEEI RKTYN-IPVY VSPLEQEWLS
                         7456433443 445967**6* 3**6474279 4547415386 5624650045

                         ..........110.......120.......130.......140.......150
Xanthomonas axonopodis   SD-------- ---------T HQVGNGERLS LLDVEFQVLE VPGHTRSHIA
Ca. Regiella insecticolla GA-------- ---------T KLIEEGDDLI IGRQNFSVIA VPGHTLGHIA
Escherichia coli         GT-------- ---------T QVVKDGETAF VLGHEFSVIA TPGHTLGHIC
Agrobacterium fabrum     GL-------- ---------D RSQADGDEFE FAGRRVQVIA TPGHTAGHIC
Liberibacter crescens    GV-------- ---------D HVLSEGEIIH FGDHKVEVMF TPGHTTGHIC
Listeria monocytogenes   NPELNLSAHI AGKAIIAQPA ENEFTLGEYN IEGFRFKVVP TPGHSIGSVS
                         6300000000 0000000005 4343566342 6343565*74 7***848795

                         ..........160.......170.......180.......190.......200
Xanthomonas axonopodis   FVTD--GHLF SGDTLFSLGC GRM-F-EGTA PQMFDSL-QR LASLPGETLV
Ca. Regiella insecticolla YYNA--PYLF CGDTLFSAGC GRL-F-EGTG DQMYRSL-QK IMQLPDDTLI
Escherichia coli         YFSK--PYLF CGDTLFSGGC GRL-F-EGTA SQMYQSL-NK LSALPDDTLV
Agrobacterium fabrum     YYLPDDGLLF AADTLFAMGC GRL-F-ERPA ADMWHSF-QK LMALPDDTRV
Liberibacter crescens    YHFVKEKLLF VGDVLFRLGC GRL-L-EGTP EEMFSSL-QK IASLPEETRI
Listeria monocytogenes   FIFD--EFVV VGDALFKGSI GRTDLYTGDF DMLINSIKTQ LFVLPDDFPA
                         8433003487 48*6**5387 **70707754 45954*7067 845**68747

                         ......200.......210.......220.......230.......240.......250
Xanthomonas axonopodis   CCGHEYTLAN AAFALHVDPT NAALQRRQQE AQAMRHAARP TLPISLKSEL
Ca. Regiella insecticolla CGGHEYTLSN LAFARSILAE DKKIEAYQKK VMQLRAEKQP SLPTTLQWER
Escherichia coli         CCAHEYTLSN MKFALSILPH DLSINDYYRK VKELRAKNQI TLPVILKNER
Agrobacterium fabrum     YFGHEYTLSN ARFALTVDPD NAVLRERAAR VETARQANEF TIPTTIGLEK
Liberibacter crescens    YFGHEYTQSN ARFALSIDCD NEELKIHAAE IETLRKKNAL TIPTTLSLEK
Listeria monocytogenes   YSGHG----- --------DV T--------- ---------- ----TIGHEK
                         538*766456 3366436233 5225313234 5334623332 55646842*6

                         ..........260.......270.......280.......290...
Xanthomonas axonopodis   ATNPFLRTSR PKIRAAVAPR AAGPLYSEVD VFAELRRWKD EVRA
Ca. Regiella insecticolla EINIFLRCDE IELQKRVLGG --KSLTSLSL VFSALRMMKD RF--
Escherichia coli         QINVFLRTED IDLINVINEE --TLLQQPEE RFAWLRSKKD RF--
Agrobacterium fabrum     QTNPYMRVAD AGIRRHLGLE ----GAADAD VFAEIRTRKD NF--
Liberibacter crescens    KTNPFLRTSD PEIRKKLNME ----DKSDQE IFITLRNLKD IF--
Listeria monocytogenes   KTNPYFN--- ---------- ---------- ---------- ----
                         56*5878333 2353325213 0000224223 4642662266 2400
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Unconserved 0 1 2 3 4 5 6 7 8 9 10 Conserved   ◇ Metal Binding

Supplemental Fig. S2: Glyoxalase II (GloB) sequence alignments were performed using the Centre for Integrative Bioinformatics PRALINE web tools (http://www.ibi.vu.nl/programs/pralinewww/). Default parameters were used for this analysis. The full-length reference sequences for GloB proteins used for sequence alignment were obtained from NCBI database: *Xanthomonas axonopodis* (KPL48337.1), *Agrobacterium fabrum* (NP_356997.2), *Ca.* Regiella insecticola (EFL92625.1), *Liberibacter crescens* (AMC13092.1), *Listeria monocytogenes* (KSZ47095.1), and *Escherichia coli* (EGT71262.1).