**Supplementary Table 2. Unique genes found in A144, A155 and AYE genomes compared to GC1 Group 1, respectively.** Columns 1, 2 and 3 detail unique genes found in A144, A155 and AYE genomes when compared each one to the other GC1 Group 1, respectively**.** GC1 Group 1 in column 4 refers to GC1 Group 1 unique genes compared to Outgroup Group 3.

| **A144** | A155 | **AYE** | **GC1 Group 1** |
| --- | --- | --- | --- |
| 3720\_hypothetical\_protein, ATP-binding protein  | 7722\_phage tail tape measure protein, partial  | 22234\_hypothetical\_protein | 245\_hypothetical\_protein |
| 4302\_hypothetical\_protein, DUF551 domain-containing protein | 7723\_hypothetical\_protein | 22235\_hypothetical\_protein | 318\_pilin |
| 4304\_hypothetical\_protein | 8110\_ubiA\_1 | 22364\_hypothetical\_protein | 377\_DUF262 domain-containing protein |
| 4305\_hypothetical\_protein, prophage LambdaSa2, HNH endonuclease family protein | 8111\_apaH | 22661\_hypothetical\_protein | 378\_hypothetical\_protein |
| 4306\_hypothetical\_protein | 8120\_Cyclic di-GMP phosphodiesterase gmr | 22665\_hypothetical\_protein | 921\_hypothetical\_protein |
| 4308\_hypothetical\_protein | 8354\_hypothetical\_protein | 22670\_hypothetical\_protein | 924\_hypothetical\_protein |
| 4309\_hypothetical\_protein | 8356\_hypothetical\_protein | 22806\_hypothetical\_protein | 925\_hypothetical\_protein |
| 4310\_hypothetical\_protein | 8359\_hypothetical\_protein | 22901\_conserved\_hypothetic | 1069\_cas1f |
| 4318\_hypothetical\_protein | 8360\_hypothetical\_protein | 22950\_hypothetical\_protein | 1070\_cas3f |
| 4320\_hypothetical\_protein | 8968\_hypothetical\_protein | 23212\_conserved\_hypothetical protein | 1071\_csy1 |
| 4359\_hypothetical\_protein | 9756\_hypothetical\_protein | 23267\_transposase\_of\_IS10A | 1072\_csy2 |
| 4437\_hypothetical\_protein | 9762\_hypothetical\_protein | 23302\_hypothetical\_protein | 1073\_csy3 |
| 4466\_hypothetical\_protein | 10179\_hypothetical\_protein | 23304\_hypothetical\_protein | 1074\_cas6f |
| 4820\_qseB\_2 | 10184\_hypothetical\_protein | 23307\_hypothetical\_protein | 1481\_heme-binding\_protein |
| 4821\_qseB\_3 | 10634\_hypothetical\_protein | 23308\_hypothetical\_protein | 1484\_lipocalin\_family\_protein |
| 5076\_hypothetical\_protein | 11030\_hypothetical\_protein | 23310\_hypothetical\_protein | 1485\_acyl-CoA\_desaturase |
| 5116\_hypothetical\_protein |  | 23312\_hypothetical\_protein | 1487\_DUF1365\_domain-containing protein |
| 5571\_cyaA |  | 23314\_hypothetical\_protein | 1488\_class\_I\_SAM-dependent methyltransferase |
| 5573\_hypothetical\_protein, phage tail protein |  | 23316\_hypothetical\_protein | 1489\_class\_I\_SAM-dependent methyltransferase |
| 5590\_hypothetical\_protein |  | 23317\_hypothetical\_protein | 1490\_HAMP\_domain-containing protein |
| 6323\_hypothetical\_protein |  | 23327\_hypothetical\_protein | 1491\_response\_regulator |
| 6325\_hypothetical\_protein |  | 23336\_hypothetical\_protein | 1492\_hypothetical\_protein |
| 6352\_hypothetical\_protein |  | 23341\_hypothetical\_protein | 1493\_nuclear\_transport\_family |
| 6381\_hypothetical\_protein |  | 23343\_hypothetical\_protein | 1616\_AAA\_family\_ATPase |
| 6382\_hypothetical\_protein |  | 23346\_hypothetical\_protein | 1617\_hypothetical\_protein |
| 6384\_hypothetical\_protein |  | 23670\_conserved\_hypothetical protein | 1861\_SDR\_family\_oxidoreductase |
| 6385\_hypothetical\_protein |  | 23863\_hypothetical\_protein | 1862\_acetoacetate\_decarboxylase |
| 6403\_hypothetical\_protein |  | 23870\_hypothetical\_protein | 1863\_metal-dependent\_hydrolase |
| 6413\_hypothetical\_protein |  | 23875\_hypothetical\_protein | 1924\_alpha-beta\_hydrolase |
| 6427\_hypothetical\_protein |  | 23877\_hypothetical\_protein | 2440\_hydroxymethylglutaryl-coa reductase |
| 6443\_hypothetical\_protein |  | 23898\_hypothetical\_protein | 2441\_CoA\_transferase |
| 6453\_hypothetical\_protein |  | 23904\_hypothetical\_protein | 2442\_LysR\_family\_transcription protein |
| 6878\_copA\_2, copper resistance system multicopper oxidase |  | 23905\_hypothetical\_protein | 2443\_hypothetical\_protein |
| 6991\_hypothetical\_protein |  | 23916\_hypothetical\_protein | 2447\_hypothetical\_protein |
| 7112\_hypothetical\_protein |  | 24004\_conserved\_hypothetical protein | 2524\_hypothetical\_protein |
| 7633\_zitB\_3, zinc transporter ZitB |  | 24267\_hypothetical\_protein | 2525\_hypothetical\_protein |
| 7634\_czcD\_3, cobalt transporter |  | 24409\_putative\_Biotin\_carboxyl carrier protein | 2741\_RHS\_repeat\_protein |
|  |  | 24565\_conserved\_hypothetical protein | 3167\_hypothetical\_protein |
|  |  | 24569\_conserved\_hypothetical protein | 3789\_DUF4844\_\_domain-containing protein |
|  |  | 24604\_hypothetical\_protein |  |
|  |  | 24692\_hypothetical\_protein |  |
|  |  | 24695\_hypothetical\_protein |  |
|  |  | 24703\_ conservedhypothetical protein |  |
|  |  | 24704\_ conservedhypothetical protein |  |
|  |  | 24710\_hypothetical\_protein |  |
|  |  | 24712\_hypothetical\_protein |  |
|  |  | 24847\_hypothetical\_protein |  |
|  |  | 25090\_ conservedhypothetical protein |  |
|  |  | 25467\_hypothetical\_protein |  |
|  |  | 25469\_hypothetical\_protein |  |
|  |  | 25470\_ conservedhypothetical protein |  |
|  |  | 25487\_hypothetical\_protein |  |
|  |  | 25488\_hypothetical\_protein |  |
|  |  | 25489\_ conservedhypothetical protein |  |
|  |  | 25490\_hypothetical\_protein |  |
|  |  | 25491\_ conservedhypothetical protein |  |
|  |  | 25495\_putative\_Relaxase-he |  |
|  |  | 25501\_ conservedhypothetical protein |  |
|  |  | 25505\_dfrA10 |  |
|  |  | 25506\_putative\_transposase |  |
|  |  | 25510\_oxa-10 |  |
|  |  | 25511\_cmlA |  |
|  |  | 25512\_arr-2 |  |
|  |  | 25516\_GroEL-integrase\_fusion |  |
|  |  | 25517\_putative\_ATP-dependendent DNA helicase |  |
|  |  | 25518\_N-acetyltransferase AAC(6')-Ian |  |
|  |  | 25520\_putative\_transcriptional LysR family regulator |  |
|  |  | 25525\_dhfrI |  |
|  |  | 25527\_strB |  |
|  |  | 25528\_aphE |  |
|  |  | 25571\_conserved hypothetical protein |  |
|  |  | 25652\_hypothetical\_protein |  |
|  |  | 25656\_hypothetical\_protein |  |
|  |  | 25660\_conserved hypothetical protein |  |