**DOC S1 Descriptions about the microarray samples**

We obtained soybean microarray data from Gene Expression Omnibus with platform GPL 4592 (<http://www.ncbi.nlm.nih.gov/geo/query/acc.cgi?acc=GPL4592>) which contains 3855 samples and 56 series. Among these datasets, there are few samples pertained to mainly three experiments available to study the Aluminium (Al) stress in soybean. We selected the datasets GSE18423, GSE18517 and GSE18518 generated by Duressa et al. (2010a, 2010b and 2011) to study the Al stress response mechanism in Soybean through meta-analysis. The data were generated from Affymetrix Soybean Genome Array (GPL 4592 in GEO), which contains 37500 probes and each probe corresponded to an individual gene. The detail descriptions about the samples under Al stress are given in Table 1.

**Table 1** Descriptions about microarray samples used in this study

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Experiment** | **Sample** | **Stress Type** | **Replication** | **Time** | **Sample Labels** | **References** |
| **GSE18423** | GSM459249 | Control | 1 | 2 | -1 | Duressa et al. 2010a  |
| **GSE18423** | GSM459250 | Control | 2 | 2 | -1 | Duressa et al. 2010a |
| **GSE18423** | GSM459251 | Control | 1 | 12 | -1 | Duressa et al. 2010a |
| **GSE18423** | GSM459252 | Control | 2 | 12 | -1 | Duressa et al. 2010a  |
| **GSE18423** | GSM459253 | Control | 3 | 12 | -1 | Duressa et al. 2010a |
| **GSE18423** | GSM459254 | Control | 1 | 48 | -1 | Duressa et al. 2010a  |
| **GSE18423** | GSM459255 | Control | 2 | 48 | -1 | Duressa et al. 2010a |
| **GSE18423** | GSM459256 | Control | 3 | 48 | -1 | Duressa et al. 2010a |
| **GSE18423** | GSM459257 | Control | 1 | 72 | -1 | Duressa et al. 2010a  |
| **GSE18423** | GSM459258 | Control | 2 | 72 | -1 | Duressa et al. 2010a |
| **GSE18423** | GSM459259 | Control | 3 | 72 | -1 | Duressa et al. 2010a  |
| **GSE18423** | GSM459260 | Stress | 1 | 2 | 1 | Duressa et al. 2010a |
| **GSE18423** | GSM459261 | Stress | 2 | 2 | 1 | Duressa et al. 2010a |
| **GSE18423** | GSM459262 | Stress | 1 | 12 | 1 | Duressa et al. 2010a  |
| **GSE18423** | GSM459263 | Stress | 2 | 12 | 1 | Duressa et al. 2010a |
| **GSE18423** | GSM459264 | Stress | 3 | 12 | 1 | Duressa et al. 2010a  |
| **GSE18423** | GSM459265 | Stress | 1 | 48 | 1 | Duressa et al. 2010a |
| **GSE18423** | GSM459266 | Stress | 2 | 48 | 1 | Duressa et al. 2010a |
| **GSE18423** | GSM459267 | Stress | 3 | 48 | 1 | Duressa et al. 2010a  |
| **GSE18423** | GSM459268 | Stress | 1 | 72 | 1 | Duressa et al. 2010a |
| **GSE18423** | GSM459269 | Stress | 2 | 72 | 1 | Duressa et al. 2010a |
| **GSE18423** | GSM459270 | Stress | 3 | 72 | 1 | Duressa et al. 2010a  |
| **GSE18517** | GSM461271 | Control | 1 | 2 | -1 | Duressa et al. 2011  |
| **GSE18517** | GSM461272 | Control | 2 | 2 | -1 | Duressa et al. 2011 |
| **GSE18517** | GSM461273 | Control | 1 | 12 | -1 | Duressa et al. 2011 |
| **GSE18517** | GSM461274 | Control | 2 | 12 | -1 | Duressa et al. 2011  |
| **GSE18517** | GSM461275 | Control | 3 | 12 | -1 | Duressa et al. 2011 |
| **GSE18517** | GSM461276 | Control | 1 | 48 | -1 | Duressa et al. 2011 |
| **GSE18517** | GSM461277 | Control | 2 | 48 | -1 | Duressa et al. 2011  |
| **GSE18517** | GSM461278 | Control | 3 | 48 | -1 | Duressa et al. 2011 |
| **GSE18517** | GSM461279 | Control | 1 | 72 | -1 | Duressa et al. 2011 |
| **GSE18517** | GSM461280 | Control | 2 | 72 | -1 | Duressa et al. 2011  |
| **GSE18517** | GSM461281 | Control | 3 | 72 | -1 | Duressa et al. 2011  |
| **GSE18517** | GSM461282 | Stress | 1 | 2 | 1 | Duressa et al. 2011 |
| **GSE18517** | GSM461283 | Stress | 2 | 2 | 1 | Duressa et al. 2011 |
| **GSE18517** | GSM461284 | Stress | 1 | 12 | 1 | Duressa et al. 2011  |
| **GSE18517** | GSM461285 | Stress | 2 | 12 | 1 | Duressa et al. 2011 |
| **GSE18517** | GSM461286 | Stress | 3 | 12 | 1 | Duressa et al. 2011 |
| **GSE18517** | GSM461287 | Stress | 1 | 48 | 1 | Duressa et al. 2011  |
| **GSE18517** | GSM461288 | Stress | 2 | 48 | 1 | Duressa et al. 2011 |
| **GSE18517** | GSM461289 | Stress | 3 | 48 | 1 | Duressa et al. 2011 |
| **GSE18517** | GSM461290 | Stress | 1 | 72 | 1 | Duressa et al. 2011  |
| **GSE18517** | GSM461291 | Stress | 2 | 72 | 1 | Duressa et al. 2011  |
| **GSE18517** | GSM461292 | Stress | 3 | 72 | 1 | Duressa et al. 2011 |
| **GSE18517** | GSM461293 | Control | 1 | 2 | -1 | Duressa et al. 2011 |
| **GSE18517** | GSM461294 | Control | 2 | 2 | -1 | Duressa et al. 2011  |
| **GSE18517** | GSM461295 | Control | 1 | 12 | -1 | Duressa et al. 2011 |
| **GSE18517** | GSM461296 | Control | 2 | 12 | -1 | Duressa et al. 2011 |
| **GSE18517** | GSM461297 | Control | 3 | 12 | -1 | Duressa et al. 2011  |
| **GSE18517** | GSM461298 | Control | 1 | 48 | -1 | Duressa et al. 2011 |
| **GSE18517** | GSM461299 | Control | 2 | 48 | -1 | Duressa et al. 2011 |
| **GSE18517** | GSM461300 | Control | 3 | 48 | -1 | Duressa et al. 2011  |
| **GSE18517** | GSM461301 | Control | 1 | 72 | -1 | Duressa et al. 2011  |
| **GSE18517** | GSM461302 | Control | 2 | 72 | -1 | Duressa et al. 2011 |
| **GSE18517** | GSM461303 | Control | 3 | 72 | -1 | Duressa et al. 2011 |
| **GSE18517** | GSM461304 | Stress | 1 | 2 | 1 | Duressa et al. 2011  |
| **GSE18517** | GSM461305 | Stress | 2 | 2 | 1 | Duressa et al. 2011 |
| **GSE18517** | GSM461306 | Stress | 1 | 12 | 1 | Duressa et al. 2011 |
| **GSE18517** | GSM461307 | Stress | 2 | 12 | 1 | Duressa et al. 2011  |
| **GSE18517** | GSM461308 | Stress | 3 | 12 | 1 | Duressa et al. 2011 |
| **GSE18517** | GSM461309 | Stress | 1 | 48 | 1 | Duressa et al. 2011 |
| **GSE18517** | GSM461310 | Stress | 2 | 48 | 1 | Duressa et al. 2011  |
| **GSE18517** | GSM461311 | Stress | 3 | 48 | 1 | Duressa et al. 2011  |
| **GSE18517** | GSM461312 | Stress | 1 | 72 | 1 | Duressa et al. 2011 |
| **GSE18517** | GSM461313 | Stress | 2 | 72 | 1 | Duressa et al. 2011 |
| **GSE18517** | GSM461314 | Stress | 3 | 72 | 1 | Duressa et al. 2011  |
| **GSE18518** | GSM461315 | Stress | 1 | 12 | 1 | Duressa et al. 2010b  |
| **GSE18518** | GSM461316 | Stress | 2 | 12 | 1 | Duressa et al. 2010b |
| **GSE18518** | GSM461317 | Stress | 3 | 12 | 1 | Duressa et al. 2010b |
| **GSE18518** | GSM461318 | Stress | 1 | 72 | 1 | Duressa et al. 2010b  |
| **GSE18518** | GSM461319 | Stress | 2 | 72 | 1 | Duressa et al. 2010b |
| **GSE18518** | GSM461320 | Stress | 3 | 72 | 1 | Duressa et al. 2010b |
| **GSE18518** | GSM461327 | Stress | 1 | 12 | 1 | Duressa et al. 2010b  |
| **GSE18518** | GSM461328 | Stress | 2 | 12 | 1 | Duressa et al. 2010b  |
| **GSE18518** | GSM461329 | Stress | 3 | 12 | 1 | Duressa et al. 2010b |
| **GSE18518** | GSM461330 | Stress | 1 | 72 | 1 | Duressa et al. 2010b |
| **GSE18518** | GSM461331 | Stress | 2 | 72 | 1 | Duressa et al. 2010b  |
| **GSE18518** | GSM461332 | Stress | 3 | 72 | 1 | Duressa et al. 2010b |

In Sample Labels, “-1” and “1” means the microarray sample belong to control and Al toxic stress conditions respectively

**References**

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