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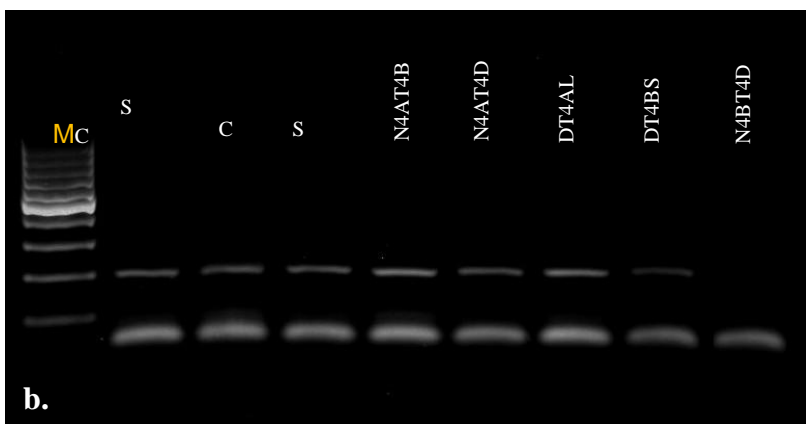
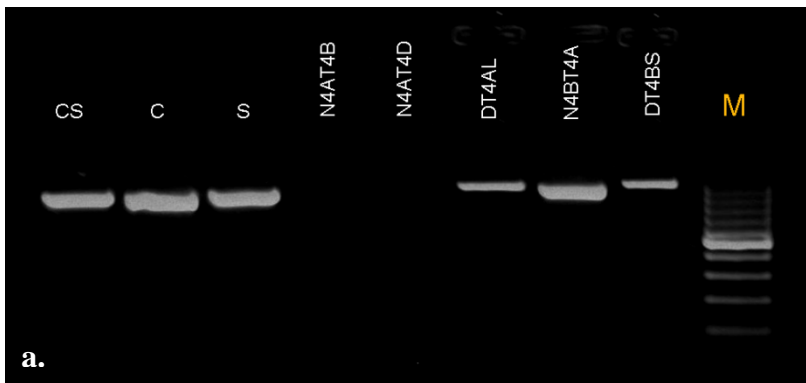
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**Isolation and characterisation of cytosolic glutamine synthetase (*GSe*) genes and association with grain protein content in durum wheat**

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Suppl. Fig. 1. Physical mapping of *GSe-A4* and *GSe-B4* genes on the homologues chromosome of group 4 using nulli-tetrasomic and ditelosomic aneuploid lines of cv. Chinese Spring (Sears 1966, Sears 1978). *GSe-A4* is localized on the chromosome 4A (a) and *GSe-B4* on the chromosome 4B (b).

**Suppl. Table 1. Primer pairs specific for the two isoforms of *Gse* gene used for *GSe-A4* and *GSe-B4* genes physical mapping**

| Gene name     | Primer Orientation | Primer 5'-3' sequence |
|---------------|--------------------|-----------------------|
| <i>GSe-A4</i> | Fw                 | CAATTTTGTGTTTGTGTAACC |
|               | Rev                | AGCATACACCACATCACATC  |
| <i>GSe-B4</i> | Fw                 | AGGAACATACATCCAGCTAGG |
|               | Rev                | GGGAGGGCAACGAGCGCCGGC |

Suppl. Table 2. correspondence between mapped SNP number code and their name in the Illumina chip

| Mapped marker name | Accession name of marker in Illumina chip |
|--------------------|---|
| SNP_02862          | BobWhite_c3670_517                        |
| SNP_04178          | BobWhite_c64932_360                       |
| SNP_05336          | BobWhite_rep_c63130_876                   |
| SNP_06616          | BS00015354_51                             |
| SNP_08051          | BS00036422_51                             |
| SNP_08555          | BS00049729_51                             |
| SNP_09940          | BS00067030_51                             |
| SNP_10141          | BS00067759_51                             |
| SNP_10939          | BS00077560_51                             |
| SNP_11693          | BS00091101_51                             |
| SNP_19715          | Excalibur_c10563_523                      |
| SNP_20752          | Excalibur_c15904_1331                     |
| SNP_26135          | Excalibur_c62090_277                      |
| SNP_29611          | Excalibur_s114708_55                      |
| SNP_30711          | Ex_c37521_670                             |
| SNP_31141          | Ex_c6348_1205                             |
| SNP_31275          | Ex_c6870_1704                             |
| SNP_31402          | Ex_c7514_3072                             |
| SNP_34106          | GENE-4691_462                             |
| SNP_34318          | IAAV1069                                  |
| SNP_34967          | IAAV5054                                  |
| SNP_34968          | IAAV5058                                  |
| SNP_35159          | IAAV6170                                  |
| SNP_35786          | IACX1734                                  |
| SNP_36191          | IACX7409                                  |
| SNP_36723          | Jagger_c7141_114                          |
| SNP_38237          | Kukri_c107526_208                         |
| SNP_38979          | Kukri_c14150_109                          |
| SNP_39587          | Kukri_c17556_411                          |
| SNP_41808          | Kukri_c31596_630                          |
| SNP_41809          | Kukri_c31596_818                          |
| SNP_41810          | Kukri_c31596_872                          |
| SNP_44203          | Kukri_c53985_59                           |
| SNP_44961          | Kukri_c64283_212                          |
| SNP_45180          | Kukri_c67076_479                          |
| SNP_46898          | Kukri_rep_c105330_552                     |
| SNP_47693          | Kukri_rep_c69291_170                      |
| SNP_48133          | Kukri_rep_c75743_357                      |
| SNP_51056          | RAC875_c109483_523                        |

|           |                              |
|-----------|------------------------------|
| SNP_51278 | RAC875_c118749_111           |
| SNP_52880 | RAC875_c20657_2535           |
| SNP_56659 | RAC875_c52232_196            |
| SNP_58113 | RAC875_c7019_754             |
| SNP_58495 | RAC875_c81356_645            |
| SNP_58496 | RAC875_c81356_688            |
| SNP_59513 | RAC875_rep_c107142_414       |
| SNP_62075 | Ra_c21042_617                |
| SNP_63403 | Ra_c8425_1331                |
| SNP_65074 | RFL_Contig5676_1956          |
| SNP_65076 | RFL_Contig5676_748           |
| SNP_66313 | Tdurum_contig10174_155       |
| SNP_66768 | Tdurum_contig10833_1928      |
| SNP_67426 | Tdurum_contig12069_385       |
| SNP_70728 | Tdurum_contig42011_1051      |
| SNP_71893 | Tdurum_contig48442_645       |
| SNP_72148 | Tdurum_contig51089_1066      |
| SNP_72608 | Tdurum_contig5799_773        |
| SNP_74033 | Tdurum_contig98197_73        |
| SNP_74369 | tplb0029f21_174              |
| SNP_75369 | wsnp_BE405483A_Ta_1_1        |
| SNP_75475 | wsnp_be471272A_Ta_2_1        |
| SNP_75548 | wsnp_BE498209A_Ta_2_1        |
| SNP_76299 | wsnp_Ex_c11417_18429357      |
| SNP_76544 | wsnp_Ex_c1358_2600929        |
| SNP_77492 | wsnp_Ex_c26560_35803210      |
| SNP_78243 | wsnp_Ex_c4819_8600618        |
| SNP_79065 | wsnp_Ex_rep_c102317_87512660 |
| SNP_80354 | wsnp_Ku_c2958_5561339        |
| SNP_80412 | wsnp_Ku_c340_706774          |
| SNP_80836 | wsnp_Ku_rep_c71755_71490557  |
| SNP_80902 | wsnp_Ra_c12708_20281439      |
| SNP_80907 | wsnp_Ra_c13009_20690735      |
| SNP_80908 | wsnp_Ra_c1303_2598907        |
| SNP_81279 | wsnp_Ra_rep_c104968_88985755 |

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