**Table S1**: List of primers used to quantify gene expression levels by qRT-PCR

|  |  |  |
| --- | --- | --- |
| **Genes** | **Forward primers** | **Reverse primers** |
| ***Mtc27*** | TGAGGGAGCAACCAAATACC | GCCAAAACCAAGCTACCATC |
| ***A38*** | TCGTGGTGGTGGTTATCAAA | TTCAGACCTTCCCATTGACA |
| ***16S*** | GATAAGCCGAGAGGAAGGTG | GTGTAGCCCAGCCCGTAAG |
| *16S ribosomal RNA* |
| ***PNP*** | GGACGGCTACAAGAACGACAC | TCATGCTGCATGACCGTGAT |
| (Smc00324) |
| *Polyribonucleotide nucleotidyl transferase* |
| ***nifD*** | TCCGACTTTCAGGAGAAGGA | CGATGTCGTCACCAATCAAG |
| *Nitrogenase molybdenum-iron protein alpha chain* |
| ***nifH*** | GTTATCACCTCGATCAACTTCCT | CGATGTAGATTTCCTGAGCCT |
| *Nitrogenase iron protein* |
| ***Thrxs1*** | TGTGTTGGTGGAATTCTTCG | AGCCACGAGTTTGTTTCGAC |
| *Thioredoxin s1* |
| ***Lb*** | GAGCGAAGAATTGAGCACTGCT | TGCCTTCTTAATTGCAGTTGCC |
| *Leghemoglobin* |
| ***NCR001*** | CACTTCTGACGCTAACTG | TGAACCTTCAATATACCACC |
| *Nodule-specific Cysteine-Rich peptide 001* |
| ***CP6*** | CCTGCTGCTACTATTGCTGGATATG | CACTCGCATCAATGGCTACGG |
| *Cysteine Protease 6* |
| ***VPE*** | CCAGGGGTTCTTGGTATGCCCG | ACTGCCAGATTCACATGCCTCCA |
| *Vascular Processing Enzyme* |
| ***PAP*** | TTTTGCACCGGATTCTTCAC | CCAACACCACTACCCAAGGA |
| *Purple Acid Phosphatase* |

**Table S2:** expression analysis of *pap* isoforms up regulated in nodules compared to roots. Pap isoforms were found in symbimics (https://iant.toulouse.inra.fr/symbimics/) website using “purple acid phosphatase” as a key word. Amongst the 52 isoforms, 5 were significantly more expressed in nodules than in roots. The pap Mt0031\_00308 is significantly more expressed in zone III than in all the other zones. Numbers correspond to measures from nodule laser dissection (deseq-normalized-RNA-seq reads).





**Figure S1:** Growth of *Sinorhizobium meliloti* strains.

The growth of Rm2011, mutant strain SmgshB in Rm2011 background was monitored by measuring the OD600. Growth of SmgshB was complemented with GSH 2mM. At time zero, rhizobial cells were diluted with LB medium to an OD600 of 0.1. The data are the means from three experiments.

**![A picture containing screenshot

Description automatically generated]()**

**Figure S2:** Nodule development at 10 and 20 dpi in WT (grey) and GshB mutant (yellow).

A. Nodule size (mm2). B. Nodule number per plant. Data (three biological samples) are reported as mean ± standard error. \* indicates a statistically significant difference relative to the control (P <0,05; ARA, nodule number and Plant shoot weight were calculated with 15 plants and nodule surface was measured with 75 nodules).

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**Figure S3:** Plant development at 10 and 20 days post infection.

Plants were inoculated by *S. meliloti* 2011 (WT) and *S. meliloti* 2011 gshB mutant (SmgshB) strains. The image is representative of 15 plants. Scale bar = 1 cm