

**Supplementary Table 1. Cryo-EM data collection, refinement and validation statistics of maize ZmGLN1**

|                                                  | <i>Zea mays</i> ZmGLN1<br>(EMDB-66135)<br>(PDB 9WP6) |
|--------------------------------------------------|------------------------------------------------------|
| <b>Data collection and processing</b>            |                                                      |
| Magnification                                    | 165,000                                              |
| Voltage (kV)                                     | 300                                                  |
| Electron exposure (e-/Å <sup>2</sup> )           | 18                                                   |
| Defocus range (µm)                               | -0.8 to -1.6                                         |
| Pixel size (Å)                                   | 0.506                                                |
| Symmetry imposed                                 | D5                                                   |
| Initial particle images (no.)                    | 625,482                                              |
| Final particle images (no.)                      | 302,580                                              |
| Map resolution (Å)                               | 1.98                                                 |
| FSC threshold                                    | 0.143                                                |
| Map resolution range (Å)                         | 1.98-2.7                                             |
| <b>Refinement</b>                                |                                                      |
| Initial model used (PDB code)                    | -                                                    |
| Model resolution (Å)                             | 2.00                                                 |
| FSC threshold                                    | 0.143                                                |
| Model resolution range (Å)                       | 1.9-2.4                                              |
| Map sharpening <i>B</i> factor (Å <sup>2</sup> ) | 54.8                                                 |
| Model composition                                |                                                      |
| Non-hydrogen atoms                               | 29350                                                |
| Protein residues                                 | 3891                                                 |
| Ligands                                          | 0                                                    |
| <i>B</i> factors (Å <sup>2</sup> )               |                                                      |
| Protein                                          | 77.22                                                |
| Ligand                                           | -                                                    |
| R.m.s. deviations                                |                                                      |
| Bond lengths (Å)                                 | 0.003                                                |
| Bond angles (°)                                  | 0.496                                                |
| Validation                                       |                                                      |
| MolProbity score                                 | 1.14                                                 |
| Clashscore                                       | 3.47                                                 |
| Poor rotamers (%)                                | 0.03                                                 |
| Ramachandran plot                                |                                                      |
| Favored (%)                                      | 99.10                                                |
| Allowed (%)                                      | 0.90                                                 |
| Disallowed (%)                                   | 0                                                    |

**Supplementary Table 2. Primers used in this study for constructions, RT-qPCR and genotyping.**

| <b>Primers</b>       | <b>Forward sequence (5'-3')</b>                                | <b>Usage</b>       |
|----------------------|----------------------------------------------------------------|--------------------|
| pCAMBIA2300-PSY3-F   | ATTTGGAGAGGAC<br>AGGGTACCATGATG<br>TCTACGAGCCGCGC              | pCAMBIA2300-PSY3   |
| pCAMBIA2300-PSY3-R   | CATGTCGACTCTAG<br>AGGATCCTGTTAGG<br>GTGGAATAGCGTCT<br>CC       |                    |
| pCAMBIA3100-PLAP1-F  | TACTATTCTAGTCG<br>AGGTACCATGGCA<br>GCCTCCGTGGCG                | pCAMBIA3100-PLAP1  |
| pCAMBIA3100-PLAP1-R  | AAGCTTCCTGCAGG<br>TGGATCCGCTTTCA<br>TATTCTGATATCAC<br>TGCATC   |                    |
| pCAMBIA3100-PLAP2-F  | TACTATTCTAGTCG<br>AGGTACCATGGCG<br>GGATCAGCGTTG                | pCAMBIA3100-PLAP2  |
| pCAMBIA3100-PLAP2-R  | AAGCTTCCTGCAGG<br>TGGATCCGTTTAGA<br>AGAGTACTTCCCTC<br>CTTGAA   |                    |
| pCAMBIA3100-PLAP13-F | TACTATTCTAGTCG<br>AGGTACCATGGCG<br>GCCGTCGTGGCG                | pCAMBIA3100-PLAP13 |
| pCAMBIA3100-PLAP13-R | AAGCTTCCTGCAGG<br>TGGATCCGCTTTCA<br>TATTCCGATATCAC<br>TGC      |                    |
| pCAMBIA3100-B4FRP8-F | TACTATTCTAGTCG<br>AGGTACCATGGCGT<br>CCTCCGCGTTC                | pCAMBIA3100-B4FRP8 |
| pCAMBIA3100-B4FRP8-R | AAGCTTCCTGCAGG<br>TGGATCCGTATAGA<br>AGAGTACTTCCCTC<br>CTTGAACA |                    |
| pCAMBIA3100-PLAP10-F | TACTATTCTAGTCG<br>AGGTACCATGGCGC<br>TCGCAGCCCCT                | pCAMBIA3100-PLAP10 |
| pCAMBIA3100-PLAP10-R | AAGCTTCCTGCAGG<br>TGGATCCTGTAAGA                               |                    |

|                     |                                                             |                    |
|---------------------|-------------------------------------------------------------|--------------------|
|                     | GGTTGTGCCTTTGT<br>GA                                        |                    |
| pCAMBIA3100-NCED6-F | TACTATTCTAGTCG<br>AGGTACCATGGAG<br>AGAACACTGATCAC<br>CTCTAA | pCAMBIA3100-NCED6  |
| pCAMBIA3100-NCED6-R | AAGCTTCCTGCAGG<br>TGGATCCTTGCTGC<br>TGC GCCTGGAG            |                    |
| pCAMBIA3100-LOX10-F | TACTATTCTAGTCG<br>AGGTACCATGATGA<br>ACCTGAACCTGAAG<br>CA    | pCAMBIA3100-LOX10  |
| pCAMBIA3100-LOX10-R | AAGCTTCCTGCAGG<br>TGGATCCGATGGAG<br>ATGCTGCTGGGG            |                    |
| pCAMBIA3100-LW2-F   | TACTATTCTAGTCG<br>AGGTACCATGGCCA<br>CCGGCGTGGCT             | pCAMBIA3100-LW2    |
| pCAMBIA3100-LW2-R   | AAGCTTCCTGCAGG<br>TGGATCCCTCCTCG<br>GCAGGAGGATCC            |                    |
| pCAMBIA3100-CAH1-F  | TACTATTCTAGTCG<br>AGGTACCATGTACA<br>CATTGCCCGTCCG           | pCAMBIA3100-CAH1   |
| pCAMBIA3100-CAH1-R  | AAGCTTCCTGCAGG<br>TGGATCCCTTTTTC<br>CATGTGAGGAACTC<br>TCC   |                    |
| pCAMBIA3100-CAH6-F  | TACTATTCTAGTCG<br>AGGTACCATGCCCCG<br>CCTTTCCCGTC            | pCAMBIA3100-CAH6   |
| pCAMBIA3100-CAH6-R  | AAGCTTCCTGCAGG<br>TGGATCCAGTTTCC<br>CATACGAGGAAGTT<br>CC    |                    |
| pCAMBIA3100-SXD1-F  | TACTATTCTAGTCG<br>AGGTACCATGAACC<br>TCGCCGTCGCA             | pCAMBIA3100-SXD1   |
| pCAMBIA3100-SXD1-R  | AAGCTTCCTGCAGG<br>TGGATCCTAGGCCT<br>GGGGGCTTAAGAA           |                    |
| pCAMBIA3100-NIR2-F  | TACTATTCTAGTCG<br>AGGTACCATGGCCT<br>CCTCAGCGTCC             | pCAMBIA3100-ZmNIR2 |
| pCAMBIA3100-NIR2-R  | AAGCTTCCTGCAGG                                              |                    |

|                    |                                                         |                    |
|--------------------|---------------------------------------------------------|--------------------|
|                    | TGGATCCCTCCTCA<br>TCCTCCTCCCTCTC<br>C                   |                    |
| pCAMBIA3100-GLN1-F | TACTATTCTAGTCG<br>AGGTACCATGGCGC<br>AGGCGGTGGTG         | pCAMBIA3100-ZmGLN1 |
| pCAMBIA3100-GLN1-R | AAGCTTCCTGCAGG<br>TGGATCCCACCTTC<br>AGCGCCAGCTTC        |                    |
| pCAMBIA3100-NIR1-F | TACTATTCTAGTCG<br>AGGTACCATGACAT<br>ATCCCAGGCTGCG       | pCAMBIA3100-NIR1   |
| pCAMBIA3100-NIR1-R | AAGCTTCCTGCAGG<br>TGGATCCCTCCTCA<br>TCCTCCTCTTCCTC      |                    |
| pCAMBIA3100-GLN2-F | TACTATTCTAGTCG<br>AGGTACCATGGCTC<br>TGCTCTCCGACCT       | pCAMBIA3100-GLN2   |
| pCAMBIA3100-GLN2-R | AAGCTTCCTGCAGG<br>TGGATCCAGGAGCC<br>GCGGCGCCCTT         |                    |
| pCAMBIA3100-GLN3-F | TACTATTCTAGTCG<br>AGGTACCATGGCCA<br>GCCTCACTGACC        | pCAMBIA3100-GLN3   |
| pCAMBIA3100-GLN3-R | AAGCTTCCTGCAGG<br>TGGATCCGTTTCCC<br>TTCCACAGGATGGT      |                    |
| pCAMBIA3100-GLN4-F | TACTATTCTAGTCG<br>AGGTACCATGGCCT<br>GCCTCACCGAC         | pCAMBIA3100-GLN4   |
| pCAMBIA3100-GLN4-R | AAGCTTCCTGCAGG<br>TGGATCCGGGCTTC<br>CAGATGATGGTGG       |                    |
| pCAMBIA3100-GLN5-F | TACTATTCTAGTCG<br>AGGTACCATGGCCT<br>GCCTCACCGAC         | pCAMBIA3100-GLN5   |
| pCAMBIA3100-GLN5-R | AAGCTTCCTGCAGG<br>TGGATCCGGGCTTC<br>CAGACGATGGTG        |                    |
| pCAMBIA3100-GLN6-F | TACTATTCTAGTCG<br>AGGTACCATGGCCA<br>GCCTCACCGAC         | pCAMBIA3100-GLN6   |
| pCAMBIA3100-GLN6-R | AAGCTTCCTGCAGG<br>TGGATCCGTTTCCA<br>TTCCACAGGATGGT<br>G |                    |

|                         |                                                         |                       |
|-------------------------|---------------------------------------------------------|-----------------------|
| pCAMBIA3100-Δ47(NIR2)-F | TACTATTCTAGTCG<br>AGGTACCATGGAG<br>CAGGTCCCGACG         | pCAMBIA3100-Δ47(NIR2) |
| pCAMBIA3100-Δ47(NIR2)-R | AAGCTTCCTGCAGG<br>TGGATCCCTCCTCA<br>TCCTCCTCCCTCTC<br>C |                       |
| pCAMBIA3100-Δ36(NIR2)-F | TACTATTCTAGTCG<br>AGGTACCATGGTCT<br>CCGTGCCGCCG         | pCAMBIA3100-Δ36(NIR2) |
| pCAMBIA3100-Δ36(NIR2)-R | AAGCTTCCTGCAGG<br>TGGATCCCTCCTCA<br>TCCTCCTCCCTCTC<br>C |                       |
| pCAMBIA3100-Δ51(GLN1)-F | TACTATTCTAGTCG<br>AGGTACCATGGTGC<br>CGCGCCTCGAG         | pCAMBIA3100-Δ51(GLN1) |
| pCAMBIA3100-Δ51(GLN1)-R | AAGCTTCCTGCAGG<br>TGGATCCCACCTTC<br>AGCGCCAGCTTC        |                       |
| pCAMBIA3100-Δ30(GLN1)-F | TACTATTCTAGTCG<br>AGGTACCATGGGCC<br>GCGGCGGCGCC         | pCAMBIA3100-Δ30(GLN1) |
| pCAMBIA3100-Δ30(GLN1)-R | AAGCTTCCTGCAGG<br>TGGATCCCACCTTC<br>AGCGCCAGCTTC        |                       |
| pCAMBIA3100-CML228-T1-F | TACTATTCTAGTCG<br>AGGTACCATGGCCT<br>CCTCAGCGTCC         | pCAMBIA3100-CML228-T1 |
| pCAMBIA3100-CML228-T1-R | AAGCTTCCTGCAGG<br>TGGATCCCTCCTCA<br>TCCTCCTCCCTCTC<br>C |                       |
| pCAMBIA3100-CML228-T2-F | TACTATTCTAGTCG<br>AGGTACCATGATGC<br>GGCTGAAGCTGC        | pCAMBIA3100-CML228-T2 |
| pCAMBIA3100-CML228-T2-R | AAGCTTCCTGCAGG<br>TGGATCCCTCCTCA<br>TCCTCCTCCCTCTC<br>C |                       |
| pCAMBIA3100-CML333-T1-F | TACTATTCTAGTCG<br>AGGTACCATGGCCT<br>CCTCAGCGTCC         | pCAMBIA3100-CML333-T1 |
| pCAMBIA3100-CML333-T1-R | AAGCTTCCTGCAGG<br>TGGATCCCTCCTCA<br>TCCTCCTCCCTCTC      |                       |

|                         |                                                         |                       |
|-------------------------|---------------------------------------------------------|-----------------------|
|                         | C                                                       |                       |
| pCAMBIA3100-CML333-T2-F | TACTATTCTAGTCG<br>AGGTACCATGATGC<br>GGCTGAAGCTGC        | pCAMBIA3100-CML333-T2 |
| pCAMBIA3100-CML333-T2-R | AAGCTTCCTGCAGG<br>TGGATCCCTCCTCA<br>TCCTCCTCCCTCTC<br>C |                       |
| pCAMBIA3100-ΔG-HR1-F    | GTTCCGCCTCGAGC<br>AGCTGCTCAACATG<br>GACAC               | pCAMBIA3100-ΔG-HR1    |
| pCAMBIA3100-ΔG-HR1-R    | AGCTGCTCGAGGCG<br>GAACCCCGGCGAG<br>GCGCCG               |                       |
| pCAMBIA3100-ΔG-HR2-F    | TACTATTCTAGTCG<br>AGGTACCATGGCGC<br>AGGCGGTGGTG         | pCAMBIA3100-ΔG-HR2    |
| pCAMBIA3100-ΔG-HR2-R    | AAGCTTCCTGCAGG<br>TGGATCCGTACGGG<br>TCCATGTTTGATGC      |                       |
| pCAMBIA3100-G-HR1-F     | TACTATTCTAGTCG<br>AGGTACCATGAAG<br>GTCATGGCCGTCAG       | pCAMBIA3100-G-HR1     |
| pCAMBIA3100-G-HR1-R     | AAGCTTCCTGCAGG<br>TGGATCCCGGCACC<br>ACCCCGGTGCT         |                       |
| pCAMBIA3100-G-HR2-F     | TACTATTCTAGTCG<br>AGGTACCATGATTG<br>TGACGGGGCTACTG<br>G | pCAMBIA3100-G-HR2     |
| pCAMBIA3100-G-HR2-R     | AAGCTTCCTGCAGG<br>TGGATCCACCTTC<br>AGCGCCAGCTTC         |                       |
| pCAMBIA3100-rTP-F       | TACTATTCTAGTCG<br>AGGTACCATGGCCC<br>CCTCCGTGATG         | pCAMBIA3100-rTP       |
| pCAMBIA3100-rTP-R       | AAGCTTCCTGCAGG<br>TGGATCCACCTGC<br>ATGCACCTGATCC        |                       |
| pCAMBIA3100-rTP+G-HR1-F | TACTATTCTAGTCG<br>AGGTACCATGGCCC<br>CCTCCGTGATG         | pCAMBIA3100-rTP+G-HR1 |
| pCAMBIA3100-rTP+G-HR1-F | AAGCTTCCTGCAGG<br>TGGATCCCGGCACC<br>ACCCCGGTGCT         |                       |
| pCAMBIA3100-rTP+G-HR2   | TACTATTCTAGTCG                                          | pCAMBIA3100-rTP+G-H   |

|                             |                                                  |                    |
|-----------------------------|--------------------------------------------------|--------------------|
| -F                          | AGGTACCATGGCCC<br>CCTCCGTGATG                    | R2                 |
| pCAMBIA3100-rTP+G-HR2<br>-R | AAGCTTCCTGCAGG<br>TGGATCCCACCTTC<br>AGCGCCAGCTTC |                    |
| pCAMBIA3100-ΔN-HR1-F        | GTGACGCTCACCAG<br>CCTGCAGAGCGGC<br>ATGGAC        | pCAMBIA3100-ΔN-HR1 |
| pCAMBIA3100-ΔN-HR1-R        | CAGGCTGGTGAGC<br>GTCACCCCGCGGAT<br>CTGCCA        |                    |
| pCAMBIA3100-ΔN-HR2-F        | TACATGCCGGCCAT<br>CCTCGAGGCGTACC<br>GGGAC        | pCAMBIA3100-ΔN-HR2 |
| pCAMBIA3100-ΔN-HR2-R        | GAGGATGGCCGGC<br>ATGTACGCGAGGTC<br>GTTGAT        |                    |
| pCAMBIA3100-ΔN-HR3-F        | TACGTGGGCCTCAT<br>GTTTCGAGCTGGCGC<br>GGCTC       | pCAMBIA3100-ΔN-HR3 |
| pCAMBIA3100-ΔN-HR3-R        | GAACATGAGGCCC<br>ACGTACGACAGGC<br>CTTCCTG        |                    |
| pCAMBIA3100-ΔN-HR4-F        | GATGCTGATCGAGA<br>CCAAGGCGCGGGC<br>GCTGCA        | pCAMBIA3100-ΔN-HR4 |
| pCAMBIA3100-ΔN-HR4-R        | TTGGTCTCGATCAG<br>CATCGACGGCCGCG<br>GCGAG        |                    |
| pCAMBIA3100-ΔN-HR5-F        | ATGCCCCAACAGCG<br>AGGCCGCGGACAT<br>CTTCGT        | pCAMBIA3100-ΔN-HR5 |
| pCAMBIA3100-ΔN-HR5-R        | GCCTCGCTGTTGGG<br>GCATCCGGTCCAGT<br>GCATG        |                    |
| pCAMBIA3100-ΔN-HR6-F        | ACGTCTACCGGCGG<br>TTCGGGGCCGTGCC<br>GAGGG        | pCAMBIA3100-ΔN-HR6 |
| pCAMBIA3100-ΔN-HR6-R        | CGAACCGCCGGTA<br>GACGTCGGCCAGGT<br>GCGAGT        |                    |
| pCAMBIA3100-N-HR1-F         | TACTATTCTAGTCG<br>AGGTACCATGCCGG<br>ACGTCCCGGCCA | pCAMBIA3100-N-HR1  |
| pCAMBIA3100-N-HR1-R         | AAGCTTCCTGCAGG<br>TGGATCCGAGGCCG                 |                    |

|                         |                                                  |                       |
|-------------------------|--------------------------------------------------|-----------------------|
|                         | ACGGCGCGGAGG                                     |                       |
| pCAMBIA3100-N-HR2-F     | TACTATTCTAGTCG<br>AGGTACCATGGCCG<br>TCAAGGACGGC  | pCAMBIA3100-N-HR2     |
| pCAMBIA3100-N-HR2-R     | AAGCTTCCTGCAGG<br>TGGATCCCTTGCAC<br>ACGGGGACGACG |                       |
| pCAMBIA3100-N-HR3-F     | TACTATTCTAGTCG<br>AGGTACCATGCACG<br>TGCCGGTGGGC  | pCAMBIA3100-N-HR3     |
| pCAMBIA3100-N-HR3-R     | AAGCTTCCTGCAGG<br>TGGATCCGTCCGCG<br>GCCTGCAGCCG  |                       |
| pCAMBIA3100-N-HR4-F     | TACTATTCTAGTCG<br>AGGTACCATGCTCA<br>GGGGGCTGGTG  | pCAMBIA3100-N-HR4     |
| pCAMBIA3100-N-HR4-R     | AAGCTTCCTGCAGG<br>TGGATCCGATGGCC<br>TGCCCGCAGAA  |                       |
| pCAMBIA3100-N-HR5-F     | TACTATTCTAGTCG<br>AGGTACCATGTGCG<br>GCCAGGTGCAG  | pCAMBIA3100-N-HR5     |
| pCAMBIA3100-N-HR5-R     | AAGCTTCCTGCAGG<br>TGGATCCGACGATC<br>TTGCCGTCGCTG |                       |
| pCAMBIA3100-N-HR6-F     | TACTATTCTAGTCG<br>AGGTACCATGAAGT<br>CCGTGCCGTGCA | pCAMBIA3100-N-HR6     |
| pCAMBIA3100-N-HR6-R     | AAGCTTCCTGCAGG<br>TGGATCCCTCCACC<br>AAGAGGTCGGCC |                       |
| pCAMBIA3100-rTP+N-HR1-F | TACTATTCTAGTCG<br>AGGTACCATGGCCC<br>CCTCCGTGATG  | pCAMBIA3100-rTP+N-HR1 |
| pCAMBIA3100-rTP+N-HR1-R | AAGCTTCCTGCAGG<br>TGGATCCGAGGCCG<br>ACGGCGCGGAG  |                       |
| pCAMBIA3100-rTP+N-HR2-F | TACTATTCTAGTCG<br>AGGTACCATGGCCC<br>CCTCCGTGATG  | pCAMBIA3100-rTP+N-HR2 |
| pCAMBIA3100-rTP+N-HR2-R | AAGCTTCCTGCAGG<br>TGGATCCCTTGCAC<br>ACGGGGACGACG |                       |
| pCAMBIA3100-rTP+N-HR3-F | TACTATTCTAGTCG<br>AGGTACCATGGCCC<br>CCTCCGTGATG  | pCAMBIA3100-rTP+N-HR3 |

|                         |                                                                |                                             |
|-------------------------|----------------------------------------------------------------|---------------------------------------------|
| pCAMBIA3100-rTP+N-HR3-R | AAGCTTCCTGCAGG<br>TGGATCCGTCCGCG<br>GCCTGCAGCCG                |                                             |
| pCAMBIA3100-rTP+N-HR4-F | TACTATTCTAGTCG<br>AGGTACCATGGCCC<br>CCTCCGTGATG                | pCAMBIA3100-rTP+N-HR4                       |
| pCAMBIA3100-rTP+N-HR4-R | AAGCTTCCTGCAGG<br>TGGATCCGATGGCC<br>TGCCCGCAGAA                |                                             |
| pCAMBIA3100-rTP+N-HR5-F | TACTATTCTAGTCG<br>AGGTACCATGGCCC<br>CCTCCGTGATG                | pCAMBIA3100-rTP+N-HR5                       |
| pCAMBIA3100-rTP+N-HR5-R | AAGCTTCCTGCAGG<br>TGGATCCGACGATC<br>TTGCCGTCGCTG               |                                             |
| pCAMBIA3100-rTP+N-HR6-F | TACTATTCTAGTCG<br>AGGTACCATGGCCC<br>CCTCCGTGATG                | pCAMBIA3100-rTP+N-HR6                       |
| pCAMBIA3100-rTP+N-HR6-R | AAGCTTCCTGCAGG<br>TGGATCCCTCCACC<br>AAGAGGTCGGCC               |                                             |
| pET28a-GLN1-Δ30aa-F     | AACAGATTGGTGGC<br>AGTGGGATGGGCC<br>GCGGCGGCGCCTCG<br>CC        | pET28a-GLN1-Δ30aa                           |
| pET28a-GLN1-Δ30aa-R     | AGCGTAATCCGGA<br>ACATCATACGGGTA<br>CACCTTCAGCGCCA<br>GCTTCTTGG |                                             |
| pET28a-NIR2-Δ37aa-F     | AACAGATTGGTGGC<br>AGTGGGATGGTCTC<br>CGTGCCGCCGCCGG<br>CGGC     | pET28a-NIR2-Δ37aa                           |
| pET28a-NIR2-Δ37aa-R     | CTTATCGTCGTCAT<br>CCTTGTAATCCTCC<br>TCATCCTCCTCCCT<br>CTCCCTCG |                                             |
| RTM-T1-F                | AGAGCGGCATGGA<br>CAACGT                                        | Quantification of T1 transcripts in RT-qPCR |
| RTM-T1-R                | CCTGGGAGTTGTTG<br>GTGACGT                                      |                                             |
| RTM-T2-F                | CACAATCACCAACC<br>TGCCGAG                                      | Quantification of T2 transcripts in RT-qPCR |
| RTM-T2-R                | GAAGGTTGAAGCC<br>GAACTCGC                                      |                                             |
| RTM-NIR1-F              | CTCGCCAAGATCCC                                                 | Quantification of <i>ZmNIR1</i>             |

|              |                                       |                                                           |
|--------------|---------------------------------------|-----------------------------------------------------------|
|              | CATGGA                                | transcripts in RT-qPCR                                    |
| RTM-NIR1-R   | GATCTGCCAGTTCT<br>GCCGGG              |                                                           |
| RTM-ZmNIR2-F | ATCGACGAGCTCGG<br>GATGG               | Quantification of <i>ZmNIR2</i><br>transcripts in RT-qPCR |
| RTM-ZmNIR2-R | CTCTCGTTGCTGAC<br>GTTGGG              |                                                           |
| RTM-ACTIN-F  | GCTGAGAGATTCAG<br>ATGCCA              | Internal control in<br>RT-qPCR                            |
| RTM-ACTIN-R  | GTGGATTCCAGCAG<br>CTCCAT              |                                                           |
| nir1-F       | CAGACCGTTCCAGG<br>TACGTGGATC          | Genotyping of <i>nir1</i>                                 |
| nir1-R       | GCTTGCGGCGTCG<br>ATCA                 |                                                           |
| ZmNIR2-1-F   | AGTTCCCCTCGATC<br>GTCTCA              | Genotyping of <i>nir2-1</i>                               |
| ZmNIR2-1-R   | TTGGTCTCGATGAT<br>GGCCTG              |                                                           |
| ZmNIR2-2-F   | AGTTCCCCTCGATC<br>GTCTCA              | Genotyping of <i>nir2-2</i>                               |
| ZmNIR2-2-R   | CATCCTCCTCCCTC<br>TCCCTC              |                                                           |
| gln1-F       | GAGCGCCGGCAGG<br>ACTAG                | Genotyping of <i>gln1</i>                                 |
| gln1-R       | GTTCCACTAATGTT<br>GATTCCAGCGTAGA<br>G |                                                           |
| gln2-F       | AGCCTGGGTCAGCA<br>GAGATA              | Genotyping of <i>gln2</i>                                 |
| gln2-R       | TGCGCTGATTCACC<br>TTGACT              |                                                           |
| gln3-F       | TATGTTGGCGGAAG<br>AGGCAG              | Genotyping of <i>gln3</i>                                 |
| gln3-R       | CGAGGGAGAGAAC<br>GATTCCG              |                                                           |
| gln4-F       | GTCGTAGTTCCACT<br>TGGCA               | Genotyping of <i>gln4</i>                                 |
| gln4-R       | CTGTGCCCCTGTAC<br>CTCTTG              |                                                           |
| gln5-F       | ACCAGAACCAACC<br>AGATCAGT             | Genotyping of <i>gln5</i>                                 |
| gln5-R       | CGCTTATACGGTGT<br>TGTCGC              |                                                           |
| gln6-F       | AGAGAACAAGGTG<br>CCACTAC              | Genotyping of <i>gln6</i>                                 |

|          |                                  |                                |
|----------|----------------------------------|--------------------------------|
| gln6-R   | TGACCATGCTCTGC<br>TGTTAG         |                                |
| NIR-OE-F | CACTGGACCGGATG<br>CCCCAACA       | Genotyping of <i>ZmNIR</i> -OE |
| NIR-OE-R | AATCGATGTCGTGA<br>TCCTTATAGTCTCC |                                |