Cytokinin levels and expression profiles of cytokinin metabolic genes in late stage maize kernels

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Cytokinins (CK) are key determinants of seed size and their level can impact crop yield. The biological activities and chemistry of cytokinins are well defined but less is known about their molecular mode of action during maize kernel development, especially in late stage kernels. To understand the regulation of cytokinin levels at late stage kernel development, we examined the levels of active and inactive cytokinins in embryo and endosperm across kernel development. Active trans-zeatin is high during early stage of kernel growth, but decreases during later stages. We also undertook a genome-wide survey of cytokinin metabolic genes involved in biosynthesis, metabolism, conversion, transport, and signaling and examined their expression profiles during kernel development. Several major genes were identified which may contribute to changes in cytokinin levels during the late stage. Our systematic analysis of cytokinin pathways genes and metabolites provides an overall insight into the regulation of CK level across maize kernel development. Our data on late stage kernel add to the existing knowledge of CK biology in maize and could facilitate the modulation of CK levels using biotechnology.

Key words: Maize, cytokinin, kernel development, metabolism, gene regulation.

INTRODUCTION

Cytokinin plays an important role in coordinating the timing of development and overall kernel growth (Morris et al., 1997; Schäfer et al., 2015). One of the richest sources of CKs in many plants species is the developing seed where they control seed development through regulation of seed sink potential (Jameson and Song, 2015). Cytokinins are highly required during early endosperm development (5 to 10 days after pollination (DAP) in maize (Brugière et al., 2008) and the level of cytokinins declines as the seed matures. Although the role of cytokinins in the late stages of kernel growth is less understood, it is known that during senescence the levels of cytokinins in kernels decrease. Because cytokinins are linked to cell wall invertase and sink activity (Ehned and Roitsch, 1997), increasing cytokinin level using transgenes could delay senescence and lead to higher yield or better abiotic stress tolerance depending on whether the plant perceives itself to be in a source or sink limiting condition (Jameson and Song, 2015). However, decreasing cytokinin levels in the late stages of kernel development impacts its interaction with ABA and may prevent precocious germination (Miransari
Li et al., 2014), which is an unfavorable agricultural phenotype. Therefore, it is critical to understand regulation of cytokinin during the later stage of kernel development and underlying molecular mechanisms.

The metabolic pathways involved in synthesizing and conversion of cytokinins are described in Figure 1. Zeatin (Z) and zeatin riboside (ZR) are the principal cytokinins present during the early phases of kernel development. Zeatin reaches to a maximum at 8 to 12 DAP; then declines to near incipient levels between 16 and 20 DAP (Cheikh and Jones, 1994; Dietrich et al., 1995). Cytokinin activity is higher in the endosperm than the embryo suggesting that endosperm may supply cytokinins until the embryo can synthesize its own. Cytokinins are regulated at many levels, including de novo synthesis, conjugation, transport, catabolism, perception and the conversion between active and inactive forms (Kieber et al., 2018).

The level of cytokinin is determined by genes involved in these metabolite pathways and the spatial-temporal regulation of cytokinin pathway genes is critical to control local cytokinin levels (Hirose et al., 2007; Ma et al., 2008). CK biosynthesis, degradation and reversible/irreversible inactivation are key regulators of CK level.

Figure 1. The key enzymes and metabolites of cytokinin metabolism. AMP, adenosine monophosphate; DMAPP, dimethylallyl diphosphate; MVA, mevalonate; iPRMP, isopentenyl riboside monophosphate; TZRMP, trans-zeatin riboside monophosphate; DZRMP, D-zeatin riboside monophosphate; IPR, isopentenyl riboside; TZR, trans-zeatin riboside; DZR, D-zeatin riboside; CZR, cis-zeatin riboside; ZOGT, zeatin-O-glucosyltransferase; βGlc, β-glucosidase. The key enzymes and metabolites of cytokinin metabolism. The active forms of cytokinin are on the third row (iP, tZ, DZ and cZ). The precursors iPR, tZR, DZR, and cZR are in active as are the N and O glucosides implied by the double yellow arrow on the bottom right of the figure.
Several maize CK dehydrogenase (CKX) genes are expressed in the endosperm and embryo (Šmehilová et al., 2009; Vyroubalová et al., 2009). Lower cytokinin levels are associated with increased cytokinin degradation; higher levels of cytokinin are associated with homeostatic mechanisms (Jones et al., 1992; Zalabák et al., 2014; Jameson and Song, 2015).

Although zeatin is one of the principal accumulating cytokinins in developing kernels, it can rapidly undergo conversion to nucleosides and nucleotides (Figure 1). Conversion between active and inactive cytokinin can establish a cytokinin gradient across the kernel and reduce or increase biological activity (Jameson and Song, 2015).

CK-O-glucosides are generally assumed to be storage products. Cytokinin action is further regulated by cytokinin transport systems. The purine permease (PUP) family and the equilibrative nucleoside transporter (ENT) family have been proposed as candidates for cytokinin transporters in Arabidopsis and rice (Kang et al., 2017; Burkle et al., 2003; Hirose et al., 2005).

Specific steps in cytokinin biosynthesis, metabolism and perception may be targeted for genetic modification to enhance crop performance when spatial-temporal cytokinin regulation is better understood. Over the past decade, numerous cytokinin metabolism and perception genes have been identified. However, most transcriptome profiling studies have focused on gene profiles in the early through middle developmental stage endosperm in maize (Li et al., 2014; Sekhon et al., 2011, 2013; Shen et al., 2012), no late stage (40DAP) included. In this study, we systematically studied expression profiles of cytokinin pathway genes and CK levels from early to late stage of kernel to identify genes involved in maize CK biosynthesis, signaling, conversion, degradation, activation, and transport pathways. We also dissected kernel into the endosperm and embryo to study tissue specific gene expression, and measured cytokinin CK levels during middle and late kernel stages. Finally, we discuss how the spatial regulation of cytokinin metabolism genes impact CKs in both embryo and endosperm.

MATERIALS AND METHODS

Bioinformatics analysis

Arabidopsis cytokinin pathway proteins were used as seed sequences for BLAST to identify maize CK pathway proteins in maize (B73), with a cutoff of 1e-05. The identified public sequences were cross mapped to maize GBD and previous literature.

Plant material

Plants were hand-pollinated and kernels were harvested from 0 to 40 DAP. For each time point, three replicates were sampled. All samples were collected between 10 am and 12 pm. Embryo and endosperm were dissected at each time point.

Expression of profiling

Affymetrix microarray was conducted for expression analysis across several developmental stages (Yang, et al., 2011). The expression probe design has been uploaded to NCBI.

CK extraction

Plant tissues were sampled and immediately frozen by immersing in liquid nitrogen and stored in a -80°C freezer until processing. Samples were milled frozen and 250 to 350 mg of fresh frozen tissue was weighed into a pre-chilled 2 ml 96-well glass vials. 20 µl of deuterated internal standards was added, (Appendix Table S1 for exact amount of each internal standard) to each vial containing ground tissues. Samples were extracted twice with 1 ml of 80% methanol in 1% acetic acid for 4 h at 4°C. Plates were centrifuged and the supernatants transferred to another 2 ml 96-well plate, evaporated under nitrogen and reconstituted in 1 ml of 1 M acetic acid. Plant hormones extract was purified with solid phase extraction using Oasis MCX cartridge (Waters) equilibrated with 1 M acetic acid, neutral and acidic hormones were eluted with methanol, and cytokinins were eluted with 60% aqueous methanol containing 0.35 M ammonium hydroxide. Elution solvents were evaporated and samples reconstituted in 100 µl of 25% methanol in water containing 0.1% formic acid and subjected to UPLC-MS/MS analysis.

CK analysis

Hormones were measured with a UPLC-MS/MS system consisting of AB Sciei 5500 triple quad mass spectrometry and Shimadzu UPLC system. Separation was achieved using an AQUITY UPLC BEH C 18, 1.7 µm, 2.1 × 100 mm (Waters) maintained at 40°C. The mobile phase consisted of solvent A (0.1% v/v aqueous formic acid) and solvent B (0.1% v/v formic acid in methanol). The gradient profile was 80% A + 20 % B for 2 min, then a linear increase to 100% B for 10 min at a flow rate of 0.3 ml/min. Mass spectrometry was operated in segmented MRM mode. Precursor and production ions for each hormone and internal standard as well as mass spectrometry parameters are summarized in Appendix Table S2. Data processing including peak picking and integration was performed using Analyst Software.

RESULTS

Level of cytokinin metabolites during mid and late stage kernel

We measured the levels of active and inactive forms of kernel cytokinins at mid (21-22 DAP) and late (38 DAP) kernel stages, in both the embryo and endosperm. All metabolite data are described in Appendix Table S5. As previously reported (Rijavec et al., 2011), the three predominant forms of inactive cytokinin in kernel were zeatin riboside (ZR), the inactive form of zeatin, followed by isopentenyladenosine (iPA) and zeatin-9-glucoside (Z9G). Zeatin (Z) is the predominant active cytokinin in maize kernels (Figure 2). Zeatin levels decrease dramatically in the endosperm from 10.7 pmole/g FW at 22 DAP to 1.2 pmole/g FW at 38 DAP. However, zeatin levels in the embryo did not change appreciably and were
Levels of detected cytokinins in kernel embryo and endosperm at different development stages in inbred maize. Sum of expression level of each pathway at different scale at kernel 2DAP, embryo 12DAP, 15DAP, 18 DAP, 22 DAP, 28 DAP and 40 DAP, endosperm 12 DAP, 15 DAP, 18 DAP, 22 DAP, 28 DAP and 40 DAP. (A) Expression level of all genes involved in cytokinin activation pathway. (B) Expression level of all genes involved in cytokinin biosynthesis pathway. (C) Expression level of all genes involved in cytokinin conversion pathway. (D) Expression level of all genes involved in cytokinin degradation pathway. (E) Expression level of all genes involved in cytokinin signaling pathway. (F) Expression level of all genes involved in cytokinin transport pathway.

0.8 and 1.4 pmole/g FW for 22 and 38 DAP respectively (Figure 2). ZR levels are highest in kernel endosperm at 22 DAP but drop steeply from 70.4 pmole/g FW at 22 DAP to 9.6 pmole/g FW at 38 DAP respectively. Levels of IPA also decrease at 38 DAP. While Z9G is not as abundant as ZR in 22 DAP endosperm, it shows a similar decrease in 38 DAP endosperm, from 12.9 to 2.0 pmole/g FW. Finally, cytokinin levels in maize embryo are generally lower than levels in maize endosperm and the ratio of different cytokinin forms is also different.

Identification of the genes involved in cytokinin metabolism pathways

To understand the molecular mechanisms and components that contribute to cytokinin levels across kernel development, we undertook a systematic approach to identify cytokinin pathway genes. Homology searches were performed using BLASTn software on the public database with currently known Arabidopsis protein sequences as seed sequences (http://www.maizesequence.org/index.html) (Brugière et al., 2008). The cutoff for the Ortholog BLAST search was 1e-05. 120 maize genes with matches to the public database were identified. Transcript isoforms are also included (Appendix Table S3). The blast hits were also cross validated with previous publications (Schnable et al., 2011). The genes, grouped by their annotated function, are shown in Table 1.

Expression patterns of cytokinin pathway genes in maize kernel

A microarray designed by Affymetrix and Monsanto was used to study dynamic gene expression during kernel development from fertilization to physiological maturity. Gene expression profiles were investigated during kernel development in our inbred line. Embryo and endosperm were dissected from kernel at 2DAP, 12DAP, 15DAP, 18DAP, 22DAP, 28DAP and 40DAP. Our expression data cover late stage kernel (40DAP) expression, which was not included in the maize atlas expression study (Sekhon et al. 2011). All expression data are shown in Appendix Table S4.

The activities of each group of genes were compared in different tissues at different developmental stages. We defined four relative expression levels based on the range of expression value; 500-1000 is defined as low expression, 1000-5000 is defined as medium expression, 5000-10000 is defined as high expression, and >10000 is defined as extremely high expression. To further investigate individual gene expression in relation to cytokinin level change in all cytokinin pathways, the expression of genes within these pathways was compared across development in both embryo and endosperm (Figures 4 to 8). We selected genes with
Table 1. Number of CK pathway gene in each functional group in maize.

| Pathway                  | Gene family name | Family size |
|--------------------------|------------------|-------------|
| Cytokinin activation     | LOG              | 4           |
| Cytokinin conversion     | ZOGT             | 9           |
|                          | β-glucosidase    | 24          |
| Cytokinin degradation    | CK-N-GT          | 2           |
|                          | CKX              | 15          |
|                          | ZmHK             | 7           |
|                          | ZmHP             | 9           |
|                          | ZmARR            | 28          |
| Cytokinin signaling      | ZmHK             | 7           |
|                          | ZmHP             | 9           |
|                          | ZmARR            | 28          |
| Cytokinin transport      | ENT              | 1           |
|                          | PUP              | 7           |
| Cytokinin biosynthesis   | IPT              | 6           |
|                          | CYP735A          | 8           |

Figure 3. Sum of expression level of each pathway at different scale. Expression of selected genes from CK conversion pathway. Expression level of GRMZM2G031660 (β-glucosidase (βGlc), GRMZM2G043295(ZOGT), GRMZM2G055699, GRMZM2G108133(β-glucosidase (βGlc), GRMZM2G118003(β-glucosidase (βGlc), GRMZM2G148176(β-glucosidase (βGlc), GRMZM2G168474(ZOGT), GRMZM2G178209(ZOGT), GRMZM2G376416(β-glucosidase (βGlc).

expression level greater than 500 and those which had expression level changes across development. These selected genes are included in the Figures 4 to 8.

The overall expression of the CK functional groups (Table 1) is shown in Figure 3. The genes for cytokinin conversion are highly active and dynamic across kernel development, and are at their highest in stage 2DAP kernels. Their expression drops at 12DAP, and resumes at mid to late stage of kernel development. The cytokinin signaling pathway is also highly expressed across kernel development.
Development. Interestingly, cytokinin transport pathway activity increases as kernel develops in both embryo and endosperm. Compared to other cytokinin metabolism pathway genes, the expression of cytokinin activation genes is lower.

**Expression of cytokinin conversion pathway genes**

Cytokinin conversion pathway genes are highly expressed compared to genes in other pathways in both embryo and endosperm. Two gene families were grouped in this
pathway, ZOGT and β-glucosidase. ZOGT is responsible for conversion of cytokinin from active to inactive form. β-glucosidase is responsible for conversion from inactive to active form of CK. Six β-glucosidase genes and two ZOGT genes are presented in Figure 4. The two ZOGT genes tend to be more highly expressed in late endosperm at 40 DAP. GRMZM2G168474 level increases dramatically at 40DAP and correlates with decreased level of cytokinin at 38DAP. In general, β-glucosidase gene activity decreases in 40DAP.
endosperm. GRMZM2G108133 and GRMZM2G055699 activity increase at 40DAP. GRMZM2G118003 (ZmBGLU18) expresses highly in the kernel at 2DAP. ZmBGLU18 continuously expresses higher in embryo and high to medium in endosperm across all developmental stages. GRMZM2G108133 (βGlc), GRMZM2G055699 (βGlc) and GRMZM2G168474 (ZOGT) share similar expression profiles, which suggests they may be coordinately regulated. They are at a low to medium level in most developmental stages and are up-regulated at 40DAP. GRMZM2G148176 (βGlc) is up-regulated at 18-22 DAP in endosperm and embryo.

Expression of cytokinin degradation pathway genes

Cytokinin oxidase (CKX) and cytokinin-N-glucosyltransferase inactivate cytokinin by conjugation. These two gene families represent the initial reaction in the two cytokinin degradation pathways. The expression of selected genes from CK degradation pathway is shown in Figure 5. Overall, the genes of the CK degradation pathway are not highly expressed. Two genes are expressed at medium level. GRMZM2G348452 (CKX10) expresses at kernel 2DAP and is down-regulated in both embryo and endosperm. GRMZM5G817173 (CKX4) expresses low across embryo and endosperm development, except it is up-regulated at 40 DAP in endosperm, correlating to the decreased level of cytokinin in endosperm at 40 DAP.

Expression of cytokinin signaling pathway

The CK signal is conveyed by CK-responsive His kinases (CK receptors; HKs), His-phosphotransfer proteins (HP) and CK primary response regulators (RRs) (Higuchi et al., 2004; Chu et al., 2011). The expression of selected genes in CK signaling pathway is shown in Figure 6. The genes in this pathway express at a low to medium level. GRMZM2G014154 (ZmHP2), GRMZM2G016439 (ZmHP3), GRMZM2G392101, GRMZM2G040736 express high in mid stage and are down-regulated at late stage 40DAP, which correlate with lower level of cytokinin at 40DAP. Both GRMZM2G016439 (ZmHP3) and GRMZM2G156019 (ZmRR7) are down-regulated after kernel 2DAP in both embryo and endosperm. In general, cytokinin signaling pathway activity is low at late stage of kernel development.

Expression of cytokinin transport pathway genes

The purine permease (PUP) family and the equilibrative nucleoside transporter (ENT) family are candidates for cytokinin transporters. Expression levels of seven selected genes in CK transport pathway are shown in Figure 7. GRMZM2G002391 expresses highly at kernel 2DAP, then are down regulated throughout the rest of embryo and endosperm development. GRMZM2G009344 is significantly upregulated at late stages in embryo, and up-regulated in the 40DAP of
endosperm development, indicating this transport gene correlates with lower level of cytokinin by transporting cytokinin out of the kernel. GRMZM2G066923 and GRMZM2G389285 expression also increase at 40DAP endosperm. GRMZM2G416625 expresses at medium level at kernel 2DAP and mid to late stage of embryo and endosperm development. PUP mediates cytokinin transport as cellular import.

Expression of cytokinin biosynthesis pathway genes

In higher plants, the CK biosynthesis is catalyzed by adenosine phosphate-isopentenyltransferase (IPT) and cytochrome P450 monooxygenases (P450s) (CYP735A). Expression levels of four selected genes in CK biosynthesis are shown in Figure 8. In general, the expression CK biosynthesis genes falls into the range of low expression and does not change significantly across developmental stages, indicating these genes are not responding to kernel developmental signaling and do not correlate with cytokinin level changes. GRMZM2G138750 encodes CYP735A, which is up-regulated at kernel 2DAP, suggesting this gene is critical for cytokinin synthesis at early stages.

DISCUSSION

Cytokinins (CK) are key determinants of seed size and changes in cytokinin levels or activity can impact crop yield. Given that lower cytokinin levels in mature kernels help prevent an unfavorable agricultural phenotype, the regulation of level of cytokinin has critical impact on kernel traits not only at early kernel developmental stage, but also during the late stage. To gain an improved understanding of the role of cytokinins in kernel development, we took a systematic approach to identify CK metabolism genes including: biosynthesis, transport, conversion, signaling and degradation with the view of identifying promising target genes to manipulate crop yield. Less is known about cytokinin biology during the later stage of kernel development, and therefore our late-stage expression data represents a key unique addition to the body of accumulating data for these plant growth regulators. The molecular changes in these genes may contribute to the decreased cytokinin level at the late stage kernel. Those genes with significantly high expression level may be major contributors to cytokinin levels. However, a high expression level may not necessarily translate into high enzyme activity, necessary to impact the cytokinin level.

In our study, we have followed the expression of two classes of cytokinin degradation genes in both endosperm and embryo, cytokinin oxidase (CKX) and cytokinin-N-glucosyltransferase which inactivate cytokinin by conjugation. These two gene types represent the initial reaction in the two cytokinin degradation pathways. Our data shows that in both endosperm and embryo, GRMZM5G817173, a cytokinin oxidase, increases gradually over development but shows a sharp rise at 40DAP (Figure 6). The inverse correlation between CKX gene, GRMZM5G817173 expression and cytokinin levels (Figures 6 and 2) observed in our study, especially in the late stages of development, provides additional support to suggest that cytokinin levels are primarily modulated by cytokinin oxidases and that late-stage targeted expression of CKX genes may be a useful strategy to increase crop yield. At the same time, several major active and inactive cytokinins decrease substantially in the both the endosperm and embryo between R3 and R5. DHZ is unique compared to the other cytokinins since it is higher at R5 than R3 (Figure 2).

Cytokinin conversion pathway genes (Figure 4) control the level of active vs. inactive cytokinins and are expressed at a high level compared to genes in other cytokinin metabolic pathways in both embryo and endosperm. Several members of the cytokinin conversion group (especially two β-glucosidases, GRMZM2G16890 and GRMZM2G118003) were the most highly expressed of all the genes throughout the developmental stages we studied, suggesting that the conversion genes may be a key means to regulate overall active cytokinin levels (Freibort et al., 2011). β-glucosidases are necessary to maintain the levels of active cytokinins which facilitate kernel growth and development (Freibort et al., 2011). One ZOGT gene, GRMZM2G168747 is significantly upregulated at late stage of kernel, indicating that some active cytokinin is inactivated at late stage. This change indicates either that cytokinins are under dynamic conversion across developmental stages in these tissues, which leads to changes in the ratio or maintenance of the level of active versus inactive cytokinin. Over-expression of conversion genes in the endosperm or embryo might increase or decrease active cytokinin levels in a developmental specific manner, and this may be a strategy for yield improvement through fine control of active vs inactive cytokinin ratio.

CK transport genes express higher in endosperm compared to embryo, suggesting that the endosperm may supply cytokinins until the embryo can synthesize its own. The expression of three transport genes increases between mid to late stage of kernel development, suggesting cytokinin is transported out during the late stage.

Overall the level of CK pathway activity in endosperm and embryo may explain why the level of cytokinin is higher in endosperm. Cytokinin biosynthesis genes are not significantly differentially expressed across developmental stages, except GRMZM2G138750 which expresses highly in early embryo and decreases as the kernel develops. Our data support the hypothesis that CK is transported and not synthesized de novo in the embryo during the early and mid-stages of seed growth (Davey et al., 2013).
and Staden, 1979). Cytokinin signaling generally decreases at late stage of kernel development in both embryo and endosperm. The CK signal is conveyed by a two component cytokinin signaling system, the so-called histidyl to aspartyl system. Nuclease response regulators and histidine phosphotransfer expression levels are much lower than most of the other cytokinin genes and they may require much subtler changes in expression to produce desired phenotypic effects.

Conclusion

We measured three forms of active and storage cytokinins in embryo vs. endosperm at different stages of development. Zeatin is the predominant active cytokinin and ZR is the dominant inactive form. CK levels decrease from R3 to R5 developmental stage (except DHZ) and storage forms of CK are higher but correlated to active forms. Except IP, CK levels are higher in the endosperm than the embryo.

We demonstrated the expression level of CK metabolism gene families and individual genes comparing different stages of development and embryo vs. endosperm. Individual genes from different cytokinin metabolic pathways together coordinate precise control of cytokinin level and kernel development. Overall, CK degradation and conversion may impact level and activity of cytokinins in late stage kernels at a larger scale, particularly the candidate genes with drastic expression shifts would be good targets for genetic modifications to prevent agricultural off-types, although CK synthesis might also be a good target even at a smaller scale.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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ABBREVIATIONS

CK, Cytokinin; DAP, days after pollination; PUP, purine permease; ENT, equilibrative nucleoside transporter; CKX, CK dehydrogenase; βGlc, β-glucosidase; ZOGT, O-glucosyltransferase; CK-N-GT, cytokinin N-glucosyltransferase; QTL, quantitative trait loci; BLAST, Basic local alignment search tool; MRM, multiple reaction monitoring; IPT, isopentenyl transferase; LOG, Lonely guy.

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Supplemental Table S1. List of plant hormone standards and deuterated internal standards.

| Item # | Name                                           | Cat No | Vendors      | Pmole Added |
|--------|------------------------------------------------|-------|--------------|-------------|
| 21     | Trans-zeatin (Z)                               | Z0876 | Sigma        |             |
| 22     | 6-(g,g-Dimethylallylamino)purine riboside (IPR) | D7257 | Sigma        |             |
| 23     | 6-(g,g-Dimethylallylamino)purine (iP)          | D7674 | Sigma        |             |
| 24     | Zeatin Riboside (ZR)                           | Z0375 | Sigma        |             |
| 25     | Trans-Zeatin-9-glucoside (Z9G)                 | 001 0471 | OlChemlm LTD |             |
| 26     | DIHYDROZEATIN (DHZ)                            | 001 0601 | OlChemlm LTD |             |
| 27     | DIHYDROZEATIN RIBOSIDE (DHZR)                  | 001 0611 | OlChemlm LTD |             |
| 40     | 2H5 T-zeatin                                   |       | OlChemlm LTD | 20          |
| 41     | 2H5 t-zeatin riboside                          |       | OlChemlm LTD | 20          |
| 42     | 2H5 T-zeatin-9-b-D-Glucoside                   |       | OlChemlm LTD | 10          |
| 43     | 2H3 DL-Dihydrozeatin                           |       | OlChemlm LTD | 20          |
| 44     | 2H3 (RS)-dihydrozeatin riboside                |       | OlChemlm LTD | 10          |
| 45     | d6-(2-Isopentenyl)adenine                      |       | OlChemlm LTD | 10          |
| 46     | 2H6 N6(2-isopentenyl)adenosine                 |       | OlChemlm LTD | 10          |

Supplemental Table S2. Mass spectrometry MRM acquisition parameters.

| Segments | ID    | RT min | Q1 Mass   | Q3 Mass   | msec | DP | CE | CXP |
|----------|-------|--------|-----------|-----------|------|----|----|-----|
| Period 1 | d5-tZG| 1.8    | 387.12    | 225.00    | 100  | 86 | 27 | 18  |
|          | d5-tZ | 1.8    | 224.69    | 136.90    | 100  | 126| 25 | 12  |
|          | tZ   | 1.8    | 219.70    | 136.00    | 100  | 26 | 23 | 12  |
|          | DHZ  | 1.8    | 221.59    | 135.80    | 100  | 71 | 29 | 10  |
|          | ZG   | 1.8    | 381.89    | 220.00    | 100  | 151| 27 | 18  |
|          | d3-DHZ| 1.8    | 224.67    | 135.90    | 100  | 36 | 29 | 12  |
| Period 2 | d5-tZR| 2.8    | 356.89    | 225.00    | 100  | 136| 25 | 18  |
|          | tZR  | 2.7    | 351.89    | 220.00    | 100  | 136| 25 | 16  |
|          | d3-DHZ| 2.8    | 356.90    | 225.00    | 100  | 66 | 29 | 16  |
|          | DHZR | 2.8    | 354.00    | 222.00    | 100  | 146| 27 | 16  |
| Period 3 | d6-iP | 4.0    | 210.14    | 136.90    | 50   | 131| 21 | 12  |
|          | iP   | 4.1    | 203.77    | 135.90    | 50   | 136| 19 | 10  |
|          | d6-iPR| 4.9    | 342.02    | 210.00    | 50   | 146| 25 | 16  |
|          | iPR  | 4.9    | 335.59    | 203.90    | 50   | 46 | 23 | 24  |
Supplemental Table S3. List of genes included in cytokinin pathways.

| Gene name | Gene ID       | Pathway                  |
|-----------|---------------|--------------------------|
| IPT       | GRMZM2G102915 | Cytokinin biosynthesis   |
| IPT       | GRMZM2G436770 | Cytokinin biosynthesis   |
| IPT       | GRMZM2G097258 | Cytokinin biosynthesis   |
| IPT       | GRMZM2G116878 | Cytokinin biosynthesis   |
| IPT       | GRMZM2G018046 | Cytokinin biosynthesis   |
| IPT       | GRMZM2G104559 | Cytokinin biosynthesis   |
| CYP735A   | GRMZM2G161158 | Cytokinin biosynthesis   |
| CYP735A   | GRMZM2G022904 | Cytokinin biosynthesis   |
| CYP735A   | GRMZM2G076936 | Cytokinin biosynthesis   |
| CYP735A   | GRMZM2G138750 | Cytokinin biosynthesis   |
| CYP735A   | GRMZM2G016890 | Cytokinin conversion     |
| CYP735A   | GRMZM2G008247 | Cytokinin conversion     |
| CYP735A   | GRMZM2G120962 | Cytokinin conversion     |
| CYP735A   | GRMZM2G014844 | Cytokinin conversion     |
| CYP735A   | GRMZM2G077015 | Cytokinin conversion     |
| CYP735A   | GRMZM2G129860 | Cytokinin conversion     |
| CYP735A   | GRMZM2G459563 | Cytokinin conversion     |
| ZOGT      | GRMZM2G012236 | Cytokinin conversion     |
| ZOGT      | GRMZM2G043295 | Cytokinin conversion     |
| ZOGT      | GRMZM2G058314 | Cytokinin conversion     |
| ZOGT      | GRMZM2G159404 | Cytokinin conversion     |
| CKX12     | GRMZM2G008792 | Cytokinin degradation    |
| CKX4B     | GRMZM2G024476 | Cytokinin degradation    |
| CKO2      | GRMZM2G050997 | Cytokinin degradation    |
| CKX8      | GRMZM2G114427 | Cytokinin degradation    |
### Supplemental Table S3. Contd.

| Gene name | Gene ID       | Pathway                  |
|-----------|---------------|--------------------------|
| CKX       | GRMZM2G122340 | Cytokinin degradation    |
| CKX8      | GRMZM2G134634 | Cytokinin degradation    |
| CKX1      | GRMZM2G146644 | Cytokinin degradation    |
| CKX       | GRMZM2G162048 | Cytokinin degradation    |
| CKX3      | GRMZM2G167220 | Cytokinin degradation    |
| CKX       | GRMZM2G170446 | Cytokinin degradation    |
| CKX       | GRMZM2G303707 | Cytokinin degradation    |
| CKX5      | GRMZM2G325612 | Cytokinin degradation    |
| CKX10     | GRMZM2G348452 | Cytokinin degradation    |
| CKX6      | GRMZM2G404443 | Cytokinin degradation    |
| CKX4      | GRMZM2G5817173| Cytokinin degradation    |
| CK-N-GT   | GRMZM2G083935 | Cytokinin degradation    |
| CK-N-GT   | GRMZM2G082249 | Cytokinin degradation    |
| ZmHK1     | GRMZM2G158252 | Cytokinin signaling      |
| ZmHK2     | GRMZM2G23456 | Cytokinin signaling      |
| ZmHK3     | GRMZM2G155767 | Cytokinin signaling      |
| ZmHK4     | GRMZM2G039696 | Cytokinin signaling      |
| ZmHK5     | GRMZM2G471529 | Cytokinin signaling      |
| ZmHK6     | GRMZM2G125943 | Cytokinin signaling      |
| ZmHK7     | GRMZM2G151223 | Cytokinin signaling      |
| ZmHP1     | GRMZM2G451604 | Cytokinin signaling      |
| ZmHP2     | GRMZM2G014154 | Cytokinin signaling      |
| ZmHP3     | GRMZM2G016439 | Cytokinin signaling      |
| ZmHP4     | GRMZM2G451604 | Cytokinin signaling      |
| ZmHP5     | GRMZM2G124890 | Cytokinin signaling      |
| ZmHP6     | GRMZM2G039246 | Cytokinin signaling      |
| ZmHP7     | GRMZM2G016439 | Cytokinin signaling      |
| ZmHP8     | GRMZM2G173710 | Cytokinin signaling      |
| ZmHP9     | GRMZM2G451604 | Cytokinin signaling      |
| ZmRR1     | GRMZM2G129954 | Cytokinin signaling      |
| ZmRR2     | GRMZM2G319187 | Cytokinin signaling      |
| ZmRR3     | GRMZM2G392101 | Cytokinin signaling      |
| ZmRR4     | GRMZM2G040736 | Cytokinin signaling      |
| ZmRR5     | GRMZM2G148056 | Cytokinin signaling      |
| ZmRR6     | GRMZM2G096171 | Cytokinin signaling      |
| ZmRR7     | GRMZM2G156019 | Cytokinin signaling      |
| ZmRR8     | GRMZM2G179827 | Cytokinin signaling      |
| ZmRR9     | GRMZM2G319187 | Cytokinin signaling      |
| ZmRR10    | GRMZM2G16145  | Cytokinin signaling      |
| ZmRR11    | GRMZM2G319187 | Cytokinin signaling      |
| ZmRR12    | GRMZM2G005732 | Cytokinin signaling      |
| ZmRR13    | GRMZM2G033962 | Cytokinin signaling      |
| ZmRR14    | GRMZM2G095727 | Cytokinin signaling      |
| ZmRR15    | GRMZM2G179024 | Cytokinin signaling      |
| ZmRR16    | GRMZM2G20081  | Cytokinin signaling      |
| ZmRR17    | GRMZM2G308046 | Cytokinin signaling      |
| ZmRR18    | GRMZM2G099797 | Cytokinin signaling      |
| ZmRR19    | GRMZM2G401821 | Cytokinin signaling      |
| ZmRR20    | GRMZM2G013612 | Cytokinin signaling      |
| ZmRR21    | GRMZM2G460594 | Cytokinin signaling      |
| ZmRR22    | GRMZM2G177220 | Cytokinin signaling      |
## Supplemental Table S3. Contd.

| Gene name | Gene ID | Pathway               |
|-----------|---------|-----------------------|
| ZmRR23    | GRMZM2G100318 | Cytokinin signaling   |
| ZmRR24    | GRMZM2G360523 | Cytokinin signaling   |
| ZmRR25    | GRMZM2G479110 | Cytokinin signaling   |
| ZmRR26    | GRMZM2G099797 | Cytokinin signaling   |
| ZmRR27    | GRMZM2G409974 | Cytokinin signaling   |
| ZmRR28    | GRMZM2G126834 | Cytokinin signaling   |
| PUP       | GRMZM2G416625 | Cytokinin transport   |
| PUP       | GRMZM2G009344 | Cytokinin transport   |
| PUP       | GRMZM2G389285 | Cytokinin transport   |
| PUP       | GRMZM2G146337 | Cytokinin transport   |
| PUP       | GRMZM2G002391 | Cytokinin transport   |
| PUP       | GRMZM2G066923 | Cytokinin transport   |
| PUP       | GRMZM2G153438 | Cytokinin transport   |
| ENT       | GRMZM2G002391_T02 | Cytokinin transport |
| LOG       | GRMZM2G471931  | Cytokinin activation  |
| LOG       | GRMZM2G100360  | Cytokinin activation  |
| LOG       | GRMZM5G896859  | Cytokinin activation  |
| LOG       | GRMZM2G019363  | Cytokinin activation  |
### Supplemental Table S4. List of cytokinin pathway genes express in embryo and endosperm.

| Pathway                  | Gene ID          | Chart Label      | Object name         | Response name | Mean (predicted) | Standard error |
|--------------------------|------------------|------------------|---------------------|---------------|-----------------|----------------|
| Cytokinin degradation    | GRMZM2G168474    | endosperm_12DAP  | A1ZM000065_at       | endosperm_12DAP | 451.0875        | 56.175         |
| Cytokinin signaling      | GRMZM2G016439    | endosperm_12DAP  | A1ZM000436_at       | endosperm_12DAP | 2150.138        | 209.025        |
| Cytokinin signaling      | GRMZM2G020081    | endosperm_12DAP  | A1ZM005041_at       | endosperm_12DAP | 206.4125        | 6.325          |
| Cytokinin biosynthesis   | GRMZM2G129860    | endosperm_12DAP  | A1ZM005050_at       | endosperm_12DAP | 123.525         | 8.25           |
| Cytokinin signaling      | GRMZM2G471529    | endosperm_12DAP  | A1ZM005128_at       | endosperm_12DAP | 96.225          | 1.25           |
| Cytokinin signaling      | GRMZM2G155767    | endosperm_12DAP  | A1ZM006236_a_at     | endosperm_12DAP | 281.1125        | 20.725         |
| Cytokinin signaling      | GRMZM2G155767    | endosperm_12DAP  | A1ZM006928_a_at     | endosperm_12DAP | 739.5375        | 18.125         |
| Cytokinin signaling      | GRMZM2G155767    | endosperm_12DAP  | A1ZM006928_x_at     | endosperm_12DAP | 582.05          | 11.85          |
| Cytokinin biosynthesis   | GRMZM2G459563    | endosperm_12DAP  | A1ZM008285_at       | endosperm_12DAP | 140.875         | 4.35           |
| Cytokinin signaling      | GRMZM2G099797    | endosperm_12DAP  | A1ZM009127_s_at     | endosperm_12DAP | 487.85          | 15.95          |
| Cytokinin degradation    | GRMZM2G086925    | endosperm_12DAP  | A1ZM009389_at       | endosperm_12DAP | 168.75          | 5.3            |
| Cytokinin degradation    | GRMZM2G120016    | endosperm_12DAP  | A1ZM009692_at       | endosperm_12DAP | 256.0375        | 16.625         |
| Cytokinin degradation    | GRMZM2G058314    | endosperm_12DAP  | A1ZM009796_at       | endosperm_12DAP | 137.35          | 2.3            |
| Cytokinin signaling      | GRMZM2G014154    | endosperm_12DAP  | A1ZM010384_a_at     | endosperm_12DAP | 4111.313        | 108.575        |
| Cytokinin transport      | GRMZM2G416625    | endosperm_12DAP  | A1ZM012937_at       | endosperm_12DAP | 1163.25         | 32.7           |
| Cytokinin biosynthesis   | GRMZM2G097258    | endosperm_12DAP  | A1ZM013917_at       | endosperm_12DAP | 187.05          | 5.65           |
| Cytokinin transport      | GRMZM2G146337    | endosperm_12DAP  | A1ZM015143_at       | endosperm_12DAP | 1146.113        | 105.275        |
| Cytokinin transport      | GRMZM2G066923    | endosperm_12DAP  | A1ZM016179_at       | endosperm_12DAP | 87.5125         | 3.025          |
| Cytokinin signaling      | GRMZM2G016145    | endosperm_12DAP  | A1ZM016721_a_at     | endosperm_12DAP | 245.7875        | 104.475        |
| Cytokinin signaling      | GRMZM2G040736    | endosperm_12DAP  | A1ZM019912_x_at     | endosperm_12DAP | 685.2           | 27.45          |
| Cytokinin degradation    | GRMZM2G043295    | endosperm_12DAP  | A1ZM020181_at       | endosperm_12DAP | 566.55          | 33.1           |
| Cytokinin signaling      | GRMZM2G016439    | endosperm_12DAP  | A1ZM020851_a_at     | endosperm_12DAP | 487.725         | 73.2           |
| Cytokinin signaling      | GRMZM2G016439    | endosperm_12DAP  | A1ZM020851_s_at     | endosperm_12DAP | 1281.625        | 89.15          |
| Cytokinin transport      | GRMZM2G009344    | endosperm_12DAP  | A1ZM020953_at       | endosperm_12DAP | 150.075         | 2.45           |
| Cytokinin signaling      | GRMZM2G179024    | endosperm_12DAP  | A1ZM021522_at       | endosperm_12DAP | 652.125         | 19.75          |
| Cytokinin signaling      | GRMZM2G125943    | endosperm_12DAP  | A1ZM022701_at       | endosperm_12DAP | 117.3125        | 2.725          |
| Cytokinin signaling      | GRMZM2G005732    | endosperm_12DAP  | A1ZM022780_a_at     | endosperm_12DAP | 85.525          | 2.9            |
| Cytokinin signaling      | GRMZM2G005732    | endosperm_12DAP  | A1ZM022780_at       | endosperm_12DAP | 190.4           | 18.1           |
| Cytokinin signaling      | GRMZM2G005732    | endosperm_12DAP  | A1ZM022791_at       | endosperm_12DAP | 292.5           | 3.4            |
| Cytokinin signaling      | GRMZM2G155767    | endosperm_12DAP  | A1ZM023285_a_at     | endosperm_12DAP | 732.3625        | 28.525         |
| Cytokinin signaling      | GRMZM2G155767    | endosperm_12DAP  | A1ZM023285_x_at     | endosperm_12DAP | 629.8875        | 31.875         |
| Cytokinin signaling      | GRMZM2G471529    | endosperm_12DAP  | A1ZM023515_at       | endosperm_12DAP | 418.2           | 17.2           |
| Cytokinin signaling      | GRMZM2G177220    | endosperm_12DAP  | A1ZM023797_s_at     | endosperm_12DAP | 139.1           | 8.85           |
| Cytokinin transport      | GRMZM2G416625    | endosperm_12DAP  | A1ZM024002_x_at     | endosperm_12DAP | 655.825         | 44.7           |
| Cytokinin signaling      | GRMZM2G156019    | endosperm_12DAP  | A1ZM025109_at       | endosperm_12DAP | 164.925         | 12.95          |
| Cytokinin signaling      | GRMZM2G409974    | endosperm_12DAP  | A1ZM025193_at       | endosperm_12DAP | 444.1875        | 26.575         |
| Cytokinin signaling    | GRMZM2G040736 | endosperm_12DAP | A1ZM025238_x_at | endosperm_12DAP | 864.2375 | 2.775  |
|-----------------------|---------------|-----------------|----------------|----------------|-----------|--------|
| Cytokinin degradation | GRMZM2G178209 | endosperm_12DAP | A1ZM026067_at   | endosperm_12DAP | 222.85   | 10.25  |
| Cytokinin degradation | GRMZM2G178209 | endosperm_12DAP | A1ZM026519_at   | endosperm_12DAP | 636.8    | 21.9   |
| Cytokinin signaling   | GRMZM2G013612 | endosperm_12DAP | A1ZM027162_at   | endosperm_12DAP | 105.475  | 5.45   |
| Cytokinin signaling   | GRMZM2G013612 | endosperm_12DAP | A1ZM027162_at   | endosperm_12DAP | 108.9125 | 3.225  |
| Cytokinin biosynthesis| GRMZM2G102915 | endosperm_12DAP | A1ZM028114_at   | endosperm_12DAP | 147.6    | 5.55   |
| Cytokinin degradation | GRMZM2G159404 | endosperm_12DAP | A1ZM028351_at   | endosperm_12DAP | 332.875  | 14.15  |
| Cytokinin signaling   | GRMZM2G155767 | endosperm_12DAP | A1ZM029562_at   | endosperm_12DAP | 272.575  | 11.15  |
| Cytokinin biosynthesis| GRMZM2G022904 | endosperm_12DAP | A1ZM029706_at   | endosperm_12DAP | 233.1375 | 14.175 |
| Cytokinin biosynthesis| GRMZM2G436770 | endosperm_12DAP | A1ZM029930_at   | endosperm_12DAP | 196.1625 | 14.325 |
| Cytokinin biosynthesis| GRMZM2G022904 | endosperm_12DAP | A1ZM030286_at   | endosperm_12DAP | 1286.913 | 102.325|
| Cytokinin signaling   | GRMZM2G360523 | endosperm_12DAP | A1ZM030383_at   | endosperm_12DAP | 119.625  | 6.9    |
| Cytokinin biosynthesis| GRMZM2G076936 | endosperm_12DAP | A1ZM030442_at   | endosperm_12DAP | 182.4375 | 5.575  |
| Cytokinin degradation | GRMZM2G178209 | endosperm_12DAP | A1ZM030523_at   | endosperm_12DAP | 306.425  | 25.55  |
| Cytokinin biosynthesis| GRMZM2G104559 | endosperm_12DAP | A1ZM030717_at   | endosperm_12DAP | 218.55   | 2.05   |
| Cytokinin biosynthesis| GRMZM5G852663 | endosperm_12DAP | A1ZM031200_at   | endosperm_12DAP | 269.025  | 11.45  |
| Cytokinin biosynthesis| GRMZM2G161158 | endosperm_12DAP | A1ZM032620_at   | endosperm_12DAP | 230.8875 | 6.525  |
| Cytokinin biosynthesis| GRMZM2G022904 | endosperm_12DAP | A1ZM032621_at   | endosperm_12DAP | 154.225  | 7.8    |
| Cytokinin signaling   | GRMZM2G155767 | endosperm_12DAP | A1ZM034655_x_at | endosperm_12DAP | 427.7125 | 5.255  |
| Cytokinin signaling   | GRMZM2G125943 | endosperm_12DAP | A1ZM034694_at   | endosperm_12DAP | 105.7125 | 2.975  |
| Cytokinin signaling   | GRMZM2G151223 | endosperm_12DAP | A1ZM034695_s_at | endosperm_12DAP | 99.8375  | 3.075  |
| Cytokinin biosynthesis| GRMZM2G076936 | endosperm_12DAP | A1ZM035136_at   | endosperm_12DAP | 103.75   | 4.3    |
| Cytokinin biosynthesis| GRMZM2G153438 | endosperm_12DAP | A1ZM035251_at   | endosperm_12DAP | 210.55   | 12.6   |
| Cytokinin transport   | GRMZM2G5G315  | endosperm_12DAP | A1ZM036544_at   | endosperm_12DAP | 428.4375 | 30.125 |
| Cytokinin biosynthesis| GRMZM5G852663 | endosperm_12DAP | A1ZM036719_at   | endosperm_12DAP | 658.95   | 14.25  |
| Cytokinin transport   | GRMZM2G066923 | endosperm_12DAP | A1ZM036929_at   | endosperm_12DAP | 911.9    | 62.95  |
| Cytokinin signaling   | GRMZM2G360523 | endosperm_12DAP | A1ZM037835_at   | endosperm_12DAP | 302.5625 | 17.475 |
| Cytokinin signaling   | GRMZM2G125943 | endosperm_12DAP | A1ZM038574_at   | endosperm_12DAP | 123.35   | 1.75   |
| Cytokinin signaling   | GRMZM2G155767 | endosperm_12DAP | A1ZM039355_x_at | endosperm_12DAP | 399.0375 | 48.925 |
| Cytokinin biosynthesis| GRMZM2G16878  | endosperm_12DAP | A1ZM041074_at   | endosperm_12DAP | 710.4125 | 8.625  |
| Cytokinin transport   | GRMZM2G153438 | endosperm_12DAP | A1ZM041750_at   | endosperm_12DAP | 426.1125 | 15.175 |
| Cytokinin signaling   | GRMZM2G096171 | endosperm_12DAP | A1ZM042484_at   | endosperm_12DAP | 165.05   | 6.25   |
| Cytokinin biosynthesis| AC210013.4_FGT005 | endosperm_12DAP | A1ZM051418_x_at | endosperm_12DAP | 195.2875 | 15.475 |
| Cytokinin degradation | GRMZM2G159404 | endosperm_12DAP | A1ZM054142_at   | endosperm_12DAP | 113.3875 | 2.125  |
| Cytokinin signaling   | GRMZM2G096171 | endosperm_12DAP | A1ZM054605_at   | endosperm_12DAP | 353.675  | 8.95   |
| Cytokinin signaling   | GRMZM2G095727 | endosperm_12DAP | A1ZM054606_a_at | endosperm_12DAP | 285.4375 | 16.725 |
| Cytokinin signaling   | GRMZM2G177220 | endosperm_12DAP | A1ZM054608_a_at | endosperm_12DAP | 342.8625 | 6.575  |
### Supplemental Table S4. Contd.

| Cytokinin signaling | GRMZM2G156019 | endosperm_12DAP | A1ZM054609_at | endosperm_12DAP | 700.475 | 21.2 |
|---------------------|---------------|-----------------|---------------|-----------------|---------|------|
| Cytokinin signaling | GRMZM2G179827 | endosperm_12DAP | A1ZM054610_at | endosperm_12DAP | 242.6125 | 2.075 |
| Cytokinin signaling | GRMZM2G129954 | endosperm_12DAP | A1ZM054611_at | endosperm_12DAP | 221.075 | 13.5 |
| Cytokinin signaling | GRMZM2G392101 | endosperm_12DAP | A1ZM054612_at | endosperm_12DAP | 746.9625 | 32.375 |
| Cytokinin signaling | GRMZM2G039246 | endosperm_12DAP | A1ZM054872_at | endosperm_12DAP | 102.15 | 2.4 |
| Cytokinin signaling | GRMZM2G173710 | endosperm_12DAP | A1ZM054873_at | endosperm_12DAP | 125.2625 | 6.325 |
| Cytokinin signaling | GRMZM2G173710 | endosperm_12DAP | A1ZM054873_s_at | endosperm_12DAP | 103.7875 | 4.675 |
| Cytokinin transport | GRMZM2G009344 | endosperm_12DAP | A1ZM054876_at | endosperm_12DAP | 213.3625 | 25.625 |
| Cytokinin signaling | GRMZM2G151223 | endosperm_12DAP | A1ZM055183_a_at | endosperm_12DAP | 165.25 | 4.1 |
| Cytokinin signaling | GRMZM2G479110 | endosperm_12DAP | A1ZM055354_at | endosperm_12DAP | 828.05 | 16.15 |
| Cytokinin biosynthesis | GRMZM2G138750 | endosperm_12DAP | A1ZM055786_at | endosperm_12DAP | 311.1125 | 9.125 |
| Cytokinin biosynthesis | GRMZM2G459563 | endosperm_12DAP | A1ZM055787_at | endosperm_12DAP | 286.125 | 2.3 |
| Cytokinin degradation | GRMZM2G338465 | endosperm_12DAP | A1ZM055814_at | endosperm_12DAP | 79.5375 | 1.475 |
| Cytokinin signaling | GRMZM2G099797 | endosperm_12DAP | A1ZM056039_at | endosperm_12DAP | 1338.05 | 73.95 |
| Cytokinin signaling | GRMZM2G099797 | endosperm_12DAP | A1ZM056039_x_at | endosperm_12DAP | 1357.9 | 10.8 |
| Cytokinin signaling | GRMZM2G099797 | endosperm_12DAP | A1ZM056078_at | endosperm_12DAP | 713.1125 | 16.275 |
| Cytokinin transport | GRMZM2G002391 | endosperm_12DAP | A1ZM056320_at | endosperm_12DAP | 1752.388 | 54.525 |
| Cytokinin transport | GRMZM2G066923 | endosperm_12DAP | A1ZM056353_a_at | endosperm_12DAP | 2153.45 | 67.85 |
| Cytokinin signaling | GRMZM2G039246 | endosperm_12DAP | A1ZM058993_at | endosperm_12DAP | 97.425 | 1.35 |
| Cytokinin signaling | GRMZM2G471529 | endosperm_12DAP | A1ZM060982_at | endosperm_12DAP | 161.45 | 4.6 |
| Cytokinin signaling | GRMZM2G360523 | endosperm_12DAP | A1ZM061145_at | endosperm_12DAP | 226.15 | 5.25 |
| Cytokinin signaling | GRMZM2G179024 | endosperm_12DAP | A1ZM062048_at | endosperm_12DAP | 69.9625 | 3.825 |
| Cytokinin signaling | GRMZM2G177220 | endosperm_12DAP | A1ZM064845_s_at | endosperm_12DAP | 355.675 | 36 |
| Cytokinin transport | GRMZM2G009344 | endosperm_12DAP | A1ZM065250_s_at | endosperm_12DAP | 3567.45 | 155.7 |
| Cytokinin transport | GRMZM2G389285 | endosperm_12DAP | A1ZM072064_at | endosperm_12DAP | 590.65 | 14.05 |
| Cytokinin transport | GRMZM2G389285 | endosperm_12DAP | A1ZM072065_at | endosperm_12DAP | 192.8625 | 4.825 |
| Cytokinin signaling | GRMZM2G014154 | endosperm_12DAP | A1ZM072781_at | endosperm_12DAP | 83.725 | 2.1 |
| Cytokinin signaling | GRMZM2G129954 | endosperm_12DAP | A1ZM074600_at | endosperm_12DAP | 132.8125 | 2.175 |
| Cytokinin transport | GRMZM2G066923 | endosperm_12DAP | A1ZM076470_a_at | endosperm_12DAP | 1457.063 | 55.475 |
| Cytokinin signaling | GRMZM2G151223 | endosperm_12DAP | A1ZM077656_at | endosperm_12DAP | 686.1375 | 13.275 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_12DAP | A1ZM083176_at | endosperm_12DAP | 113.825 | 8.5 |
| Cytokinin degradation | GRMZM2G168474 | endosperm_15DAP | A1ZM000065_at | endosperm_15DAP | 378.4625 | 67.175 |
| Cytokinin signaling | GRMZM2G016439 | endosperm_15DAP | A1ZM000436_at | endosperm_15DAP | 1730.0 | 754.35 |
| Cytokinin signaling | GRMZM2G020081 | endosperm_15DAP | A1ZM005041_at | endosperm_15DAP | 186.125 | 16.5 |
| Cytokinin biosynthesis | GRMZM2G129860 | endosperm_15DAP | A1ZM005050_at | endosperm_15DAP | 125.45 | 4.75 |
| Cytokinin signaling | GRMZM2G471529 | endosperm_15DAP | A1ZM005128_at | endosperm_15DAP | 99.925 | 1.05 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_15DAP | A1ZM006236_a_at | endosperm_15DAP | 283.225 | 10.25 |
### Supplemental Table S4. Contd.

| Cytokinin signaling | GRMZM2G155767 | endosperm_15DAP | A1ZM006928_a_at | endosperm_15DAP | 822.8375 | 142.275  |
|---------------------|---------------|----------------|-----------------|-----------------|----------|-----------|
| Cytokinin signaling | GRMZM2G155767 | endosperm_15DAP | A1ZM006928_x_at | endosperm_15DAP | 501.9125 | 10.925   |
| Cytokinin biosynthesis | GRMZM2G49563 | endosperm_15DAP | A1ZM008285_at | endosperm_15DAP | 145.4 | 8.8    |
| Cytokinin signaling | GRMZM2G097979 | endosperm_15DAP | A1ZM009127_s_at | endosperm_15DAP | 286.95 | 13.25  |
| Cytokinin degradation | GRMZM2G086925 | endosperm_15DAP | A1ZM009389_at | endosperm_15DAP | 169.5125 | 4.225   |
| Cytokinin degradation | GRMZM2G120016 | endosperm_15DAP | A1ZM009692_at | endosperm_15DAP | 238.05 | 13.45  |
| Cytokinin degradation | GRMZM2G058314 | endosperm_15DAP | A1ZM009786_at | endosperm_15DAP | 143.625 | 6.4     |
| Cytokinin signaling | GRMZM2G014154 | endosperm_15DAP | A1ZM010384_a_at | endosperm_15DAP | 3938.4 | 578.65 |
| Cytokinin transport | GRMZM2G416625 | endosperm_15DAP | A1ZM012937_at | endosperm_15DAP | 969.575 | 117.09  |
| Cytokinin biosynthesis | GRMZM2G097258 | endosperm_15DAP | A1ZM013917_s_at | endosperm_15DAP | 222.2 | 13.6   |
| Cytokinin transport | GRMZM2G146337 | endosperm_15DAP | A1ZM015143_at | endosperm_15DAP | 1200 | 129   |
| Cytokinin transport | GRMZM2G066923 | endosperm_15DAP | A1ZM016719_at | endosperm_15DAP | 86.55 | 1.75   |
| Cytokinin signaling | GRMZM2G016145 | endosperm_15DAP | A1ZM016721_a_at | endosperm_15DAP | 138.7 | 24.4   |
| Cytokinin signaling | GRMZM2G040736 | endosperm_15DAP | A1ZM019912_x_at | endosperm_15DAP | 770.625 | 35.35  |
| Cytokinin degradation | GRMZM2G043295 | endosperm_15DAP | A1ZM020181_at | endosperm_15DAP | 631.95 | 118.15 |
| Cytokinin signaling | GRMZM2G016439 | endosperm_15DAP | A1ZM020851_a_at | endosperm_15DAP | 538.8 | 165.8  |
| Cytokinin signaling | GRMZM2G016439 | endosperm_15DAP | A1ZM020851_s_at | endosperm_15DAP | 1454.35 | 491.95 |
| Cytokinin transport | GRMZM2G099344 | endosperm_15DAP | A1ZM020953_at | endosperm_15DAP | 156.2 | 2.4  |
| Cytokinin signaling | GRMZM2G179024 | endosperm_15DAP | A1ZM021522_at | endosperm_15DAP | 630.45 | 46.45  |
| Cytokinin signaling | GRMZM2G125943 | endosperm_15DAP | A1ZM022701_at | endosperm_15DAP | 116.3375 | 2.725 |
| Cytokinin signaling | GRMZM2G005732 | endosperm_15DAP | A1ZM022780_x_at | endosperm_15DAP | 88.9375 | 1.325  |
| Cytokinin signaling | GRMZM2G005732 | endosperm_15DAP | A1ZM022780_at | endosperm_15DAP | 177.9 | 14.6   |
| Cytokinin signaling | GRMZM2G005732 | endosperm_15DAP | A1ZM022791_at | endosperm_15DAP | 282.5375 | 14.775 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_15DAP | A1ZM023285_a_at | endosperm_15DAP | 599.0375 | 1.825  |
| Cytokinin signaling | GRMZM2G155767 | endosperm_15DAP | A1ZM023285_x_at | endosperm_15DAP | 496.1875 | 10.775 |
| Cytokinin signaling | GRMZM2G416625 | endosperm_15DAP | A1ZM023515_at | endosperm_15DAP | 441.3125 | 55.425 |
| Cytokinin signaling | GRMZM2G471529 | endosperm_15DAP | A1ZM023515_at | endosperm_15DAP | 129.3 | 3.75  |
| Cytokinin transport | GRMZM2G177220 | endosperm_15DAP | A1ZM023797_s_at | endosperm_15DAP | 676.85 | 6.75   |
| Cytokinin signaling | GRMZM2G165019 | endosperm_15DAP | A1ZM025109_at | endosperm_15DAP | 162.425 | 2.4  |
| Cytokinin signaling | GRMZM2G409974 | endosperm_15DAP | A1ZM025193_at | endosperm_15DAP | 393.825 | 2.9  |
| Cytokinin signaling | GRMZM2G040736 | endosperm_15DAP | A1ZM025238_x_at | endosperm_15DAP | 1015.913 | 81.225 |
| Cytokinin degradation | GRMZM2G178209 | endosperm_15DAP | A1ZM026067_at | endosperm_15DAP | 202.9625 | 8.825  |
| Cytokinin degradation | GRMZM2G178209 | endosperm_15DAP | A1ZM026519_at | endosperm_15DAP | 707.4875 | 23.075 |
| Cytokinin signaling | GRMZM2G013612 | endosperm_15DAP | A1ZM027161_at | endosperm_15DAP | 107.6625 | 3.825  |
| Cytokinin signaling | GRMZM2G013612 | endosperm_15DAP | A1ZM027162_at | endosperm_15DAP | 113.15 | 0.55 |
| Cytokinin signaling | GRMZM2G102915 | endosperm_15DAP | A1ZM028114_at | endosperm_15DAP | 136.275 | 3.15  |
| Cytokinin degradation | GRMZM2G159404 | endosperm_15DAP | A1ZM028351_at | endosperm_15DAP | 362.175 | 5.25  |
**Supplemental Table S4. Contd.**

| Cytokinin signaling | GRMZM2G155767 | endosperm_15DAP | A1ZM029562_at | endosperm_15DAP | 264.1125 | 1.675 |
|---------------------|---------------|----------------|---------------|----------------|----------|------|
| Cytokinin biosynthesis | GRMZM2G022904 | endosperm_15DAP | A1ZM029706_at | endosperm_15DAP | 210.8 | 11.1 |
| Cytokinin biosynthesis | GRMZM2G436770 | endosperm_15DAP | A1ZM029930_at | endosperm_15DAP | 208.1375 | 7.675 |
| Cytokinin biosynthesis | GRMZM2G022904 | endosperm_15DAP | A1ZM030286_at | endosperm_15DAP | 960.45 | 99.25 |
| Cytokinin signaling | GRMZM2G360523 | endosperm_15DAP | A1ZM030383_at | endosperm_15DAP | 121.3375 | 3.225 |
| Cytokinin biosynthesis | GRMZM2G076936 | endosperm_15DAP | A1ZM030442_at | endosperm_15DAP | 229.1375 | 14.875 |
| Cytokinin degradation | GRMZM2G178209 | endosperm_15DAP | A1ZM030523_at | endosperm_15DAP | 324.2875 | 5.125 |
| Cytokinin biosynthesis | GRMZM2G104559 | endosperm_15DAP | A1ZM030717_at | endosperm_15DAP | 239.9125 | 5.125 |
| Cytokinin biosynthesis | GRMZM5G852663 | endosperm_15DAP | A1ZM031200_at | endosperm_15DAP | 306.7625 | 8.925 |
| Cytokinin biosynthesis | GRMZM2G161158 | endosperm_15DAP | A1ZM032620_at | endosperm_15DAP | 246 | 10.25 |
| Cytokinin biosynthesis | GRMZM2G022904 | endosperm_15DAP | A1ZM032621_at | endosperm_15DAP | 181.1125 | 22.975 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_15DAP | A1ZM034655_x_at | endosperm_15DAP | 398.8125 | 17.225 |
| Cytokinin signaling | GRMZM2G125943 | endosperm_15DAP | A1ZM034694_at | endosperm_15DAP | 107.0375 | 3.025 |
| Cytokinin signaling | GRMZM2G151223 | endosperm_15DAP | A1ZM034695_s_at | endosperm_15DAP | 104.225 | 1.15 |
| Cytokinin biosynthesis | GRMZM2G436770 | endosperm_15DAP | A1ZM035136_at | endosperm_15DAP | 105.1375 | 1.825 |
| Cytokinin biosynthesis | GRMZM2G076936 | endosperm_15DAP | A1ZM035251_at | endosperm_15DAP | 209.575 | 2.65 |
| Cytokinin transport | GRMZM2G153438 | endosperm_15DAP | A1ZM036544_at | endosperm_15DAP | 446.96 | 9.2 |
| Cytokinin biosynthesis | GRMZM5G852663 | endosperm_15DAP | A1ZM036719_at | endosperm_15DAP | 810.6875 | 78.925 |
| Cytokinin transport | GRMZM2G066923 | endosperm_15DAP | A1ZM036929_s_at | endosperm_15DAP | 1860.263 | 92.275 |
| Cytokinin signaling | GRMZM2G360523 | endosperm_15DAP | A1ZM037835_at | endosperm_15DAP | 223.125 | 28.8 |
| Cytokinin signaling | GRMZM2G125943 | endosperm_15DAP | A1ZM038574_at | endosperm_15DAP | 121.475 | 5.05 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_15DAP | A1ZM039355_x_at | endosperm_15DAP | 429.625 | 7.85 |
| Cytokinin biosynthesis | GRMZM2G116878 | endosperm_15DAP | A1ZM041074_at | endosperm_15DAP | 826.9625 | 33.325 |
| Cytokinin transport | GRMZM2G153438 | endosperm_15DAP | A1ZM041750_at | endosperm_15DAP | 430.25 | 28.75 |
| Cytokinin signaling | GRMZM2G096171 | endosperm_15DAP | A1ZM042484_at | endosperm_15DAP | 181.5375 | 4.725 |
| Cytokinin biosynthesis | AC210013.4_FGT005 | endosperm_15DAP | A1ZM051418_x_at | endosperm_15DAP | 205.65 | 20.4 |
| Cytokinin degradation | GRMZM2G159404 | endosperm_15DAP | A1ZM054142_at | endosperm_15DAP | 116.65 | 6.25 |
| Cytokinin signaling | GRMZM2G096171 | endosperm_15DAP | A1ZM054605_at | endosperm_15DAP | 426.85 | 10.2 |
| Cytokinin signaling | GRMZM2G095727 | endosperm_15DAP | A1ZM054606_a_at | endosperm_15DAP | 910.85 | 266.8 |
| Cytokinin signaling | GRMZM2G177220 | endosperm_15DAP | A1ZM054608_a_at | endosperm_15DAP | 476.05 | 58.9 |
| Cytokinin signaling | GRMZM2G156019 | endosperm_15DAP | A1ZM054609_at | endosperm_15DAP | 964.3625 | 189.025 |
| Cytokinin signaling | GRMZM2G179827 | endosperm_15DAP | A1ZM054610_at | endosperm_15DAP | 222.9875 | 2.525 |
| Cytokinin signaling | GRMZM2G129954 | endosperm_15DAP | A1ZM054611_at | endosperm_15DAP | 236.35 | 32.35 |
| Cytokinin signaling | GRMZM2G392101 | endosperm_15DAP | A1ZM054612_at | endosperm_15DAP | 693.575 | 20.35 |
| Cytokinin signaling | GRMZM2G039246 | endosperm_15DAP | A1ZM054872_at | endosperm_15DAP | 105.85 | 2.7 |
| Cytokinin signaling | GRMZM2G173710 | endosperm_15DAP | A1ZM054873_at | endosperm_15DAP | 118.55 | 6.55 |
| Cytokinin signaling | GRMZM2G173710 | endosperm_15DAP | A1ZM054873_s_at | endosperm_15DAP | 108.75 | 1.15 |
### Supplemental Table S4. Contd.

| Cytokinin transport       | GRMZM2G009344 | endosperm_15DAP | A1ZM054876_at | endosperm_15DAP | 246.8375 | 61.775  |
|---------------------------|---------------|-----------------|---------------|-----------------|----------|---------|
| Cytokinin signaling       | GRMZM2G151223 | endosperm_15DAP | A1ZM055183_a_at | endosperm_15DAP | 146.1875 | 5.575   |
| Cytokinin signaling       | GRMZM2G479110 | endosperm_15DAP | A1ZM055354_at | endosperm_15DAP | 925.65   | 68.85   |
| Cytokinin biosynthesis    | GRMZM2G138750 | endosperm_15DAP | A1ZM055786_at | endosperm_15DAP | 365.4375 | 12.925  |
| Cytokinin biosynthesis    | GRMZM2G459563 | endosperm_15DAP | A1ZM055787_at | endosperm_15DAP | 360.8875 | 10.675  |
| Cytokinin degradation     | GRMZM2G338465 | endosperm_15DAP | A1ZM055814_at | endosperm_15DAP | 83.925   | 0.8     |
| Cytokinin signaling       | GRMZM2G099797 | endosperm_15DAP | A1ZM056039_at | endosperm_15DAP | 1433.138 | 7.375   |
| Cytokinin signaling       | GRMZM2G099797 | endosperm_15DAP | A1ZM056039_x_at | endosperm_15DAP | 1497.613 | 36.775  |
| Cytokinin signaling       | GRMZM2G099797 | endosperm_15DAP | A1ZM056078_at | endosperm_15DAP | 1105.65  | 107.1   |
| Cytokinin transport       | GRMZM2G002391 | endosperm_15DAP | A1ZM056320_at | endosperm_15DAP | 2070.8   | 123     |
| Cytokinin transport       | GRMZM2G066923 | endosperm_15DAP | A1ZM056353_a_at | endosperm_15DAP | 4396.325 | 38.4    |
| Cytokinin signaling       | GRMZM2G039246 | endosperm_15DAP | A1ZM059893_at | endosperm_15DAP | 98.2     | 4.85    |
| Cytokinin signaling       | GRMZM2G471529 | endosperm_15DAP | A1ZM060982_at | endosperm_15DAP | 186.7875 | 4.125   |
| Cytokinin signaling       | GRMZM2G360523 | endosperm_15DAP | A1ZM061145_at | endosperm_15DAP | 256.4625 | 6.625   |
| Cytokinin signaling       | GRMZM2G179024 | endosperm_15DAP | A1ZM062048_at | endosperm_15DAP | 70.2125  | 1.325   |
| Cytokinin signaling       | GRMZM2G177220 | endosperm_15DAP | A1ZM064845_s_at | endosperm_15DAP | 346.2125 | 5.525   |
| Cytokinin transport       | GRMZM2G099344 | endosperm_15DAP | A1ZM065250_s_at | endosperm_15DAP | 3333.888 | 528.625 |
| Cytokinin transport       | GRMZM2G389285 | endosperm_15DAP | A1ZM072064_at | endosperm_15DAP | 720.475  | 8.6     |
| Cytokinin transport       | GRMZM2G389285 | endosperm_15DAP | A1ZM072065_at | endosperm_15DAP | 225.4125 | 8.625   |
| Cytokinin signaling       | GRMZM2G014154 | endosperm_15DAP | A1ZM072781_at | endosperm_15DAP | 100.725  | 3.5     |
| Cytokinin signaling       | GRMZM2G129954 | endosperm_15DAP | A1ZM074600_at | endosperm_15DAP | 157.3625 | 3.225   |
| Cytokinin transport       | GRMZM2G066923 | endosperm_15DAP | A1ZM076470_a_at | endosperm_15DAP | 2993.15  | 47.45   |
| Cytokinin signaling       | GRMZM2G151223 | endosperm_15DAP | A1ZM077656_at | endosperm_15DAP | 862.3125 | 51.025  |
| Cytokinin signaling       | GRMZM2G151223 | endosperm_15DAP | A1ZM083176_at | endosperm_15DAP | 122.8125 | 6.475   |
| Cytokinin degradation     | GRMZM2G168474 | endosperm_18DAP | A1ZM000065_at | endosperm_18DAP | 1175.088 | 617.675 |
| Cytokinin signaling       | GRMZM2G016439 | endosperm_18DAP | A1ZM000436_at | endosperm_18DAP | 2224.688 | 925.325 |
| Cytokinin signaling       | GRMZM2G020081 | endosperm_18DAP | A1ZM005041_at | endosperm_18DAP | 211.4    | 10.05   |
| Cytokinin biosynthesis    | GRMZM2G129860 | endosperm_18DAP | A1ZM005050_at | endosperm_18DAP | 219.875  | 62.05   |
| Cytokinin signaling       | GRMZM2G471529 | endosperm_18DAP | A1ZM005128_at | endosperm_18DAP | 105.675  | 4.35    |
| Cytokinin signaling       | GRMZM2G155767 | endosperm_18DAP | A1ZM006236_a_at | endosperm_18DAP | 336.8125 | 69.925  |
| Cytokinin signaling       | GRMZM2G155767 | endosperm_18DAP | A1ZM006928_a_at | endosperm_18DAP | 1012.263 | 64.625  |
| Cytokinin signaling       | GRMZM2G155767 | endosperm_18DAP | A1ZM006928_x_at | endosperm_18DAP | 590.2    | 71.9    |
| Cytokinin biosynthesis    | GRMZM2G459563 | endosperm_18DAP | A1ZM008285_at | endosperm_18DAP | 142.0125 | 4.525   |
| Cytokinin signaling       | GRMZM2G099797 | endosperm_18DAP | A1ZM009127_s_at | endosperm_18DAP | 317.125  | 22.3    |
| Cytokinin degradation     | GRMZM2G086925 | endosperm_18DAP | A1ZM009389_at | endosperm_18DAP | 168.2375 | 16.875  |
| Cytokinin degradation     | GRMZM2G120016 | endosperm_18DAP | A1ZM009692_at | endosperm_18DAP | 271.8625 | 39.825  |
| Cytokinin degradation     | GRMZM2G058314 | endosperm_18DAP | A1ZM009786_at | endosperm_18DAP | 137.125  | 3.5     |
| Cytokinin signaling       | GRMZM2G014154 | endosperm_18DAP | A1ZM010384_a_at | endosperm_18DAP | 11859.15 | 5934.9  |
| Cytokinin transport | GRMZM2G416625 | endosperm_18DAP | A1ZM012937_at | endosperm_18DAP | 2775.863 | 1369.025 |
|---------------------|---------------|----------------|---------------|----------------|----------|-----------|
| Cytokinin biosynthesis | GRMZM2G097258 | endosperm_18DAP | A1ZM013917_s_at | endosperm_18DAP | 293.0375 | 59.075 |
| Cytokinin transport | GRMZM2G146337 | endosperm_18DAP | A1ZM015143_at | endosperm_18DAP | 114.65 | 109.5 |
| Cytokinin transport | GRMZM2G066923 | endosperm_18DAP | A1ZM016719_at | endosperm_18DAP | 82.7125 | 7.025 |
| Cytokinin signaling | GRMZM2G016145 | endosperm_18DAP | A1ZM016721_a_at | endosperm_18DAP | 147.9125 | 45.425 |
| Cytokinin signaling | GRMZM2G040736 | endosperm_18DAP | A1ZM019912_x_at | endosperm_18DAP | 712.25 | 7.55 |
| Cytokinin degradation | GRMZM2G043295 | endosperm_18DAP | A1ZM020181_at | endosperm_18DAP | 466.65 | 58.7 |
| Cytokinin signaling | GRMZM2G016439 | endosperm_18DAP | A1ZM020851_a_at | endosperm_18DAP | 462.925 | 104.8 |
| Cytokinin signaling | GRMZM2G016439 | endosperm_18DAP | A1ZM020851_s_at | endosperm_18DAP | 1329.325 | 317.35 |
| Cytokinin transport | GRMZM2G009344 | endosperm_18DAP | A1ZM020953_at | endosperm_18DAP | 153.3375 | 3.175 |
| Cytokinin signaling | GRMZM2G179024 | endosperm_18DAP | A1ZM021522_at | endosperm_18DAP | 488.725 | 134.9 |
| Cytokinin signaling | GRMZM2G125943 | endosperm_18DAP | A1ZM022701_at | endosperm_18DAP | 117.425 | 6.7 |
| Cytokinin signaling | GRMZM2G005732 | endosperm_18DAP | A1ZM022780_a_at | endosperm_18DAP | 83.9875 | 4.475 |
| Cytokinin signaling | GRMZM2G005732 | endosperm_18DAP | A1ZM022780_at | endosperm_18DAP | 165.9125 | 16.225 |
| Cytokinin signaling | GRMZM2G005732 | endosperm_18DAP | A1ZM022791_at | endosperm_18DAP | 258.3625 | 1.075 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_18DAP | A1ZM023285_a_at | endosperm_18DAP | 777.825 | 62.15 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_18DAP | A1ZM023285_x_at | endosperm_18DAP | 615.7875 | 47.825 |
| Cytokinin signaling | GRMZM2G471529 | endosperm_18DAP | A1ZM023515_at | endosperm_18DAP | 549.7 | 15.1 |
| Cytokinin signaling | GRMZM2G177220 | endosperm_18DAP | A1ZM023797_s_at | endosperm_18DAP | 155.15 | 26.8 |
| Cytokinin transport | GRMZM2G416625 | endosperm_18DAP | A1ZM024002_x_at | endosperm_18DAP | 996.525 | 228.45 |
| Cytokinin signaling | GRMZM2G156019 | endosperm_18DAP | A1ZM025109_at | endosperm_18DAP | 173.6625 | 6.475 |
| Cytokinin signaling | GRMZM2G409974 | endosperm_18DAP | A1ZM025193_at | endosperm_18DAP | 396.5875 | 64.875 |
| Cytokinin signaling | GRMZM2G040736 | endosperm_18DAP | A1ZM025238_x_at | endosperm_18DAP | 925.2875 | 166.775 |
| Cytokinin degradation | GRMZM2G178209 | endosperm_18DAP | A1ZM026067_at | endosperm_18DAP | 257.85 | 48.95 |
| Cytokinin degradation | GRMZM2G178209 | endosperm_18DAP | A1ZM026519_at | endosperm_18DAP | 680.45 | 82.1 |
| Cytokinin signaling | GRMZM2G013612 | endosperm_18DAP | A1ZM027161_at | endosperm_18DAP | 118.3625 | 11.975 |
| Cytokinin signaling | GRMZM2G013612 | endosperm_18DAP | A1ZM027162_at | endosperm_18DAP | 108.075 | 3.5 |
| Cytokinin biosynthesis | GRMZM2G102915 | endosperm_18DAP | A1ZM028114_at | endosperm_18DAP | 133.825 | 7.75 |
| Cytokinin degradation | GRMZM2G159404 | endosperm_18DAP | A1ZM028351_at | endosperm_18DAP | 349.3625 | 20.675 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_18DAP | A1ZM029562_at | endosperm_18DAP | 236.9 | 23.9 |
| Cytokinin biosynthesis | GRMZM2G022904 | endosperm_18DAP | A1ZM029706_at | endosperm_18DAP | 338.3875 | 92.675 |
| Cytokinin biosynthesis | GRMZM2G436770 | endosperm_18DAP | A1ZM029930_at | endosperm_18DAP | 183.2 | 12.65 |
| Cytokinin biosynthesis | GRMZM2G022904 | endosperm_18DAP | A1ZM030286_at | endosperm_18DAP | 948.5125 | 46.975 |
| Cytokinin signaling | GRMZM2G360523 | endosperm_18DAP | A1ZM030383_at | endosperm_18DAP | 104.6375 | 4.925 |
| Cytokinin biosynthesis | GRMZM2G076936 | endosperm_18DAP | A1ZM030442_at | endosperm_18DAP | 201.4875 | 11.625 |
| Cytokinin degradation | GRMZM2G178209 | endosperm_18DAP | A1ZM030523_at | endosperm_18DAP | 326.7 | 25.25 |
| Cytokinin biosynthesis | GRMZM2G104559 | endosperm_18DAP | A1ZM030717_at | endosperm_18DAP | 208.25 | 6 |
**Supplemental Table S4. Contd.**

| Cytokinin biosynthesis | GRMZM5G852663 | endosperm_18DAP | A1ZM031200_at | endosperm_18DAP | 258.6875 | 6.225 |
|------------------------|---------------|-----------------|----------------|-----------------|-----------|-------|
| Cytokinin biosynthesis | GRMZM2G161158 | endosperm_18DAP | A1ZM032620_at | endosperm_18DAP | 221.1375 | 15.025 |
| Cytokinin biosynthesis | GRMZM2G022904 | endosperm_18DAP | A1ZM032621_at | endosperm_18DAP | 157.5625 | 5.075 |
| Cytokinin signaling    | GRMZM2G155767 | endosperm_18DAP | A1ZM034655_x_at | endosperm_18DAP | 359.275 | 13.2 |
| Cytokinin signaling    | GRMZM2G125943 | endosperm_18DAP | A1ZM034694_at | endosperm_18DAP | 108.0375 | 6.775 |
| Cytokinin signaling    | GRMZM2G151223 | endosperm_18DAP | A1ZM034695_s_at | endosperm_18DAP | 114.85 | 6.55 |
| Cytokinin biosynthesis | GRMZM2G436770 | endosperm_18DAP | A1ZM035136_at | endosperm_18DAP | 90.9625 | 4.375 |
| Cytokinin biosynthesis | GRMZM2G076936 | endosperm_18DAP | A1ZM035251_at | endosperm_18DAP | 185.75 | 13.5 |
| Cytokinin transport    | GRMZM2G153438 | endosperm_18DAP | A1ZM036544_at | endosperm_18DAP | 418.9625 | 20.625 |
| Cytokinin biosynthesis | GRMZM5G852663 | endosperm_18DAP | A1ZM036719_at | endosperm_18DAP | 816.0375 | 98.125 |
| Cytokinin transport    | GRMZM2G066923 | endosperm_18DAP | A1ZM036929_s_at | endosperm_18DAP | 1291.213 | 347.425 |
| Cytokinin signaling    | GRMZM2G360523 | endosperm_18DAP | A1ZM037835_at | endosperm_18DAP | 207.775 | 22.7 |
| Cytokinin signaling    | GRMZM2G151223 | endosperm_18DAP | A1ZM038574_at | endosperm_18DAP | 115.8125 | 6.175 |
| Cytokinin signaling    | GRMZM2G155767 | endosperm_18DAP | A1ZM039355_x_at | endosperm_18DAP | 392.8625 | 25.775 |
| Cytokinin biosynthesis | GRMZM2G116878 | endosperm_18DAP | A1ZM041074_at | endosperm_18DAP | 721.475 | 44.25 |
| Cytokinin transport    | GRMZM2G153438 | endosperm_18DAP | A1ZM041750_at | endosperm_18DAP | 410.4 | 14.55 |
| Cytokinin signaling    | GRMZM2G096171 | endosperm_18DAP | A1ZM042484_at | endosperm_18DAP | 157.025 | 7.2 |
| Cytokinin biosynthesis | AC210013.4_FGT005 | endosperm_18DAP | A1ZM051418_x_at | endosperm_18DAP | 188.1625 | 14.325 |
| Cytokinin degradation  | GRMZM2G159404 | endosperm_18DAP | A1ZM054142_at | endosperm_18DAP | 117.925 | 5.85 |
| Cytokinin signaling    | GRMZM2G096171 | endosperm_18DAP | A1ZM054605_at | endosperm_18DAP | 798.3125 | 267.925 |
| Cytokinin signaling    | GRMZM2G095727 | endosperm_18DAP | A1ZM054606_a_at | endosperm_18DAP | 112.65 | 85.2 |
| Cytokinin signaling    | GRMZM2G177220 | endosperm_18DAP | A1ZM054608_a_at | endosperm_18DAP | 785.8375 | 224.975 |
| Cytokinin signaling    | GRMZM2G156019 | endosperm_18DAP | A1ZM054609_at | endosperm_18DAP | 1580.788 | 414.175 |
| Cytokinin signaling    | GRMZM2G179827 | endosperm_18DAP | A1ZM054610_at | endosperm_18DAP | 182.725 | 19 |
| Cytokinin signaling    | GRMZM2G129954 | endosperm_18DAP | A1ZM054611_at | endosperm_18DAP | 510.8625 | 211.825 |
| Cytokinin signaling    | GRMZM2G392101 | endosperm_18DAP | A1ZM054612_at | endosperm_18DAP | 1200.463 | 339.525 |
| Cytokinin signaling    | GRMZM2G039246 | endosperm_18DAP | A1ZM054872_at | endosperm_18DAP | 239.5 | 91.5 |
| Cytokinin signaling    | GRMZM2G173710 | endosperm_18DAP | A1ZM054873_at | endosperm_18DAP | 103.35 | 2.7 |
| Cytokinin signaling    | GRMZM2G173710 | endosperm_18DAP | A1ZM054873_s_at | endosperm_18DAP | 99.0875 | 12.875 |
| Cytokinin transport    | GRMZM2G009344 | endosperm_18DAP | A1ZM054876_at | endosperm_18DAP | 237.6125 | 82.775 |
| Cytokinin signaling    | GRMZM2G151223 | endosperm_18DAP | A1ZM055183_a_at | endosperm_18DAP | 170.575 | 22.65 |
| Cytokinin signaling    | GRMZM2G479110 | endosperm_18DAP | A1ZM055354_at | endosperm_18DAP | 942.7625 | 91.525 |
| Cytokinin biosynthesis | GRMZM2G138750 | endosperm_18DAP | A1ZM055786_at | endosperm_18DAP | 380.0875 | 13.425 |
| Cytokinin biosynthesis | GRMZM2G459563 | endosperm_18DAP | A1ZM055787_at | endosperm_18DAP | 309.5875 | 38.775 |
| Cytokinin degradation  | GRMZM2G338465 | endosperm_18DAP | A1ZM055814_at | endosperm_18DAP | 94.575 | 4.1 |
| Cytokinin signaling    | GRMZM2G099797 | endosperm_18DAP | A1ZM056039_at | endosperm_18DAP | 1407.763 | 187.525 |
| Cytokinin signaling    | GRMZM2G099797 | endosperm_18DAP | A1ZM056039_x_at | endosperm_18DAP | 1467.888 | 180.325 |
| Cytokinin signaling | GRMZM2G099797 | endosperm_18DAP | A1ZM056078_at | endosperm_18DAP | 1078.75 | 209.6
| Cytokinin transport | GRMZM2G002391 | endosperm_18DAP | A1ZM056320_at | endosperm_18DAP | 3010.738 | 685.875
| Cytokinin transport | GRMZM2G066923 | endosperm_18DAP | A1ZM056353_a_at | endosperm_18DAP | 2958.15 | 949.5
| Cytokinin signaling | GRMZM2G039246 | endosperm_18DAP | A1ZM059883_at | endosperm_18DAP | 100.425 | 7.2
| Cytokinin signaling | GRMZM2G471529 | endosperm_18DAP | A1ZM060982_at | endosperm_18DAP | 189.9625 | 16.725
| Cytokinin signaling | GRMZM2G360523 | endosperm_18DAP | A1ZM061145_at | endosperm_18DAP | 277.7875 | 43.075
| Cytokinin signaling | GRMZM2G179024 | endosperm_18DAP | A1ZM062048_at | endosperm_18DAP | 72.1375 | 5.475
| Cytokinin signaling | GRMZM2G177220 | endosperm_18DAP | A1ZM064845_s_at | endosperm_18DAP | 330.8875 | 45.175
| Cytokinin transport | GRMZM2G009344 | endosperm_18DAP | A1ZM065250_s_at | endosperm_18DAP | 3815.925 | 793.6
| Cytokinin transport | GRMZM2G389285 | endosperm_18DAP | A1ZM072064_at | endosperm_18DAP | 702.15 | 36.7
| Cytokinin transport | GRMZM2G389285 | endosperm_18DAP | A1ZM072065_at | endosperm_18DAP | 179.525 | 14.5
| Cytokinin signaling | GRMZM2G014154 | endosperm_18DAP | A1ZM072781_at | endosperm_18DAP | 98.0625 | 6.375
| Cytokinin signaling | GRMZM2G129954 | endosperm_18DAP | A1ZM074600_at | endosperm_18DAP | 154.3875 | 13.675
| Cytokinin transport | GRMZM2G066923 | endosperm_18DAP | A1ZM076470_a_at | endosperm_18DAP | 2073.325 | 735.95
| Cytokinin signaling | GRMZM2G151223 | endosperm_18DAP | A1ZM077656_at | endosperm_18DAP | 1097.538 | 126.375
| Cytokinin signaling | GRMZM2G155767 | endosperm_18DAP | A1ZM083176_at | endosperm_18DAP | 122.8125 | 1.075
| Cytokinin degradation | GRMZM2G168474 | endosperm_22DAP | A1ZM000065_at | endosperm_22DAP | 1300.088 | 680.225
| Cytokinin signaling | GRMZM2G016439 | endosperm_22DAP | A1ZM000436_at | endosperm_22DAP | 2985.288 | 727.625
| Cytokinin signaling | GRMZM2G020081 | endosperm_22DAP | A1ZM000541_at | endosperm_22DAP | 214.25 | 35
| Cytokinin biosynthesis | GRMZM2G129860 | endosperm_22DAP | A1ZM0005050_at | endosperm_22DAP | 222.8 | 59.2
| Cytokinin signaling | GRMZM2G471529 | endosperm_22DAP | A1ZM005128_at | endosperm_22DAP | 99.025 | 2.8
| Cytokinin signaling | GRMZM2G155767 | endosperm_22DAP | A1ZM006236_a_at | endosperm_22DAP | 366.8625 | 60.625
| Cytokinin signaling | GRMZM2G155767 | endosperm_22DAP | A1ZM006928_at | endosperm_22DAP | 877.3125 | 113.225
| Cytokinin signaling | GRMZM2G155767 | endosperm_22DAP | A1ZM006928_x_at | endosperm_22DAP | 540.1875 | 101.875
| Cytokinin biosynthesis | GRMZM2G459563 | endosperm_22DAP | A1ZM008285_at | endosperm_22DAP | 154.925 | 10.9
| Cytokinin signaling | GRMZM2G099797 | endosperm_22DAP | A1ZM009127_s_at | endosperm_22DAP | 293.2 | 51.9
| Cytokinin degradation | GRMZM2G086925 | endosperm_22DAP | A1ZM009389_at | endosperm_22DAP | 195.525 | 36.9
| Cytokinin degradation | GRMZM2G120016 | endosperm_22DAP | A1ZM009692_at | endosperm_22DAP | 294.4125 | 55.025
| Cytokinin degradation | GRMZM2G058314 | endosperm_22DAP | A1ZM009786_at | endosperm_22DAP | 150.625 | 10.1
| Cytokinin signaling | GRMZM2G014154 | endosperm_22DAP | A1ZM010384_a_at | endosperm_22DAP | 1183.719 | 5397.175
| Cytokinin transport | GRMZM2G416625 | endosperm_22DAP | A1ZM012937_at | endosperm_22DAP | 2903.888 | 1307.675
| Cytokinin biosynthesis | GRMZM2G097258 | endosperm_22DAP | A1ZM013917_s_at | endosperm_22DAP | 298.7 | 53.9
| Cytokinin transport | GRMZM2G146337 | endosperm_22DAP | A1ZM015143_at | endosperm_22DAP | 1221.288 | 59.325
| Cytokinin transport | GRMZM2G066923 | endosperm_22DAP | A1ZM016719_at | endosperm_22DAP | 86.725 | 10.25
| Cytokinin signaling | GRMZM2G016145 | endosperm_22DAP | A1ZM016721_a_at | endosperm_22DAP | 162.1375 | 25.925
| Cytokinin signaling | GRMZM2G040736 | endosperm_22DAP | A1ZM019912_x_at | endosperm_22DAP | 672.775 | 50.35
| Cytokinin degradation | GRMZM2G043295 | endosperm_22DAP | A1ZM020181_at | endosperm_22DAP | 604.8 | 135

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| Cytokinin signaling | GRMZM2G016439 | endosperm_22DAP | A1ZM020851_a_at | endosperm_22DAP | 659.125 | 82.55 |
|---------------------|---------------|-----------------|-----------------|-----------------|---------|-------|
| Cytokinin signaling | GRMZM2G016439 | endosperm_22DAP | A1ZM020851_s_at | endosperm_22DAP | 1884.813 | 169.975 |
| Cytokinin signaling | GRMZM2G009344 | endosperm_22DAP | A1ZM020953_at | endosperm_22DAP | 162.6625 | 7.875 |
| Cytokinin signaling | GRMZM2G179024 | endosperm_22DAP | A1ZM021522_at | endosperm_22DAP | 387.75 | 76.6 |
| Cytokinin signaling | GRMZM2G125943 | endosperm_22DAP | A1ZM022701_at | endosperm_22DAP | 131.2875 | 9.725 |
| Cytokinin signaling | GRMZM2G005732 | endosperm_22DAP | A1ZM022780_at | endosperm_22DAP | 82.4125 | 7.275 |
| Cytokinin signaling | GRMZM2G005732 | endosperm_22DAP | A1ZM022791_at | endosperm_22DAP | 200.7 | 36.6 |
| Cytokinin signaling | GRMZM2G005732 | endosperm_22DAP | A1ZM023285_at | endosperm_22DAP | 301.4625 | 37.125 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_22DAP | A1ZM023285_x_at | endosperm_22DAP | 720.6 | 173 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_22DAP | A1ZM023285_x_at | endosperm_22DAP | 612.1 | 118.4 |
| Cytokinin signaling | GRMZM2G471529 | endosperm_22DAP | A1ZM023515_at | endosperm_22DAP | 437.9 | 59.85 |
| Cytokinin signaling | GRMZM2G177220 | endosperm_22DAP | A1ZM023797_s_at | endosperm_22DAP | 161.2375 | 16.175 |
| Cytokinin signaling | GRMZM2G146625 | endosperm_22DAP | A1ZM024002_x_at | endosperm_22DAP | 1046.225 | 264.35 |
| Cytokinin signaling | GRMZM2G156019 | endosperm_22DAP | A1ZM025109_at | endosperm_22DAP | 164.825 | 6.95 |
| Cytokinin signaling | GRMZM2G409974 | endosperm_22DAP | A1ZM025193_at | endosperm_22DAP | 342.3625 | 64.925 |
| Cytokinin signaling | GRMZM2G040736 | endosperm_22DAP | A1ZM025238_x_at | endosperm_22DAP | 754.125 | 31.5 |
| Cytokinin degradation | GRMZM2G178209 | endosperm_22DAP | A1ZM026067_at | endosperm_22DAP | 271.75 | 39.8 |
| Cytokinin degradation | GRMZM2G178209 | endosperm_22DAP | A1ZM026519_at | endosperm_22DAP | 585.95 | 14.5 |
| Cytokinin signaling | GRMZM2G3013612 | endosperm_22DAP | A1ZM027161_at | endosperm_22DAP | 108.375 | 10.35 |
| Cytokinin signaling | GRMZM2G3013612 | endosperm_22DAP | A1ZM027162_at | endosperm_22DAP | 104.6 | 6.05 |
| Cytokinin biosynthesis | GRMZM2G102915 | endosperm_22DAP | A1ZM028114_at | endosperm_22DAP | 147.8375 | 9.925 |
| Cytokinin degradation | GRMZM2G159404 | endosperm_22DAP | A1ZM028351_at | endosperm_22DAP | 362.1875 | 38.925 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_22DAP | A1ZM028562_at | endosperm_22DAP | 253.7625 | 40.775 |
| Cytokinin biosynthesis | GRMZM2G022904 | endosperm_22DAP | A1ZM028706_at | endosperm_22DAP | 318.9125 | 59.625 |
| Cytokinin biosynthesis | GRMZM2G3436770 | endosperm_22DAP | A1ZM029930_at | endosperm_22DAP | 184.0125 | 8.175 |
| Cytokinin biosynthesis | GRMZM2G022904 | endosperm_22DAP | A1ZM030286_at | endosperm_22DAP | 1136.625 | 53 |
| Cytokinin signaling | GRMZM2G360523 | endosperm_22DAP | A1ZM030383_at | endosperm_22DAP | 127.025 | 22.7 |
| Cytokinin biosynthesis | GRMZM2G076936 | endosperm_22DAP | A1ZM030442_at | endosperm_22DAP | 195.3875 | 7.475 |
| Cytokinin degradation | GRMZM2G178209 | endosperm_22DAP | A1ZM030523_at | endosperm_22DAP | 307.2625 | 4.025 |
| Cytokinin biosynthesis | GRMZM2G104559 | endosperm_22DAP | A1ZM030717_at | endosperm_22DAP | 228.075 | 18.85 |
| Cytokinin biosynthesis | GRMZM5G852663 | endosperm_22DAP | A1ZM031200_at | endosperm_22DAP | 278.8125 | 7.225 |
| Cytokinin biosynthesis | GRMZM2G161158 | endosperm_22DAP | A1ZM032620_at | endosperm_22DAP | 230.5 | 16.2 |
| Cytokinin biosynthesis | GRMZM2G022904 | endosperm_22DAP | A1ZM032621_at | endosperm_22DAP | 169.2625 | 0.875 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_22DAP | A1ZM034665_x_at | endosperm_22DAP | 410.225 | 40.3 |
| Cytokinin signaling | GRMZM2G125943 | endosperm_22DAP | A1ZM034694_at | endosperm_22DAP | 114.475 | 15.1 |
| Cytokinin signaling | GRMZM2G151223 | endosperm_22DAP | A1ZM034695_s_at | endosperm_22DAP | 121.3875 | 9.475 |
| Cytokinin biosynthesis | GRMZM2G436770 | endosperm_22DAP | A1ZM035136_at | endosperm_22DAP | 106.175 | 19.55 |
| Cytokinin biosynthesis | GRMZM2G076936 | endosperm_22DAP | A1ZM035251_at | endosperm_22DAP | 182.7375 | 2.675 |
| Cytokinin transport | GRMZM2G153438 | endosperm_22DAP | A1ZM036544_at | endosperm_22DAP | 413.0625 | 8.275 |
| Cytokinin biosynthesis | GRMZM5G852663 | endosperm_22DAP | A1ZM036719_at | endosperm_22DAP | 740.8375 | 83.625 |
| Cytokinin transport | GRMZM2G066923 | endosperm_22DAP | A1ZM036929_s_at | endosperm_22DAP | 1398.838 | 496.175 |
| Cytokinin signaling | Cytokinin biosynthesis | Cytokinin degradation | Cytokinin transport | Cytokinin signaling |
|---------------------|------------------------|-----------------------|--------------------|---------------------|
| GRMZM2G360523       | endosperm_22DAP         | endosperm_22DAP       | A1ZM037835_at      | A1ZM037835_at      |
| GRMZM2G125943       | endosperm_22DAP         | endosperm_22DAP       | A1ZM038574_at      | A1ZM038574_at      |
| GRMZM2G155576       | endosperm_22DAP         | endosperm_22DAP       | A1ZM039355_x_at    | A1ZM039355_x_at    |
| GRMZM2G116878       | endosperm_22DAP         | endosperm_22DAP       | A1ZM041074_at      | A1ZM041074_at      |
| GRMZM2G153438       | endosperm_22DAP         | endosperm_22DAP       | A1ZM041750_at      | A1ZM041750_at      |
| GRMZM2G096171       | endosperm_22DAP         | endosperm_22DAP       | A1ZM042484_at      | A1ZM042484_at      |
| AC210013.4_FGT005   | endosperm_22DAP         | endosperm_22DAP       | A1ZM051418_x_at    | A1ZM051418_x_at    |
| GRMZM2G159404       | endosperm_22DAP         | endosperm_22DAP       | A1ZM054142_at      | A1ZM054142_at      |
| GRMZM2G096171       | endosperm_22DAP         | endosperm_22DAP       | A1ZM054605_at      | A1ZM054605_at      |
| GRMZM2G095727       | endosperm_22DAP         | endosperm_22DAP       | A1ZM054606_a_at    | A1ZM054606_a_at    |
| GRMZM2G177220       | endosperm_22DAP         | endosperm_22DAP       | A1ZM054608_a_at    | A1ZM054608_a_at    |
| GRMZM2G156019       | endosperm_22DAP         | endosperm_22DAP       | A1ZM054609_at      | A1ZM054609_at      |
| GRMZM2G179827       | endosperm_22DAP         | endosperm_22DAP       | A1ZM054610_at      | A1ZM054610_at      |
| GRMZM2G129954       | endosperm_22DAP         | endosperm_22DAP       | A1ZM054611_at      | A1ZM054611_at      |
| GRMZM2G392101       | endosperm_22DAP         | endosperm_22DAP       | A1ZM054612_at      | A1ZM054612_at      |
| GRMZM2G093924       | endosperm_22DAP         | endosperm_22DAP       | A1ZM054872_at      | A1ZM054872_at      |
| GRMZM2G173710       | endosperm_22DAP         | endosperm_22DAP       | A1ZM054873_at      | A1ZM054873_at      |
| GRMZM2G173710       | endosperm_22DAP         | endosperm_22DAP       | A1ZM054873_s_at    | A1ZM054873_s_at    |
| GRMZM2G009344       | endosperm_22DAP         | endosperm_22DAP       | A1ZM054876_at      | A1ZM054876_at      |
| GRMZM2G151223       | endosperm_22DAP         | endosperm_22DAP       | A1ZM055183_a_at    | A1ZM055183_a_at    |
| GRMZM2G479110       | endosperm_22DAP         | endosperm_22DAP       | A1ZM055354_at      | A1ZM055354_at      |
| GRMZM2G138750       | endosperm_22DAP         | endosperm_22DAP       | A1ZM055786_at      | A1ZM055786_at      |
| GRMZM2G458563       | endosperm_22DAP         | endosperm_22DAP       | A1ZM055787_at      | A1ZM055787_at      |
| GRMZM2G338465       | endosperm_22DAP         | endosperm_22DAP       | A1ZM055814_at      | A1ZM055814_at      |
| GRMZM2G099797       | endosperm_22DAP         | endosperm_22DAP       | A1ZM056039_at      | A1ZM056039_at      |
| GRMZM2G099797       | endosperm_22DAP         | endosperm_22DAP       | A1ZM056039_x_at    | A1ZM056039_x_at    |
| GRMZM2G002391       | endosperm_22DAP         | endosperm_22DAP       | A1ZM056078_at      | A1ZM056078_at      |
| GRMZM2G066923       | endosperm_22DAP         | endosperm_22DAP       | A1ZM056320_at      | A1ZM056320_at      |
| GRMZM2G039246       | endosperm_22DAP         | endosperm_22DAP       | A1ZM056353_a_at    | A1ZM056353_a_at    |
| GRMZM2G471529       | endosperm_22DAP         | endosperm_22DAP       | A1ZM059893_at      | A1ZM059893_at      |
| GRMZM2G360523       | endosperm_22DAP         | endosperm_22DAP       | A1ZM060982_at      | A1ZM060982_at      |
| GRMZM2G179024       | endosperm_22DAP         | endosperm_22DAP       | A1ZM061145_at      | A1ZM061145_at      |
| GRMZM2G177220       | endosperm_22DAP         | endosperm_22DAP       | A1ZM062048_at      | A1ZM062048_at      |
| GRMZM2G009344       | endosperm_22DAP         | endosperm_22DAP       | A1ZM064845_s_at    | A1ZM064845_s_at    |
| GRMZM2G389285       | endosperm_22DAP         | endosperm_22DAP       | A1ZM065250_s_at    | A1ZM065250_s_at    |
| GRMZM2G389285       | endosperm_22DAP         | endosperm_22DAP       | A1ZM072064_at      | A1ZM072064_at      |
| GRMZM2G014154       | endosperm_22DAP         | endosperm_22DAP       | A1ZM072065_at      | A1ZM072065_at      |
| GRMZM2G129954       | endosperm_22DAP         | endosperm_22DAP       | A1ZM072781_at      | A1ZM072781_at      |
| GRMZM2G066923       | endosperm_22DAP         | endosperm_22DAP       | A1ZM074600_at      | A1ZM074600_at      |
| GRMZM2G151223       | endosperm_22DAP         | endosperm_22DAP       | A1ZM076470_a_at    | A1ZM076470_a_at    |

| | | | | |
| Li et al. | 53 | | | |
| Cytokinin signaling | GRMZM2G155767 | endosperm_28DAP | A1ZM083176_at | endosperm_28DAP | 119.225 | 3.1 |
|---------------------|---------------|----------------|----------------|----------------|----------|-----|
| Cytokinin degradation | GRMZM2G168474 | endosperm_28DAP | A1ZM000065_at | endosperm_28DAP | 305.825 | 6.5 |
| Cytokinin signaling | GRMZM2G016439 | endosperm_28DAP | A1ZM000436_at | endosperm_28DAP | 550.0875 | 36.175 |
| Cytokinin signaling | GRMZM2G20081 | endosperm_28DAP | A1ZM005041_at | endosperm_28DAP | 213.2625 | 28.425 |
| Cytokinin biosynthesis | GRMZM2G129860 | endosperm_28DAP | A1ZM005050_at | endosperm_28DAP | 146.0875 | 6.625 |
| Cytokinin signaling | GRMZM2G471529 | endosperm_28DAP | A1ZM005128_at | endosperm_28DAP | 109.65 | 3.45 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_28DAP | A1ZM006236_a_at | endosperm_28DAP | 253.3375 | 8.875 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_28DAP | A1ZM006928_a_at | endosperm_28DAP | 997.825 | 140.6 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_28DAP | A1ZM006928_x_at | endosperm_28DAP | 502.45 | 85.5 |
| Cytokinin biosynthesis | GRMZM2G459563 | endosperm_28DAP | A1ZM008265_at | endosperm_28DAP | 158.6125 | 1.725 |
| Cytokinin signaling | GRMZM2G099797 | endosperm_28DAP | A1ZM009127_s_at | endosperm_28DAP | 315.3125 | 97.025 |
| Cytokinin degradation | GRMZM2G086925 | endosperm_28DAP | A1ZM009389_at | endosperm_28DAP | 159.8875 | 0.775 |
| Cytokinin degradation | GRMZM2G120016 | endosperm_28DAP | A1ZM009682_at | endosperm_28DAP | 228.0625 | 13.975 |
| Cytokinin signaling | GRMZM2G058314 | endosperm_28DAP | A1ZM009786_at | endosperm_28DAP | 138.7625 | 18.525 |
| Cytokinin signaling | GRMZM2G014154 | endosperm_28DAP | A1ZM010384_a_at | endosperm_28DAP | 2655.9 | 241.55 |
| Cytokinin transport | GRMZM2G416625 | endosperm_28DAP | A1ZM012937_at | endosperm_28DAP | 789.3625 | 7.325 |
| Cytokinin biosynthesis | GRMZM2G097258 | endosperm_28DAP | A1ZM013917_s_at | endosperm_28DAP | 193.9125 | 4.725 |
| Cytokinin transport | GRMZM2G146337 | endosperm_28DAP | A1ZM015143_at | endosperm_28DAP | 1598.675 | 365.3 |
| Cytokinin transport | GRMZM2G066923 | endosperm_28DAP | A1ZM016719_at | endosperm_28DAP | 91.825 | 2.1 |
| Cytokinin signaling | GRMZM2G016145 | endosperm_28DAP | A1ZM016721_a_at | endosperm_28DAP | 125.5875 | 4.275 |
| Cytokinin signaling | GRMZM2G040736 | endosperm_28DAP | A1ZM019912_x_at | endosperm_28DAP | 752.625 | 34.75 |
| Cytokinin degradation | GRMZM2G043295 | endosperm_28DAP | A1ZM020181_at | endosperm_28DAP | 278.8875 | 5.775 |
| Cytokinin signaling | GRMZM2G016439 | endosperm_28DAP | A1ZM020851_a_at | endosperm_28DAP | 309.825 | 22.5 |
| Cytokinin signaling | GRMZM2G016439 | endosperm_28DAP | A1ZM020851_s_at | endosperm_28DAP | 612.8625 | 73.275 |
| Cytokinin transport | GRMZM2G09344 | endosperm_28DAP | A1ZM020953_at | endosperm_28DAP | 151.4125 | 3.175 |
| Cytokinin signaling | GRMZM2G179024 | endosperm_28DAP | A1ZM021522_at | endosperm_28DAP | 644.075 | 49.05 |
| Cytokinin signaling | GRMZM2G125943 | endosperm_28DAP | A1ZM022701_at | endosperm_28DAP | 124.35 | 6.6 |
| Cytokinin signaling | GRMZM2G005732 | endosperm_28DAP | A1ZM022780_a_at | endosperm_28DAP | 91.9125 | 5.425 |
| Cytokinin signaling | GRMZM2G005732 | endosperm_28DAP | A1ZM022780_at | endosperm_28DAP | 161.2125 | 2.175 |
| Cytokinin signaling | GRMZM2G005732 | endosperm_28DAP | A1ZM022791_at | endosperm_28DAP | 261.1125 | 8.075 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_28DAP | A1ZM023285_a_at | endosperm_28DAP | 747.9125 | 84.675 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_28DAP | A1ZM023285_x_at | endosperm_28DAP | 521.825 | 56.8 |
| Cytokinin signaling | GRMZM2G471529 | endosperm_28DAP | A1ZM023515_at | endosperm_28DAP | 644.85 | 18.25 |
| Cytokinin signaling | GRMZM2G177220 | endosperm_28DAP | A1ZM023797_s_at | endosperm_28DAP | 134.3 | 3.5 |
| Cytokinin transport | GRMZM2G146625 | endosperm_28DAP | A1ZM024002_x_at | endosperm_28DAP | 798.65 | 17.75 |
| Cytokinin signaling | GRMZM2G156019 | endosperm_28DAP | A1ZM025109_at | endosperm_28DAP | 167.9125 | 5.975 |
| Cytokinin signaling | GRMZM2G409974 | endosperm_28DAP | A1ZM025193_at | endosperm_28DAP | 525.1875 | 43.225 |
| Cytokinin signaling | GRMZM2G40736 | endosperm_28DAP | A1ZM025238_x_at | endosperm_28DAP | 1047.125 | 22.1 |
| Cytokinin degradation | GRMZM2G178209 | endosperm_28DAP | A1ZM026067_at | endosperm_28DAP | 177.7875 | 5.725 |
| Cytokinin degradation | GRMZM2G178209 | endosperm_28DAP | A1ZM026519_at | endosperm_28DAP | 768.3 | 27.5 |
| Cytokinin signaling | GRMZM2G013612 | endosperm_28DAP | A1ZM027161_at | endosperm_28DAP | 129.1 | 13.3 |
Supplemental Table S4. Contd.

| Cytokinin signaling | GRMZM2G013612 | endosperm_28DAP | A1ZM027162_at | endosperm_28DAP | 110.9 | 5.4 |
|---------------------|--------------|-----------------|---------------|----------------|-------|-----|
| Cytokinin biosynthesis | GRMZM2G102915 | endosperm_28DAP | A1ZM028114_at | endosperm_28DAP | 148 | 1.35 |
| Cytokinin degradation | GRMZM2G159404 | endosperm_28DAP | A1ZM028351_at | endosperm_28DAP | 358.8875 | 22.775 |
| Cytokinin signaling | GRMZM2G022904 | endosperm_28DAP | A1ZM029562_at | endosperm_28DAP | 246.4125 | 27.225 |
| Cytokinin signaling | GRMZM2G095727 | endosperm_28DAP | A1ZM029970_at | endosperm_28DAP | 200.2875 | 1.725 |
| Cytokinin signaling | GRMZM2G436770 | endosperm_28DAP | A1ZM029930_at | endosperm_28DAP | 192.875 | 10.15 |
| Cytokinin biosynthesis | GRMZM2G022904 | endosperm_28DAP | A1ZM030286_at | endosperm_28DAP | 898.325 | 56.6 |
| Cytokinin biosynthesis | GRMZM2G360523 | endosperm_28DAP | A1ZM030383_at | endosperm_28DAP | 95.575 | 2.65 |
| Cytokinin signaling | GRMZM2G076896 | endosperm_28DAP | A1ZM030442_at | endosperm_28DAP | 249.675 | 5.45 |
| Cytokinin degradation | GRMZM2G178209 | endosperm_28DAP | A1ZM030523_at | endosperm_28DAP | 314.0625 | 5.925 |
| Cytokinin biosynthesis | GRMZM2G104559 | endosperm_28DAP | A1ZM030717_at | endosperm_28DAP | 234.0125 | 4.775 |
| Cytokinin biosynthesis | GRMZM5G852663 | endosperm_28DAP | A1ZM031200_at | endosperm_28DAP | 287.3625 | 3.425 |
| Cytokinin signaling | GRMZM2G161158 | endosperm_28DAP | A1ZM032620_at | endosperm_28DAP | 253.15 | 4.75 |
| Cytokinin biosynthesis | GRMZM2G022904 | endosperm_28DAP | A1ZM032621_at | endosperm_28DAP | 188.575 | 18.7 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_28DAP | A1ZM034655_x_at | endosperm_28DAP | 376.4 | 28.1 |
| Cytokinin signaling | GRMZM2G125943 | endosperm_28DAP | A1ZM034694_at | endosperm_28DAP | 108.725 | 4.55 |
| Cytokinin signaling | GRMZM2G151223 | endosperm_28DAP | A1ZM034695_s_at | endosperm_28DAP | 104.8 | 1.65 |
| Cytokinin biosynthesis | GRMZM2G436770 | endosperm_28DAP | A1ZM035136_at | endosperm_28DAP | 116.0875 | 9.225 |
| Cytokinin biosynthesis | GRMZM2G076936 | endosperm_28DAP | A1ZM035251_at | endosperm_28DAP | 221.45 | 12.3 |
| Cytokinin signaling | GRMZM2G153438 | endosperm_28DAP | A1ZM036544_at | endosperm_28DAP | 494.475 | 12.35 |
| Cytokinin biosynthesis | GRMZM5G852663 | endosperm_28DAP | A1ZM036719_at | endosperm_28DAP | 815.35 | 23.95 |
| Cytokinin transport | GRMZM2G066923 | endosperm_28DAP | A1ZM036929_s_at | endosperm_28DAP | 2617.85 | 416.75 |
| Cytokinin signaling | GRMZM2G360523 | endosperm_28DAP | A1ZM037835_at | endosperm_28DAP | 219.4875 | 5.775 |
| Cytokinin signaling | GRMZM2G125943 | endosperm_28DAP | A1ZM038574_at | endosperm_28DAP | 128.8375 | 14.775 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_28DAP | A1ZM039355_x_at | endosperm_28DAP | 383.1375 | 25.975 |
| Cytokinin biosynthesis | GRMZM2G116878 | endosperm_28DAP | A1ZM041074_at | endosperm_28DAP | 716.7875 | 124.775 |
| Cytokinin signaling | GRMZM2G153438 | endosperm_28DAP | A1ZM041750_at | endosperm_28DAP | 432.5375 | 19.725 |
| Cytokinin signaling | GRMZM2G096171 | endosperm_28DAP | A1ZM042484_at | endosperm_28DAP | 169.65 | 3.05 |
| Cytokinin biosynthesis | AC210013.4_FGT005 | endosperm_28DAP | A1ZM051418_x_at | endosperm_28DAP | 216.9375 | 6.025 |
| Cytokinin signaling | GRMZM2G159404 | endosperm_28DAP | A1ZM054142_at | endosperm_28DAP | 117.6625 | 4.525 |
| Cytokinin signaling | GRMZM2G096171 | endosperm_28DAP | A1ZM054605_at | endosperm_28DAP | 420.25 | 11.1 |
| Cytokinin signaling | GRMZM2G095727 | endosperm_28DAP | A1ZM054606_a_at | endosperm_28DAP | 984.4875 | 238.725 |
| Cytokinin signaling | GRMZM2G177220 | endosperm_28DAP | A1ZM054608_a_at | endosperm_28DAP | 619.7125 | 76.125 |
| Cytokinin signaling | GRMZM2G156019 | endosperm_28DAP | A1ZM054609_at | endosperm_28DAP | 1299.5 | 243.3 |
| Cytokinin signaling | GRMZM2G179827 | endosperm_28DAP | A1ZM054610_at | endosperm_28DAP | 203.75 | 8.1 |
| Cytokinin signaling | GRMZM2G129954 | endosperm_28DAP | A1ZM054611_at | endosperm_28DAP | 253.825 | 22.65 |
| Cytokinin signaling | GRMZM2G392101 | endosperm_28DAP | A1ZM054612_at | endosperm_28DAP | 781.3375 | 34.675 |
| Cytokinin signaling | GRMZM2G039246 | endosperm_28DAP | A1ZM054872_at | endosperm_28DAP | 111.45  | 2.95   |
|-------------------|---------------|-----------------|---------------|-----------------|---------|--------|
| Cytokinin signaling | GRMZM2G173710 | endosperm_28DAP | A1ZM054873_at | endosperm_28DAP | 97.7125 | 1.975  |
| Cytokinin signaling | GRMZM2G173710 | endosperm_28DAP | A1ZM054873_s_at | endosperm_28DAP | 110.65  | 7.3    |
| Cytokinin transport | GRMZM2G009344 | endosperm_28DAP | A1ZM054876_at | endosperm_28DAP | 164.5125 | 27.075 |
| Cytokinin signaling | GRMZM2G151223 | endosperm_28DAP | A1ZM055183_a_at | endosperm_28DAP | 149.45  | 4.35   |
| Cytokinin signaling | GRMZM2G138750 | endosperm_28DAP | A1ZM055184_at | endosperm_28DAP | 89.5375 | 0.575  |
| Cytokinin biosynthesis | GRMZM2G479110 | endosperm_28DAP | A1ZM055787_at | endosperm_28DAP | 331.5125 | 13.775 |
| Cytokinin biosynthesis | GRMZM2G459563 | endosperm_28DAP | A1ZM055814_at | endosperm_28DAP | 1957.488 | 27.375 |
| Cytokinin biosynthesis | GRMZM2G338465 | endosperm_28DAP | A1ZM059893_at | endosperm_28DAP | 2042.45 | 58     |
| Cytokinin transport | GRMZM2G002391 | endosperm_28DAP | A1ZM059897_at | endosperm_28DAP | 1225.55 | 9.8    |
| Cytokinin signaling | GRMZM2G151223 | endosperm_28DAP | A1ZM059897_x_at | endosperm_28DAP | 2555.588 | 395.675 |
| Cytokinin transport | GRMZM2G009344 | endosperm_28DAP | A1ZM059897_s_at | endosperm_28DAP | 3015.188 | 65.975 |
| Cytokinin signaling | GRMZM2G179024 | endosperm_28DAP | A1ZM062048_at | endosperm_28DAP | 80.1125 | 4.825  |
| Cytokinin signaling | GRMZM2G177220 | endosperm_28DAP | A1ZM064845_s_at | endosperm_28DAP | 339.1125 | 14.175 |
| Cytokinin signaling | GRMZM2G009344 | endosperm_28DAP | A1ZM065250_s_at | endosperm_28DAP | 301.7125 | 1.675  |
| Cytokinin transport | GRMZM2G389285 | endosperm_28DAP | A1ZM072064_at | endosperm_28DAP | 757.2375 | 58.525 |
| Cytokinin transport | GRMZM2G389285 | endosperm_28DAP | A1ZM072065_at | endosperm_28DAP | 757.2375 | 58.525 |
| Cytokinin signaling | GRMZM2G129954 | endosperm_28DAP | A1ZM072781_at | endosperm_28DAP | 101.7625 | 3.175  |
| Cytokinin signaling | GRMZM2G129954 | endosperm_28DAP | A1ZM074000_at | endosperm_28DAP | 136.5   | 8      |
| Cytokinin transport | GRMZM2G0066923 | endosperm_28DAP | A1ZM076470_a_at | endosperm_28DAP | 4556    | 218.6  |
| Cytokinin signaling | GRMZM2G155767 | endosperm_28DAP | A1ZM077656_at | endosperm_28DAP | 1217.388 | 31.925 |
| Cytokinin signaling | GRMZM2G155767 | endosperm_28DAP | A1ZM083176_at | endosperm_28DAP | 107.125 | 1.1    |
| Cytokinin degradation | GRMZM2G016439 | endosperm_40DAP | A1ZM000065_at | endosperm_40DAP | 2923.725 | 881    |
| Cytokinin signaling | GRMZM2G020081 | endosperm_40DAP | A1ZM000436_at | endosperm_40DAP | 1192.813 | 584.85 |
| Cytokinin signaling | GRMZM2G471529 | endosperm_40DAP | A1ZM005041_at | endosperm_40DAP | 192.25  | 0.8    |
| Cytokinin signaling | GRMZM2G129860 | endosperm_40DAP | A1ZM005050_at | endosperm_40DAP | 350.5   | 55.8   |
| Cytokinin signaling | GRMZM2G129860 | endosperm_40DAP | A1ZM005128_at | endosperm_40DAP | 120.025 | 6.5    |
| Cytokinin signaling | GRMZM2G155767 | endosperm_40DAP | A1ZM006236_at | endosperm_40DAP | 354.7125 | 34.05  |
| Cytokinin signaling | GRMZM2G155767 | endosperm_40DAP | A1ZM006928_a_at | endosperm_40DAP | 688.6   | 30.6   |
| Cytokinin signaling | GRMZM2G155767 | endosperm_40DAP | A1ZM006928_x_at | endosperm_40DAP | 471.65  | 15.8   |
| Cytokinin signaling | GRMZM2G459563 | endosperm_40DAP | A1ZM008285_at | endosperm_40DAP | 171.1125 | 5.65   |
| Cytokinin signaling | GRMZM2G099797 | endosperm_40DAP | A1ZM009127_s_at | endosperm_40DAP | 173.8125 | 10.65  |
| Cytokinin degradation | GRMZM2G086925 | endosperm_40DAP | A1ZM009389_at | endosperm_40DAP | 142.6 | 9.6 |
|----------------------|---------------|----------------|---------------|----------------|-------|-----|
| Cytokinin degradation | GRMZM2G120016 | endosperm_40DAP | A1ZM009692_at | endosperm_40DAP | 251.1125 | 4.15 |
| Cytokinin degradation | GRMZM2G058314 | endosperm_40DAP | A1ZM009786_at | endosperm_40DAP | 126.725 | 2 |
| Cytokinin signaling | GRMZM2G014154 | endosperm_40DAP | A1ZM010384_a_at | endosperm_40DAP | 4006.375 | 1099.2 |
| Cytokinin transport | GRMZM2G416625 | endosperm_40DAP | A1ZM012937_at | endosperm_40DAP | 2494.825 | 644.2 |
| Cytokinin transport | GRMZM2G066923 | endosperm_40DAP | A1ZM016719_at | endosperm_40DAP | 267.2125 | 23.15 |
| Cytokinin signaling | GRMZM2G016145 | endosperm_40DAP | A1ZM016721_a_at | endosperm_40DAP | 1408.55 | 440.1 |
| Cytokinin transport | GRMZM2G016145 | endosperm_40DAP | A1ZM016721_s_at | endosperm_40DAP | 81.85 | 1 |
| Cytokinin signaling | GRMZM2G040736 | endosperm_40DAP | A1ZM019912_x_at | endosperm_40DAP | 390.9875 | 149.75 |
| Cytokinin signaling | GRMZM2G016439 | endosperm_40DAP | A1ZM020181_at | endosperm_40DAP | 390.9875 | 149.75 |
| Cytokinin signaling | GRMZM2G016439 | endosperm_40DAP | A1ZM020851_s_at | endosperm_40DAP | 390.9875 | 149.75 |
| Cytokinin signaling | GRMZM2G066923 | endosperm_40DAP | A1ZM020953_at | endosperm_40DAP | 212.6875 | 25.05 |
| Cytokinin signaling | GRMZM2G016145 | endosperm_40DAP | A1ZM022701_at | endosperm_40DAP | 131.5125 | 15.15 |
| Cytokinin signaling | GRMZM2G016145 | endosperm_40DAP | A1ZM022701_s_at | endosperm_40DAP | 131.5125 | 15.15 |
| Cytokinin signaling | GRMZM2G016145 | endosperm_40DAP | A1ZM024002_x_at | endosperm_40DAP | 1067.925 | 196.2 |
| Cytokinin signaling | GRMZM2G016145 | endosperm_40DAP | A1ZM024002_s_at | endosperm_40DAP | 1067.925 | 196.2 |
| Cytokinin signaling | GRMZM2G016145 | endosperm_40DAP | A1ZM025109_at | endosperm_40DAP | 217.4625 | 16.35 |
| Cytokinin signaling | GRMZM2G016145 | endosperm_40DAP | A1ZM025193_at | endosperm_40DAP | 338.975 | 49.7 |
| Cytokinin signaling | GRMZM2G040736 | endosperm_40DAP | A1ZM025238_x_at | endosperm_40DAP | 554.5125 | 134.45 |
| Cytokinin degradation | GRMZM2G178209 | endosperm_40DAP | A1ZM026067_at | endosperm_40DAP | 144.7 | 8 |
| Cytokinin degradation | GRMZM2G178209 | endosperm_40DAP | A1ZM026519_at | endosperm_40DAP | 733.4125 | 18.15 |
| Cytokinin signaling | GRMZM2G013612 | endosperm_40DAP | A1ZM027161_at | endosperm_40DAP | 133.9125 | 6.85 |
| Cytokinin signaling | GRMZM2G013612 | endosperm_40DAP | A1ZM027162_at | endosperm_40DAP | 117.7875 | 15.25 |
| Cytokinin signaling | GRMZM2G102915 | endosperm_40DAP | A1ZM028114_at | endosperm_40DAP | 142.0625 | 1.25 |
| Cytokinin degradation | GRMZM2G159404 | endosperm_40DAP | A1ZM028351_at | endosperm_40DAP | 387.5125 | 48.75 |
| Cytokinin signaling | GRMZM2G159404 | endosperm_40DAP | A1ZM029562_at | endosperm_40DAP | 233.2125 | 1.45 |
| Cytokinin signaling | GRMZM2G022904 | endosperm_40DAP | A1ZM029706_at | endosperm_40DAP | 254.0125 | 16.95 |
| Cytokinin signaling | GRMZM2G022904 | endosperm_40DAP | A1ZM029930_at | endosperm_40DAP | 274.95 | 51 |
| Cytokinin biosynthesis | GRMZM2G022904 | endosperm_40DAP | A1ZM030286_at | endosperm_40DAP | 1253.813 | 162.05 |
### Supplemental Table S4. Contd.

| Category                  | Accession           | Tissue           | ID            | Fold Change |
|---------------------------|---------------------|------------------|---------------|-------------|
| Cytokinin signaling       | GRMZM2G360523       | endosperm_40DAP  | A1ZM030383_at | 103.325     |
| Cytokinin biosynthesis    | GRMZM2G076936       | endosperm_40DAP  | A1ZM030442_at | 243.4125    |
| Cytokinin degradation     | GRMZM2G178209       | endosperm_40DAP  | A1ZM030523_at | 430.95      |
| Cytokinin biosynthesis    | GRMZM2G104559       | endosperm_40DAP  | A1ZM030717_at | 216.45      |
| Cytokinin biosynthesis    | GRMZM5G852663       | endosperm_40DAP  | A1ZM031200_at | 429.6125    |
| Cytokinin biosynthesis    | GRMZM2G161158       | endosperm_40DAP  | A1ZM032620_at | 249.325     |
| Cytokinin biosynthesis    | GRMZM2G022904       | endosperm_40DAP  | A1ZM032621_at | 194.825     |
| Cytokinin signaling       | GRMZM2G151223       | endosperm_40DAP  | A1ZM034695_s_at | 92.425     |
| Cytokinin biosynthesis    | GRMZM2G436770       | endosperm_40DAP  | A1ZM035136_at | 131.575     |
| Cytokinin biosynthesis    | GRMZM2G153438       | endosperm_40DAP  | A1ZM035251_at | 361.8625    |
| Cytokinin signaling       | GRMZM2G155767       | endosperm_40DAP  | A1ZM035355_s_at | 302.275     |
| Cytokinin biosynthesis    | GRMZM2G116878       | endosperm_40DAP  | A1ZM041074_at | 753.0125    |
| Cytokinin signaling       | GRMZM2G153438       | endosperm_40DAP  | A1ZM041750_at | 512.45      |
| Cytokinin signaling       | GRMZM2G096171       | endosperm_40DAP  | A1ZM042484_at | 211.4625    |
| Cytokinin biosynthesis    | AC210013.4_FGT005   | endosperm_40DAP  | A1ZM051418_x_at | 244.3     |
| Cytokinin degradation     | GRMZM2G159404       | endosperm_40DAP  | A1ZM054142_at | 137.9375    |
| Cytokinin signaling       | GRMZM2G096171       | endosperm_40DAP  | A1ZM054605_at | 427.7375    |
| Cytokinin signaling       | GRMZM2G095727       | endosperm_40DAP  | A1ZM054606_a_at | 608.425    |
| Cytokinin signaling       | GRMZM2G177220       | endosperm_40DAP  | A1ZM054608_a_at | 549.1625    |
| Cytokinin signaling       | GRMZM2G095727       | endosperm_40DAP  | A1ZM054606_a_at | 549.1625    |
| Cytokinin signaling       | GRMZM2G159404       | endosperm_40DAP  | A1ZM054605_at | 427.7375    |
| Cytokinin signaling       | GRMZM2G159404       | endosperm_40DAP  | A1ZM054605_at | 427.7375    |
| Cytokinin signaling       | GRMZM2G159404       | endosperm_40DAP  | A1ZM054605_at | 427.7375    |
| Cytokinin signaling       | GRMZM2G159404       | endosperm_40DAP  | A1ZM054605_at | 427.7375    |
| Cytokinin signaling       | GRMZM2G159404       | endosperm_40DAP  | A1ZM054605_at | 427.7375    |
### Supplemental Table S4. Contd.

| Cytokinin biosynthesis | GRMZM2G459563 | endosperm_40DAP | A1ZM055787_at | endosperm_40DAP | 372.725 | 35.7 |
|------------------------|---------------|----------------|---------------|----------------|---------|
| Cytokinin degradation  | GRMZM2G338465 | endosperm_40DAP | A1ZM055814_at | endosperm_40DAP | 149.3375 | 19.65 |
| Cytokinin signaling    | GRMZM2G099797 | endosperm_40DAP | A1ZM056039_at | endosperm_40DAP | 1350.8 | 31.3 |
| Cytokinin signaling    | GRMZM2G099797 | endosperm_40DAP | A1ZM056039_x_at | endosperm_40DAP | 1422.338 | 152.95 |
| Cytokinin signaling    | GRMZM2G002391 | endosperm_40DAP | A1ZM056320_at | endosperm_40DAP | 1023.138 | 164.95 |
| Cytokinin transport    | GRMZM2G066923 | endosperm_40DAP | A1ZM056353_a_at | endosperm_40DAP | 4638.813 | 992.65 |
| Cytokinin signaling    | GRMZM2G039246 | endosperm_40DAP | A1ZM059893_at | endosperm_40DAP | 84.7375 | 1.45 |
| Cytokinin signaling    | GRMZM2G099797 | endosperm_40DAP | A1ZM059893_x_at | endosperm_40DAP | 1422.338 | 152.95 |
| Cytokinin transport    | GRMZM2G471529 | endosperm_40DAP | A1ZM060982_at | endosperm_40DAP | 258.625 | 27.5 |
| Cytokinin signaling    | GRMZM2G360523 | endosperm_40DAP | A1ZM0611145_at | endosperm_40DAP | 205.925 | 2.5 |
| Cytokinin signaling    | GRMZM2G179024 | endosperm_40DAP | A1ZM062048_at | endosperm_40DAP | 80.3625 | 0.85 |
| Cytokinin signaling    | GRMZM2G177220 | endosperm_40DAP | A1ZM064845_s_at | endosperm_40DAP | 280.925 | 37 |
| Cytokinin transport    | GRMZM2G009344 | endosperm_40DAP | A1ZM065250_s_at | endosperm_40DAP | 12322.44 | 4170.75 |
| Cytokinin signaling    | GRMZM2G009344 | endosperm_40DAP | A1ZM065250_s_at | endosperm_40DAP | 961.65 | 125.2 |
| Cytokinin signaling    | GRMZM2G389285 | endosperm_40DAP | A1ZM072065_at | endosperm_40DAP | 173.95 | 12.9 |
| Cytokinin signaling    | GRMZM2G389285 | endosperm_40DAP | A1ZM072065_at | endosperm_40DAP | 112.95 | 16.2 |
| Cytokinin signaling    | GRMZM2G014154 | endosperm_40DAP | A1ZM072781_at | endosperm_40DAP | 156.6875 | 6.75 |
| Cytokinin signaling    | GRMZM2G129954 | endosperm_40DAP | A1ZM074600_at | endosperm_40DAP | 3225 | 585.6 |
| Cytokinin signaling    | GRMZM2G066923 | endosperm_40DAP | A1ZM076470_a_at | endosperm_40DAP | 739.375 | 142 |
| Cytokinin signaling    | GRMZM2G151223 | endosperm_40DAP | A1ZM0883176_at | endosperm_40DAP | 126.65 | 6.9 |
| Cytokinin signaling    | GRMZM2G168474 | kernel_2DAP | A1ZM000065_at | kernel_2DAP | 206.65 | 1.3 |
| Cytokinin signaling    | GRMZM2G009344 | kernel_2DAP | A1ZM000436_at | kernel_2DAP | 8038.488 | 675.425 |
| Cytokinin signaling    | GRMZM2G020081 | kernel_2DAP | A1ZM005041_at | kernel_2DAP | 219.875 | 1.25 |
| Cytokinin biosynthesis | GRMZM2G129860 | kernel_2DAP | A1ZM005050_at | kernel_2DAP | 93.5 | 3.75 |
| Cytokinin signaling    | GRMZM2G471529 | kernel_2DAP | A1ZM005128_at | kernel_2DAP | 184.5625 | 5.825 |
| Cytokinin signaling    | GRMZM2G155767 | kernel_2DAP | A1ZM006236_a_at | kernel_2DAP | 468.0375 | 14.175 |
| Cytokinin signaling    | GRMZM2G155767 | kernel_2DAP | A1ZM006928_at | kernel_2DAP | 1162.863 | 44.875 |
| Cytokinin signaling    | GRMZM2G009797 | kernel_2DAP | A1ZM009127_s_at | kernel_2DAP | 298.15 | 6.7 |
| Cytokinin signaling    | GRMZM2G086925 | kernel_2DAP | A1ZM009389_at | kernel_2DAP | 160.925 | 5.85 |
| Cytokinin degradation  | GRMZM2G120016 | kernel_2DAP | A1ZM009692_at | kernel_2DAP | 175.7875 | 8.325 |
| Cytokinin degradation  | GRMZM2G058314 | kernel_2DAP | A1ZM009786_at | kernel_2DAP | 181.5625 | 17.675 |
| Cytokinin signaling    | GRMZM2G014154 | kernel_2DAP | A1ZM010384_a_at | kernel_2DAP | 7747.138 | 467.975 |
| Cytokinin transport    | GRMZM2G014154 | kernel_2DAP | A1ZM012937_at | kernel_2DAP | 1815.175 | 89.4 |
| Cytokinin biosynthesis | GRMZM2G097258 | kernel_2DAP | A1ZM013917_s_at | kernel_2DAP | 226.275 | 10.15 |
| Cytokinin transport    | GRMZM2G146337 | kernel_2DAP | A1ZM015143_at | kernel_2DAP | 322.1875 | 9.225 |
**Supplemental Table S4. Contd.**

| Cytokinin transport | GRMZM2G066923 | kernel_2DAP | A1ZM016719_at | kernel_2DAP | 64.4875 | 0.325 |
|---------------------|---------------|-------------|---------------|-------------|---------|-------|
| Cytokinin signaling | GRMZM2G06145  | kernel_2DAP | A1ZM016721_a_at | kernel_2DAP | 88.1375 | 3.225 |
| Cytokinin signaling | GRMZM2G040736 | kernel_2DAP | A1ZM019912_x_at | kernel_2DAP | 733.2875 | 22.275 |
| Cytokinin signaling | GRMZM2G043295 | kernel_2DAP | A1ZM020181_at | kernel_2DAP | 767.975 | 43.9 |
| Cytokinin signaling | GRMZM2G016439 | kernel_2DAP | A1ZM020851_a_at | kernel_2DAP | 1172.025 | 124.45 |
| Cytokinin signaling | GRMZM2G016439 | kernel_2DAP | A1ZM020851_s_at | kernel_2DAP | 3504.388 | 44.975 |
| Cytokinin transport | GRMZM2G009344 | kernel_2DAP | A1ZM020953_at | kernel_2DAP | 117.55 | 7.7 |
| Cytokinin signaling | GRMZM2G009344 | kernel_2DAP | A1ZM020953_a_at | kernel_2DAP | 673.3375 | 27.175 |
| Cytokinin signaling | GRMZM2G1179024 | kernel_2DAP | A1ZM021522_at | kernel_2DAP | 129.5125 | 2.125 |
| Cytokinin signaling | GRMZM2G125943 | kernel_2DAP | A1ZM022701_at | kernel_2DAP | 125.475 | 17.05 |
| Cytokinin signaling | GRMZM2G005732 | kernel_2DAP | A1ZM022780_a_at | kernel_2DAP | 184.75 | 2.3 |
| Cytokinin signaling | GRMZM2G005732 | kernel_2DAP | A1ZM022780_at | kernel_2DAP | 250.275 | 3.75 |
| Cytokinin signaling | GRMZM2G155767 | kernel_2DAP | A1ZM023285_a_at | kernel_2DAP | 1306.2 | 34.2 |
| Cytokinin signaling | GRMZM2G155767 | kernel_2DAP | A1ZM023285_x_at | kernel_2DAP | 1066.938 | 20.125 |
| Cytokinin signaling | GRMZM2G471529 | kernel_2DAP | A1ZM023515_at | kernel_2DAP | 660.0375 | 46.175 |
| Cytokinin signaling | GRMZM2G177220 | kernel_2DAP | A1ZM023797_s_at | kernel_2DAP | 130.6375 | 5.425 |
| Cytokinin transport | GRMZM2G416625 | kernel_2DAP | A1ZM024002_x_at | kernel_2DAP | 742.7 | 23.9 |
| Cytokinin signaling | GRMZM2G156019 | kernel_2DAP | A1ZM025109_at | kernel_2DAP | 139.75 | 8.05 |
| Cytokinin signaling | GRMZM2G409974 | kernel_2DAP | A1ZM025193_at | kernel_2DAP | 1284.388 | 17.975 |
| Cytokinin signaling | GRMZM2G004736 | kernel_2DAP | A1ZM025238_x_at | kernel_2DAP | 661.0625 | 23.375 |
| Cytokinin degradation | GRMZM2G178209 | kernel_2DAP | A1ZM026067_at | kernel_2DAP | 132.5 | 5.15 |
| Cytokinin degradation | GRMZM2G178209 | kernel_2DAP | A1ZM026519_at | kernel_2DAP | 450.05 | 3.9 |
| Cytokinin signaling | GRMZM2G471529 | kernel_2DAP | A1ZM026515_at | kernel_2DAP | 660.0375 | 46.175 |
| Cytokinin signaling | GRMZM2G177220 | kernel_2DAP | A1ZM027162_s_at | kernel_2DAP | 130.6375 | 5.425 |
| Cytokinin transport | GRMZM2G177220 | kernel_2DAP | A1ZM027162_at | kernel_2DAP | 83.125 | 1.15 |
| Cytokinin signaling | GRMZM2G177220 | kernel_2DAP | A1ZM027162_at | kernel_2DAP | 83.125 | 1.15 |
| Cytokinin biosynthesis | GRMZM2G102915 | kernel_2DAP | A1ZM028114_at | kernel_2DAP | 119.15 | 1.75 |
| Cytokinin degradation | GRMZM2G156019 | kernel_2DAP | A1ZM028351_at | kernel_2DAP | 267.775 | 8 |
| Cytokinin signaling | GRMZM2G156019 | kernel_2DAP | A1ZM029562_at | kernel_2DAP | 216.625 | 5 |
| Cytokinin biosynthesis | GRMZM2G195404 | kernel_2DAP | A1ZM029706_at | kernel_2DAP | 208.75 | 5.75 |
| Cytokinin biosynthesis | GRMZM2G155767 | kernel_2DAP | A1ZM029930_at | kernel_2DAP | 178.775 | 2.75 |
| Cytokinin biosynthesis | GRMZM2G436770 | kernel_2DAP | A1ZM030286_at | kernel_2DAP | 827.3125 | 21.925 |
| Cytokinin signaling | GRMZM2G360523 | kernel_2DAP | A1ZM030383_at | kernel_2DAP | 88.1875 | 3.375 |
| Cytokinin biosynthesis | GRMZM2G076936 | kernel_2DAP | A1ZM030442_at | kernel_2DAP | 146.6625 | 10.925 |
| Cytokinin degradation | GRMZM2G178209 | kernel_2DAP | A1ZM030523_at | kernel_2DAP | 202.9125 | 3.975 |
| Cytokinin biosynthesis | GRMZM2G178209 | kernel_2DAP | A1ZM030717_at | kernel_2DAP | 163.4875 | 4.925 |
| Cytokinin biosynthesis | GRMZM2G852663 | kernel_2DAP | A1ZM031200_at | kernel_2DAP | 200.5625 | 4.025 |
| Cytokinin biosynthesis | GRMZM2G161158 | kernel_2DAP | A1ZM032620_at | kernel_2DAP | 200.3125 | 6.575 |
| Cytokinin biosynthesis | GRMZM2G022904 | kernel_2DAP | A1ZM032621_at | kernel_2DAP | 145.5625 | 8.025 |
| Cytokinin signaling | GRMZM2G155767 | kernel_2DAP | A1ZM034655_x_at | kernel_2DAP | 325.625 | 6.4 |
|---------------------|----------------|---------------|-----------------|--------------|---------|----|
| Cytokinin signaling | GRMZM2G125943 | kernel_2DAP   | A1ZM034694_at   | kernel_2DAP  | 81.3375 | 2.525 |
| Cytokinin signaling | GRMZM2G151223 | kernel_2DAP   | A1ZM034695_s_at | kernel_2DAP  | 130.725 | 15.45 |
| Cytokinin biosynthesis | GRMZM2G436770 | kernel_2DAP   | A1ZM035136_at   | kernel_2DAP  | 74.7    | 2.1  |
| Cytokinin biosynthesis | GRMZM2G076936 | kernel_2DAP   | A1ZM035251_at   | kernel_2DAP  | 209.5375 | 7.325 |
| Cytokinin transport | GRMZM2G153438 | kernel_2DAP   | A1ZM036544_at   | kernel_2DAP  | 362.25  | 5.4  |
| Cytokinin biosynthesis | GRMZM2G5Q852663 | kernel_2DAP | A1ZM036719_at | kernel_2DAP | 587.95 | 4.15 |
| Cytokinin transport | GRMZM2G066923 | kernel_2DAP   | A1ZM036929_s_at | kernel_2DAP  | 322.2625 | 20.025 |
| Cytokinin signaling | GRMZM2G360523 | kernel_2DAP   | A1ZM037835_at   | kernel_2DAP  | 245.1625 | 11.725 |
| Cytokinin biosynthesis | GRMZM2G125943 | kernel_2DAP   | A1ZM038574_at   | kernel_2DAP  | 114.5125 | 3.075 |
| Cytokinin biosynthesis | GRMZM2G155767 | kernel_2DAP   | A1ZM039355_x_at | kernel_2DAP  | 304.3375 | 11.525 |
| Cytokinin biosynthesis | GRMZM2G116878 | kernel_2DAP   | A1ZM041074_at   | kernel_2DAP  | 544.75  | 12.5 |
| Cytokinin transport | GRMZM2G153438 | kernel_2DAP   | A1ZM041750_at   | kernel_2DAP  | 361.1625 | 28.475 |
| Cytokinin signaling | GRMZM2G096171 | kernel_2DAP   | A1ZM051418_x_at | kernel_2DAP  | 164.625 | 8.9  |
| Cytokinin biosynthesis | AC210013.4_FGT005 | kernel_2DAP | A1ZM054142_at | kernel_2DAP | 90.0625 | 0.325 |
| Cytokinin biosynthesis | GRMZM2G159404 | kernel_2DAP   | A1ZM054605_at   | kernel_2DAP  | 844.0125 | 9.625 |
| Cytokinin biosynthesis | GRMZM2G096171 | kernel_2DAP   | A1ZM054606_a_at | kernel_2DAP  | 2066.85 | 122.5 |
| Cytokinin biosynthesis | GRMZM2G155767 | kernel_2DAP   | A1ZM054608_a_at | kernel_2DAP  | 858.4125 | 39.475 |
| Cytokinin biosynthesis | GRMZM2G156019 | kernel_2DAP   | A1ZM054609_at   | kernel_2DAP  | 2383.963 | 31.375 |
| Cytokinin biosynthesis | GRMZM2G179827 | kernel_2DAP   | A1ZM054610_at   | kernel_2DAP  | 368.25  | 7.65 |
| Cytokinin biosynthesis | GRMZM2G129954 | kernel_2DAP   | A1ZM054611_at   | kernel_2DAP  | 659.125 | 12.25 |
| Cytokinin signaling | GRMZM2G392101 | kernel_2DAP   | A1ZM054612_at   | kernel_2DAP  | 1357.338 | 72.325 |
| Cytokinin signaling | GRMZM2G066923 | kernel_2DAP   | A1ZM054872_at   | kernel_2DAP  | 85.5875 | 2.875 |
| Cytokinin biosynthesis | GRMZM2G179827 | kernel_2DAP   | A1ZM054873_at   | kernel_2DAP  | 89.35   | 8.1  |
| Cytokinin biosynthesis | GRMZM2G179827 | kernel_2DAP   | A1ZM054873_s_at | kernel_2DAP  | 68.275  | 1.85 |
| Cytokinin transport | GRMZM2G151223 | kernel_2DAP   | A1ZM054876_at   | kernel_2DAP  | 320.9   | 47.55 |
| Cytokinin signaling | GRMZM2G436770 | kernel_2DAP   | A1ZM055183_a_at | kernel_2DAP  | 361.3   | 10.35 |
| Cytokinin signaling | GRMZM2G479110 | kernel_2DAP   | A1ZM055354_at   | kernel_2DAP  | 1645.888 | 49.075 |
| Cytokinin biosynthesis | GRMZM2G138750 | kernel_2DAP   | A1ZM055786_at   | kernel_2DAP  | 449.2375 | 3.425 |
| Cytokinin biosynthesis | GRMZM2G459563 | kernel_2DAP   | A1ZM055787_at   | kernel_2DAP  | 317.35  | 21.45 |
| Cytokinin degradation | GRMZM2G338465 | kernel_2DAP   | A1ZM055814_at   | kernel_2DAP  | 83.4125 | 2.025 |
| Cytokinin signaling | GRMZM2G099797 | kernel_2DAP   | A1ZM056039_at   | kernel_2DAP  | 889.5875 | 13.975 |
| Cytokinin signaling | GRMZM2G099797 | kernel_2DAP   | A1ZM056039_x_at | kernel_2DAP  | 973.625 | 9.6  |
| Cytokinin signaling | GRMZM2G099797 | kernel_2DAP   | A1ZM056078_at   | kernel_2DAP  | 454.5   | 13.85 |
| Cytokinin transport | GRMZM2G02391  | kernel_2DAP   | A1ZM056320_at   | kernel_2DAP  | 5866.925 | 291.25 |
| Cytokinin transport | GRMZM2G066923 | kernel_2DAP   | A1ZM056353_a_at | kernel_2DAP  | 656.2375 | 68.675 |
**Supplemental Table S4. Contd.**

| Cytokinin signaling | GRMZM2G039246 | kernel_2DAP | A1ZM059893_at | kernel_2DAP | 69.2625 | 3.575 |
|---------------------|---------------|-------------|----------------|-------------|---------|-------|
| Cytokinin signaling | GRMZM2G471529 | kernel_2DAP | A1ZM060982_at | kernel_2DAP | 141.0375 | 3.475 |
| Cytokinin signaling | GRMZM2G360523 | kernel_2DAP | A1ZM061145_at | kernel_2DAP | 177.8875 | 13.025 |
| Cytokinin signaling | GRMZM2G179024 | kernel_2DAP | A1ZM062048_at | kernel_2DAP | 71.05 | 2.1 |
| Cytokinin signaling | GRMZM2G177222 | kernel_2DAP | A1ZM064845_s_at | kernel_2DAP | 198.2375 | 12.425 |
| Cytokinin signaling | GRMZM2G009344 | kernel_2DAP | A1ZM065250_s_at | kernel_2DAP | 4773.238 | 223.075 |
| Cytokinin signaling | GRMZM2G389285 | kernel_2DAP | A1ZM072064_at | kernel_2DAP | 566.5125 | 11.825 |
| Cytokinin signaling | GRMZM2G389285 | kernel_2DAP | A1ZM072065_at | kernel_2DAP | 129.8375 | 2.225 |
| Cytokinin signaling | GRMZM2G177222 | kernel_2DAP | A1ZM072781_at | kernel_2DAP | 67.9125 | 1.575 |
| Cytokinin signaling | GRMZM2G129954 | kernel_2DAP | A1ZM074600_at | kernel_2DAP | 137.5 | 4.85 |
| Cytokinin signaling | GRMZM2G009344 | kernel_2DAP | A1ZM076470_a_at | kernel_2DAP | 439.5125 | 27.675 |
| Cytokinin signaling | GRMZM2G151223 | kernel_2DAP | A1ZM077656_at | kernel_2DAP | 1964.738 | 97.225 |
| Cytokinin signaling | GRMZM2G389285 | kernel_2DAP | A1ZM085041_at | kernel_2DAP | 808.7125 | 11.125 |
| Cytokinin signaling | GRMZM2G129860 | kernel_2DAP | A1ZM085050_at | kernel_2DAP | 142.7375 | 20.625 |
| Cytokinin signaling | GRMZM2G471529 | kernel_2DAP | A1ZM05128_at | kernel_2DAP | 187.9 | 68.8 |
| Cytokinin signaling | GRMZM2G151576 | kernel_2DAP | A1ZM06236_a_at | kernel_2DAP | 604.6375 | 30.675 |
| Cytokinin signaling | GRMZM2G151576 | kernel_2DAP | A1ZM06928_a_at | kernel_2DAP | 111.2 | 96.6 |
| Cytokinin signaling | GRMZM2G151576 | kernel_2DAP | A1ZM06928_x_at | kernel_2DAP | 857.2875 | 105.875 |
| Cytokinin signaling | GRMZM2G097979 | kernel_2DAP | A1ZM09127_s_at | kernel_2DAP | 334.875 | 40.9 |
| Cytokinin signaling | GRMZM2G086925 | kernel_2DAP | A1ZM09389_at | kernel_2DAP | 162.3625 | 8.775 |
| Cytokinin signaling | GRMZM2G120016 | kernel_2DAP | A1ZM09692_at | kernel_2DAP | 176.8375 | 7.125 |
| Cytokinin signaling | GRMZM2G058314 | kernel_2DAP | A1ZM09878_at | kernel_2DAP | 162.9375 | 3.235 |
| Cytokinin signaling | GRMZM2G14154 | kernel_2DAP | A1ZM10384_a_at | kernel_2DAP | 7442.838 | 206.825 |
| Cytokinin signaling | GRMZM2G416625 | kernel_2DAP | A1ZM12937_at | kernel_2DAP | 1654.8 | 123.65 |
| Cytokinin signaling | GRMZM2G097258 | kernel_2DAP | A1ZM13917_s_at | kernel_2DAP | 273.725 | 27.5 |
| Cytokinin signaling | GRMZM2G146337 | kernel_2DAP | A1ZM15143_at | kernel_2DAP | 672.625 | 25.15 |
| Cytokinin signaling | GRMZM2G096923 | kernel_2DAP | A1ZM16719_at | kernel_2DAP | 59.475 | 2.35 |
| Cytokinin signaling | GRMZM2G16145 | kernel_2DAP | A1ZM16721_a_at | kernel_2DAP | 2210.688 | 719.125 |
| Cytokinin signaling | GRMZM2G040736 | kernel_2DAP | A1ZM19912_x_at | kernel_2DAP | 658.325 | 61.75 |
| Cytokinin signaling | GRMZM2G043295 | kernel_2DAP | A1ZM20181_at | kernel_2DAP | 403.4625 | 62.175 |
| Cytokinin signaling | GRMZM2G16439 | kernel_2DAP | A1ZM20851_a_at | kernel_2DAP | 1245.15 | 122.1 |
| Cytokinin signaling | GRMZM2G09344 | kernel_2DAP | A1ZM20953_at | kernel_2DAP | 121.575 | 6.3 |
### Supplemental Table S4. Contd.

| Pathway                  | Accession       | Stage          | Gene ID          | Stage | Log2 Ratio | P-Value |
|--------------------------|-----------------|----------------|-----------------|-------|------------|---------|
| Cytokinin signaling      | GRMZM2G179024   | kernel_7DAP    | A1ZM021522_at   | kernel_7DAP | 1035 | 58.3    |
| Cytokinin signaling      | GRMZM2G125943   | kernel_7DAP    | A1ZM022701_at   | kernel_7DAP | 111.7125 | 7.825   |
| Cytokinin signaling      | GRMZM2G005732   | kernel_7DAP    | A1ZM022780_a_at | kernel_7DAP | 91.6125 | 2.425   |
| Cytokinin signaling      | GRMZM2G005732   | kernel_7DAP    | A1ZM022780_at   | kernel_7DAP | 154.9 | 4.55    |
| Cytokinin signaling      | GRMZM2G155767   | kernel_7DAP    | A1ZM023285_a_at | kernel_7DAP | 1212.488 | 129.375 |
| Cytokinin signaling      | GRMZM2G155767   | kernel_7DAP    | A1ZM023285_x_at | kernel_7DAP | 990.3375 | 99.275  |
| Cytokinin signaling      | GRMZM2G177220   | kernel_7DAP    | A1ZM023791_at   | kernel_7DAP | 231.075 | 8.6     |
| Cytokinin transport      | GRMZM2G146625   | kernel_7DAP    | A1ZM024002_x_at | kernel_7DAP | 849.925 | 33.2    |
| Cytokinin signaling      | GRMZM2G156019   | kernel_7DAP    | A1ZM025109_at   | kernel_7DAP | 141.1625 | 4.625   |
| Cytokinin signaling      | GRMZM2G409974   | kernel_7DAP    | A1ZM025193_at   | kernel_7DAP | 921.075 | 53.45   |
| Cytokinin signaling      | GRMZM2G005732   | kernel_7DAP    | A1ZM025238_x_at | kernel_7DAP | 543.325 | 69.95   |
| Cytokinin degradation    | GRMZM2G178209   | kernel_7DAP    | A1ZM026067_at   | kernel_7DAP | 145.525 | 1.65    |
| Cytokinin degradation    | GRMZM2G178209   | kernel_7DAP    | A1ZM026519_at   | kernel_7DAP | 404.95 | 36.6    |
| Cytokinin signaling      | GRMZM2G013612   | kernel_7DAP    | A1ZM027161_at   | kernel_7DAP | 80.3375 | 4.375   |
| Cytokinin signaling      | GRMZM2G013612   | kernel_7DAP    | A1ZM027162_at   | kernel_7DAP | 84.1125 | 4.575   |
| Cytokinin biosynthesis   | GRMZM2G102915   | kernel_7DAP    | A1ZM028114_at   | kernel_7DAP | 107.85 | 6.1     |
| Cytokinin degradation    | GRMZM2G159404   | kernel_7DAP    | A1ZM028351_at   | kernel_7DAP | 273.6125 | 32.675  |
| Cytokinin signaling      | GRMZM2G155767   | kernel_7DAP    | A1ZM029562_at   | kernel_7DAP | 210.325 | 12.85   |
| Cytokinin biosynthesis   | GRMZM2G040736   | kernel_7DAP    | A1ZM029706_at   | kernel_7DAP | 463.6 | 61.15   |
| Cytokinin biosynthesis   | GRMZM2G178209   | kernel_7DAP    | A1ZM029930_at   | kernel_7DAP | 176.9625 | 8.775   |
| Cytokinin biosynthesis   | GRMZM2G022904   | kernel_7DAP    | A1ZM030286_at   | kernel_7DAP | 801.9 | 149.35  |
| Cytokinin signaling      | GRMZM2G360523   | kernel_7DAP    | A1ZM030383_at   | kernel_7DAP | 97.775 | 5.55    |
| Cytokinin biosynthesis   | GRMZM2G076936   | kernel_7DAP    | A1ZM030442_at   | kernel_7DAP | 127.9375 | 14.175  |
| Cytokinin degradation    | GRMZM2G178209   | kernel_7DAP    | A1ZM030523_at   | kernel_7DAP | 190.9875 | 21.775  |
| Cytokinin biosynthesis   | GRMZM2G104559   | kernel_7DAP    | A1ZM030717_at   | kernel_7DAP | 164.3 | 16.1    |
| Cytokinin biosynthesis   | GRMZM2G161158   | kernel_7DAP    | A1ZM031200_at   | kernel_7DAP | 232.6375 | 23.775  |
| Cytokinin biosynthesis   | GRMZM2G022904   | kernel_7DAP    | A1ZM032620_at   | kernel_7DAP | 194.825 | 14      |
| Cytokinin biosynthesis   | GRMZM2G022904   | kernel_7DAP    | A1ZM032621_at   | kernel_7DAP | 154.675 | 2.75    |
| Cytokinin signaling      | GRMZM2G155767   | kernel_7DAP    | A1ZM034655_x_at | kernel_7DAP | 318.6625 | 13.225  |
| Cytokinin signaling      | GRMZM2G125943   | kernel_7DAP    | A1ZM034694_at   | kernel_7DAP | 77.8 | 7.8     |
| Cytokinin signaling      | GRMZM2G151223   | kernel_7DAP    | A1ZM034695_x_at | kernel_7DAP | 116.6875 | 3.575   |
| Cytokinin biosynthesis   | GRMZM2G436770   | kernel_7DAP    | A1ZM035136_at   | kernel_7DAP | 76.25 | 1.55    |
| Cytokinin biosynthesis   | GRMZM2G076936   | kernel_7DAP    | A1ZM035251_at   | kernel_7DAP | 178.4625 | 8.425   |
| Cytokinin transport      | GRMZM2G153438   | kernel_7DAP    | A1ZM036544_at   | kernel_7DAP | 346.3875 | 36.275  |
| Cytokinin biosynthesis   | GRMZM2G153438   | kernel_7DAP    | A1ZM036719_at   | kernel_7DAP | 769.525 | 17.95   |
### Supplemental Table S4. Contd.

| Cytokinin transport | GRMZM2G066923 | kernel_7DAP | A1ZM036929_s_at | kernel_7DAP | 340.6125 | 29.275 |
|---------------------|----------------|------------|-----------------|------------|----------|--------|
| Cytokinin signaling | GRMZM2G360523 | kernel_7DAP | A1ZM037835_at   | kernel_7DAP | 371.9125 | 21.225 |
| Cytokinin signaling | GRMZM2G125943 | kernel_7DAP | A1ZM038574_at   | kernel_7DAP | 103.1    | 3.05   |
| Cytokinin signaling | GRMZM2G155767 | kernel_7DAP | A1ZM039355_x_at | kernel_7DAP | 293.9125 | 7.975  |
| Cytokinin biosynthesis | GRMZM2G116878 | kernel_7DAP | A1ZM041074_at   | kernel_7DAP | 522.25   | 28.6   |
| Cytokinin transport | GRMZM2G153438 | kernel_7DAP | A1ZM041750_at   | kernel_7DAP | 323.9375 | 44.975 |
| Cytokinin signaling | GRMZM2G096171 | kernel_7DAP | A1ZM042484_at   | kernel_7DAP | 119.65   | 9      |
| Cytokinin biosynthesis | AC210013.4_FGT005 | kernel_7DAP | A1ZM051418_x_at | kernel_7DAP | 160.95   | 9.75   |
| Cytokinin degradation | GRMZM2G159404 | kernel_7DAP | A1ZM054142_at   | kernel_7DAP | 90.1625  | 7.025  |
| Cytokinin signaling | GRMZM2G096171 | kernel_7DAP | A1ZM054605_at   | kernel_7DAP | 500.525  | 53.75  |
| Cytokinin signaling | GRMZM2G095727 | kernel_7DAP | A1ZM054606_a_at | kernel_7DAP | 1679.85  | 20.2   |
| Cytokinin signaling | GRMZM2G177220 | kernel_7DAP | A1ZM054608_a_at | kernel_7DAP | 1081.4   | 329.2  |
| Cytokinin signaling | GRMZM2G156019 | kernel_7DAP | A1ZM054609_at   | kernel_7DAP | 2836.163 | 273.925 |
| Cytokinin signaling | GRMZM2G179827 | kernel_7DAP | A1ZM054610_at   | kernel_7DAP | 314.1125 | 48.025 |
| Cytokinin signaling | GRMZM2G129954 | kernel_7DAP | A1ZM054611_at   | kernel_7DAP | 659.3125 | 106.075|
| Cytokinin signaling | GRMZM2G392101 | kernel_7DAP | A1ZM054612_at   | kernel_7DAP | 998.75   | 154.2  |
| Cytokinin signaling | GRMZM2G039246 | kernel_7DAP | A1ZM054872_at   | kernel_7DAP | 79.4625  | 4.175  |
| Cytokinin signaling | GRMZM2G173710 | kernel_7DAP | A1ZM054873_at   | kernel_7DAP | 88.425   | 1.1    |
| Cytokinin signaling | GRMZM2G173710 | kernel_7DAP | A1ZM054873_s_at | kernel_7DAP | 68.85    | 7.95   |
| Cytokinin signaling | GRMZM2G009344 | kernel_7DAP | A1ZM054876_at   | kernel_7DAP | 929.05   | 157.9  |
| Cytokinin signaling | GRMZM2G151223 | kernel_7DAP | A1ZM055183_a_at | kernel_7DAP | 298.4625 | 5.975  |
| Cytokinin signaling | GRMZM2G479110 | kernel_7DAP | A1ZM055354_at   | kernel_7DAP | 967.2875 | 15.925 |
| Cytokinin signaling | GRMZM2G138750 | kernel_7DAP | A1ZM055786_at   | kernel_7DAP | 251.3    | 31.8   |
| Cytokinin biosynthesis | GRMZM2G459563 | kernel_7DAP | A1ZM055787_at   | kernel_7DAP | 626.5875 | 32.625 |
| Cytokinin biosynthesis | GRMZM2G38465  | kernel_7DAP | A1ZM055814_at   | kernel_7DAP | 119.2625 | 1.525  |
| Cytokinin degradation | GRMZM2G38465  | kernel_7DAP | A1ZM056039_at   | kernel_7DAP | 1109.4   | 44.25  |
| Cytokinin signaling | GRMZM2G099797 | kernel_7DAP | A1ZM056039_x_at | kernel_7DAP | 1150.888 | 21.725 |
| Cytokinin signaling | GRMZM2G099797 | kernel_7DAP | A1ZM056078_at   | kernel_7DAP | 439.7375 | 37.425 |
| Cytokinin signaling | GRMZM2G002391 | kernel_7DAP | A1ZM056320_at   | kernel_7DAP | 5995.4   | 95.3   |
| Cytokinin transport | GRMZM2G066923 | kernel_7DAP | A1ZM056353_a_at | kernel_7DAP | 740.8625 | 45.525 |
| Cytokinin signaling | GRMZM2G039246 | kernel_7DAP | A1ZM059893_at   | kernel_7DAP | 68.3625  | 1.225  |
| Cytokinin signaling | GRMZM2G471529 | kernel_7DAP | A1ZM060982_at   | kernel_7DAP | 133.325  | 10.7   |
| Cytokinin signaling | GRMZM2G360523 | kernel_7DAP | A1ZM061145_at   | kernel_7DAP | 190.575  | 2.35   |
| Cytokinin signaling | GRMZM2G179024 | kernel_7DAP | A1ZM062048_at   | kernel_7DAP | 67.475   | 3.05   |
| Cytokinin signaling | GRMZM2G177220 | kernel_7DAP | A1ZM064845_s_at | kernel_7DAP | 197.6625 | 7.675  |
| Cytokinin transport | GRMZM2G009344 | kernel_7DAP | A1ZM065250_s_at | kernel_7DAP | 9512.963 | 400.625|
| Cytokinin transport | GRMZM2G389285 | kernel_7DAP | A1ZM072064_at   | kernel_7DAP | 538.75   | 61.7   |
### Supplemental Table S4. Contd.

| Cytokinin transport | GenBank Accession | Tissue | A1ZM Accession | Tissue | Fold Change | SE
|--------------------|------------------|--------|----------------|--------|-------------|-----|
| GRMZM2G389285      | kernel_7DAP      | A1ZM072065_at | kernel_7DAP | 125.9  | 5.45        |
| GRMZM2G129954      | kernel_7DAP      | A1ZM072781_at | kernel_7DAP | 65.4875 | 3.175       |
| GRMZM2G068923      | kernel_7DAP      | A1ZM074600_at | kernel_7DAP | 143.375 | 16.15       |
| GRMZM2G151223      | kernel_7DAP      | A1ZM077656_at | kernel_7DAP | 1670.088 | 123.625     |
| GRMZM2G155767      | kernel_7DAP      | A1ZM083176_at | kernel_7DAP | 115.4125 | 0.475       |
| GRMZM2G066946      | endosperm_12DAP  | A1ZM000028_at | endosperm_12DAP | 103.05 | 6.75        |
| GRMZM2G118003      | endosperm_12DAP  | A1ZM002666_at | endosperm_12DAP | 14890.04 | 241.025     |
| GRMZM2G163544      | endosperm_12DAP  | A1ZM003701_s_at | endosperm_12DAP | 174.4625 | 4.925       |
| GRMZM2G076946      | endosperm_12DAP  | A1ZM007439_at | endosperm_12DAP | 96.875  | 0.8         |
| GRMZM2G076946      | endosperm_12DAP  | A1ZM007439_x_at | endosperm_12DAP | 96.7375 | 4.575       |
| GRMZM2G112704      | endosperm_12DAP  | A1ZM007439_s_at | endosperm_12DAP | 302.8625 | 3.525       |
| GRMZM2G1108133     | endosperm_12DAP  | A1ZM007439_at | endosperm_12DAP | 114.25  | 3.65        |
| GRMZM2G055699      | endosperm_12DAP  | A1ZM007439_s_at | endosperm_12DAP | 119.3  | 2.4         |
| GRMZM2G148176      | endosperm_12DAP  | A1ZM007439_s_at | endosperm_12DAP | 114.25  | 3.65        |
| GRMZM2G148176      | endosperm_12DAP  | A1ZM007439_s_at | endosperm_12DAP | 119.3  | 2.4         |
| GRMZM2G148176      | endosperm_12DAP  | A1ZM007439_s_at | endosperm_12DAP | 114.25  | 3.65        |
| GRMZM2G0118003     | endosperm_12DAP  | A1ZM007439_s_at | endosperm_12DAP | 114.25  | 3.65        |
| GRMZM2G0118003     | endosperm_12DAP  | A1ZM007439_s_at | endosperm_12DAP | 114.25  | 3.65        |
| GRMZM2G0118003     | endosperm_12DAP  | A1ZM007439_s_at | endosperm_12DAP | 114.25  | 3.65        |
| GRMZM2G0118003     | endosperm_12DAP  | A1ZM007439_s_at | endosperm_12DAP | 114.25  | 3.65        |
| GRMZM2G0118003     | endosperm_12DAP  | A1ZM007439_s_at | endosperm_12DAP | 114.25  | 3.65        |
| GRMZM2G0118003     | endosperm_12DAP  | A1ZM007439_s_at | endosperm_12DAP | 114.25  | 3.65        |
| GRMZM2G0118003     | endosperm_12DAP  | A1ZM007439_s_at | endosperm_12DAP | 114.25  | 3.65        |
| GRMZM2G0118003     | endosperm_12DAP  | A1ZM007439_s_at | endosperm_12DAP | 114.25  | 3.65        |
Supplemental Table S4. Contd.

| Cytokinin biosynthesis | GRMZM2G112704 | endosperm_15DAP | A1ZM010919_at | endosperm_15DAP | 183.5 | 24.25 |
|------------------------|---------------|-----------------|----------------|-----------------|-------|------|
| Cytokinin biosynthesis | GRMZM2G108133 | endosperm_15DAP | A1ZM014158_s_at | endosperm_15DAP | 185.075 | 7.35 |
| Cytokinin biosynthesis | GRMZM2G056599 | endosperm_15DAP | A1ZM020918_at | endosperm_15DAP | 626.4875 | 73.825 |
| Cytokinin biosynthesis | GRMZM2G014844 | endosperm_15DAP | A1ZM021681_a_at | endosperm_15DAP | 151.1 | 7.9 |
| Cytokinin biosynthesis | GRMZM2G031660 | endosperm_15DAP | A1ZM022664_at | endosperm_15DAP | 997.35 | 47.65 |
| Cytokinin biosynthesis | GRMZM2G016890 | endosperm_15DAP | A1ZM023447_s_at | endosperm_15DAP | 102.9 | 4.15 |
| Cytokinin biosynthesis | GRMZM2G163544 | endosperm_15DAP | A1ZM023488_at | endosperm_15DAP | 122.65 | 6.6 |
| Cytokinin biosynthesis | GRMZM2G120962 | endosperm_15DAP | A1ZM024014_at | endosperm_15DAP | 144.975 | 5.75 |
| Cytokinin biosynthesis | GRMZM2G426467 | endosperm_15DAP | A1ZM024168_at | endosperm_15DAP | 105.5375 | 1.275 |
| Cytokinin biosynthesis | GRMZM2G108133 | endosperm_15DAP | A1ZM024914_at | endosperm_15DAP | 972.675 | 33.75 |
| Cytokinin biosynthesis | GRMZM2G148176 | endosperm_15DAP | A1ZM025352_at | endosperm_15DAP | 2630.988 | 714.775 |
| Cytokinin biosynthesis | GRMZM2G012236 | endosperm_15DAP | A1ZM039162_at | endosperm_15DAP | 98.075 | 7.15 |
| Cytokinin biosynthesis | GRMZM2G148176 | endosperm_15DAP | A1ZM048263_s_at | endosperm_15DAP | 460.375 | 94.7 |
| Cytokinin biosynthesis | GRMZM2G118003 | endosperm_15DAP | A1ZM050083_s_at | endosperm_15DAP | 2833.325 | 440.25 |
| Cytokinin biosynthesis | GRMZM2G016890 | endosperm_15DAP | A1ZM055974_a_at | endosperm_15DAP | 143.05 | 7.7 |
| Cytokinin biosynthesis | GRMZM2G376416 | endosperm_15DAP | A1ZM058473_at | endosperm_15DAP | 59.9625 | 0.175 |
| Cytokinin biosynthesis | GRMZM2G055699 | endosperm_15DAP | A1ZM060572_at | endosperm_15DAP | 1148.713 | 187.325 |
| Cytokinin biosynthesis | GRMZM2G376416 | endosperm_15DAP | A1ZM065193_at | endosperm_15DAP | 467.0625 | 7.775 |
| Cytokinin biosynthesis | GRMZM2G163544 | endosperm_15DAP | A1ZM074078_s_at | endosperm_15DAP | 121.0625 | 2.925 |
| Cytokinin biosynthesis | GRMZM2G008247 | endosperm_15DAP | A1ZM074439_at | endosperm_15DAP | 72.5125 | 0.575 |
| Cytokinin biosynthesis | GRMZM2G077015 | endosperm_15DAP | A1ZM074440_at | endosperm_15DAP | 132.825 | 16.85 |
| Cytokinin biosynthesis | GRMZM2G008247 | endosperm_18DAP | A1ZM000028_at | endosperm_18DAP | 169.0125 | 50.925 |
| Cytokinin biosynthesis | GRMZM2G118003 | endosperm_18DAP | A1ZM002666_at | endosperm_18DAP | 17890.48 | 4841.6 |
| Cytokinin biosynthesis | GRMZM2G163544 | endosperm_18DAP | A1ZM003701_s_at | endosperm_18DAP | 178.35 | 4.8 |
| Cytokinin biosynthesis | GRMZM2G076946 | endosperm_18DAP | A1ZM007439_at | endosperm_18DAP | 97.15 | 3.7 |
| Cytokinin biosynthesis | GRMZM2G076946 | endosperm_18DAP | A1ZM007439_x_at | endosperm_18DAP | 98.5 | 6.3 |
| Cytokinin biosynthesis | GRMZM2G112704 | endosperm_18DAP | A1ZM010919_at | endosperm_18DAP | 157.2 | 18.45 |
| Cytokinin biosynthesis | GRMZM2G108133 | endosperm_18DAP | A1ZM014158_s_at | endosperm_18DAP | 169.9625 | 4.875 |
| Cytokinin biosynthesis | GRMZM2G055699 | endosperm_18DAP | A1ZM020918_at | endosperm_18DAP | 916.175 | 307.25 |
| Cytokinin biosynthesis | GRMZM2G014844 | endosperm_18DAP | A1ZM021681_a_at | endosperm_18DAP | 151.25 | 16.3 |
| Cytokinin biosynthesis | GRMZM2G031660 | endosperm_18DAP | A1ZM022664_at | endosperm_18DAP | 656.3125 | 158.275 |
| Cytokinin biosynthesis | GRMZM2G016890 | endosperm_18DAP | A1ZM023447_s_at | endosperm_18DAP | 98.0125 | 5.775 |
| Cytokinin biosynthesis | GRMZM2G163544 | endosperm_18DAP | A1ZM023488_at | endosperm_18DAP | 112.9125 | 5.125 |
| Cytokinin biosynthesis | GRMZM2G120962 | endosperm_18DAP | A1ZM024014_at | endosperm_18DAP | 8061.675 | 5795.7 |
| Cytokinin biosynthesis | GRMZM2G426467 | endosperm_18DAP | A1ZM024168_at | endosperm_18DAP | 130.55 | 22.8 |
| Cytokinin biosynthesis | GRMZM2G108133 | endosperm_18DAP | A1ZM024914_at | endosperm_18DAP | 2060.175 | 906.45 |
| Cytokinin biosynthesis | GRMZM2G148176 | endosperm_18DAP | A1ZM025352_at | endosperm_18DAP | 13435.1 | 6993.25 |
### Supplemental Table S4. Contd.

| Cytokinin biosynthesis | GRMZM2G012236 | endosperm_18DAP | A1ZM039162_at | endosperm_18DAP | 90.6625 | 4.025 |
|------------------------|---------------|-----------------|---------------|-----------------|---------|------|
| Cytokinin biosynthesis | GRMZM2G141876 | endosperm_18DAP | A1ZM048263_s_at | endosperm_18DAP | 3584.775 | 2044.45 |
| Cytokinin biosynthesis | GRMZM2G188003 | endosperm_18DAP | A1ZM050083_s_at | endosperm_18DAP | 4079.413 | 1076.525 |
| Cytokinin biosynthesis | GRMZM2G016890 | endosperm_18DAP | A1ZM055974_a_at | endosperm_18DAP | 16183.78 | 11748.7 |
| Cytokinin biosynthesis | GRMZM2G376416 | endosperm_18DAP | A1ZM065473_at | endosperm_18DAP | 61.925 | 3.95 |
| Cytokinin biosynthesis | GRMZM2G055699 | endosperm_18DAP | A1ZM060572_at | endosperm_18DAP | 2238.3 | 866.8 |
| Cytokinin biosynthesis | GRMZM2G376416 | endosperm_18DAP | A1ZM065193_at | endosperm_18DAP | 407.475 | 2 |
| Cytokinin biosynthesis | GRMZM2G163544 | endosperm_18DAP | A1ZM074078_s_at | endosperm_18DAP | 117.7 | 4.65 |
| Cytokinin biosynthesis | GRMZM2G0088247 | endosperm_18DAP | A1ZM074439_at | endosperm_18DAP | 70.525 | 0.45 |
| Cytokinin biosynthesis | GRMZM2G077015 | endosperm_18DAP | A1ZM074440_at | endosperm_18DAP | 127.025 | 11.1 |
| Cytokinin biosynthesis | GRMZM2G0088247 | endosperm_22DAP | A1ZM000028_at | endosperm_22DAP | 193.775 | 64.7 |
| Cytokinin biosynthesis | GRMZM2G118003 | endosperm_22DAP | A1ZM002666_at | endosperm_22DAP | 17057.76 | 4338.225 |
| Cytokinin biosynthesis | GRMZM2G163544 | endosperm_22DAP | A1ZM003701_s_at | endosperm_22DAP | 182.325 | 9.9 |
| Cytokinin biosynthesis | GRMZM2G076946 | endosperm_22DAP | A1ZM007439_at | endosperm_22DAP | 106.6 | 12.85 |
| Cytokinin biosynthesis | GRMZM2G076946 | endosperm_22DAP | A1ZM007439_x_at | endosperm_22DAP | 101.5125 | 4.725 |
| Cytokinin biosynthesis | GRMZM2G1212704 | endosperm_22DAP | A1ZM010919_at | endosperm_22DAP | 142.325 | 7.65 |
| Cytokinin biosynthesis | GRMZM2G108133 | endosperm_22DAP | A1ZM014158_s_at | endosperm_22DAP | 187.2875 | 22.775 |
| Cytokinin biosynthesis | GRMZM2G055699 | endosperm_22DAP | A1ZM020918_at | endosperm_22DAP | 854.3125 | 218.725 |
| Cytokinin biosynthesis | GRMZM2G014844 | endosperm_22DAP | A1ZM021681_a_at | endosperm_22DAP | 168.825 | 13 |
| Cytokinin biosynthesis | GRMZM2G0131660 | endosperm_22DAP | A1ZM022664_at | endosperm_22DAP | 750.4125 | 251.225 |
| Cytokinin biosynthesis | GRMZM2G016890 | endosperm_22DAP | A1ZM023447_s_at | endosperm_22DAP | 105.6875 | 13.825 |
| Cytokinin biosynthesis | GRMZM2G163544 | endosperm_22DAP | A1ZM023488_at | endosperm_22DAP | 123.9125 | 16.975 |
| Cytokinin biosynthesis | GRMZM2G120962 | endosperm_22DAP | A1ZM024014_at | endosperm_22DAP | 843.33 | 5536.8 |
| Cytokinin biosynthesis | GRMZM2G426467 | endosperm_22DAP | A1ZM024168_at | endosperm_22DAP | 127.2875 | 10.775 |
| Cytokinin biosynthesis | GRMZM2G108133 | endosperm_22DAP | A1ZM024914_at | endosperm_22DAP | 1868.613 | 710.525 |
| Cytokinin biosynthesis | GRMZM2G141876 | endosperm_22DAP | A1ZM025352_at | endosperm_22DAP | 12343.76 | 6727.275 |
| Cytokinin biosynthesis | GRMZM2G12236 | endosperm_22DAP | A1ZM039162_at | endosperm_22DAP | 94.4125 | 6.325 |
| Cytokinin biosynthesis | GRMZM2G141876 | endosperm_22DAP | A1ZM048263_s_at | endosperm_22DAP | 2802.513 | 1607.175 |
| Cytokinin biosynthesis | GRMZM2G118003 | endosperm_22DAP | A1ZM050083_s_at | endosperm_22DAP | 4390.038 | 1018.925 |
| Cytokinin biosynthesis | GRMZM2G16890 | endosperm_22DAP | A1ZM055974_a_at | endosperm_22DAP | 14902.1 | 9836.45 |
| Cytokinin biosynthesis | GRMZM2G376416 | endosperm_22DAP | A1ZM085473_at | endosperm_22DAP | 60.55 | 4.25 |
| Cytokinin biosynthesis | GRMZM2G055699 | endosperm_22DAP | A1ZM065072_at | endosperm_22DAP | 1974.9 | 705.65 |
| Cytokinin biosynthesis | GRMZM2G376416 | endosperm_22DAP | A1ZM065193_at | endosperm_22DAP | 418.15 | 27 |
| Cytokinin biosynthesis | GRMZM2G163544 | endosperm_22DAP | A1ZM074078_s_at | endosperm_22DAP | 112.65 | 3.75 |
| Cytokinin biosynthesis | GRMZM2G0088247 | endosperm_22DAP | A1ZM074439_at | endosperm_22DAP | 73.1625 | 3.875 |
| Cytokinin biosynthesis | GRMZM2G077015 | endosperm_22DAP | A1ZM074440_at | endosperm_22DAP | 127.3875 | 6.225 |
| Cytokinin biosynthesis | GRMZM2G0088247 | endosperm_28DAP | A1ZM000028_at | endosperm_28DAP | 103.8625 | 7.175 |
**Supplemental Table S4. Contd.**

| Cytokinin biosynthesis | GRMZM2G118003 | endosperm_28DAP | A1ZM002666_at | endosperm_28DAP | 8642.788 | 17.325  |
|------------------------|---------------|----------------|---------------|---------------|----------|----------|
| Cytokinin biosynthesis | GRMZM2G163544 | endosperm_28DAP | A1ZM003701_s_at | endosperm_28DAP | 171      | 15.45    |
| Cytokinin biosynthesis | GRMZM2G076946 | endosperm_28DAP | A1ZM007439_at | endosperm_28DAP | 91.6375  | 2.275    |
| Cytokinin biosynthesis | GRMZM2G076946 | endosperm_28DAP | A1ZM007439_x_at | endosperm_28DAP | 93.3875  | 2.775    |
| Cytokinin biosynthesis | GRMZM2G112704 | endosperm_28DAP | A1ZM010919_at | endosperm_28DAP | 173.3625 | 10.375   |
| Cytokinin biosynthesis | GRMZM2G108133 | endosperm_28DAP | A1ZM014158_s_at | endosperm_28DAP | 175.525  | 0.4      |
| Cytokinin biosynthesis | GRMZM2G055699 | endosperm_28DAP | A1ZM020918_at | endosperm_28DAP | 972.1875 | 220.675  |
| Cytokinin biosynthesis | GRMZM2G014844 | endosperm_28DAP | A1ZM021681_a_at | endosperm_28DAP | 147.9375 | 4.075    |
| Cytokinin biosynthesis | GRMZM2G031660 | endosperm_28DAP | A1ZM022664_at | endosperm_28DAP | 794.2    | 88.4     |
| Cytokinin biosynthesis | GRMZM2G016890 | endosperm_28DAP | A1ZM023447_s_at | endosperm_28DAP | 105.75   | 4.9      |
| Cytokinin biosynthesis | GRMZM2G163544 | endosperm_28DAP | A1ZM023488_at | endosperm_28DAP | 109.9875 | 7.075    |
| Cytokinin biosynthesis | GRMZM2G120962 | endosperm_28DAP | A1ZM024014_at | endosperm_28DAP | 135.8    | 3.9      |
| Cytokinin biosynthesis | GRMZM2G426467 | endosperm_28DAP | A1ZM024168_at | endosperm_28DAP | 116.475  | 1.5      |
| Cytokinin biosynthesis | GRMZM2G108133 | endosperm_28DAP | A1ZM024914_at | endosperm_28DAP | 1015.7   | 174.95   |
| Cytokinin biosynthesis | GRMZM2G148176 | endosperm_28DAP | A1ZM025352_at | endosperm_28DAP | 5769.388 | 540.925  |
| Cytokinin biosynthesis | GRMZM2G012236 | endosperm_28DAP | A1ZM039162_at | endosperm_28DAP | 100.5625 | 6.525    |
| Cytokinin biosynthesis | GRMZM2G148176 | endosperm_28DAP | A1ZM048263_s_at | endosperm_28DAP | 878.125  | 137.85   |
| Cytokinin biosynthesis | GRMZM2G118003 | endosperm_28DAP | A1ZM050083_s_at | endosperm_28DAP | 1690     | 316.55   |
| Cytokinin biosynthesis | GRMZM2G016890 | endosperm_28DAP | A1ZM055974_a_at | endosperm_28DAP | 159.225  | 35.55    |
| Cytokinin biosynthesis | GRMZM2G376416 | endosperm_28DAP | A1ZM058473_at | endosperm_28DAP | 65.275   | 1.05     |
| Cytokinin biosynthesis | GRMZM2G055699 | endosperm_28DAP | A1ZM060572_at | endosperm_28DAP | 2855.5   | 391.05   |
| Cytokinin biosynthesis | GRMZM2G376416 | endosperm_28DAP | A1ZM065193_at | endosperm_28DAP | 445.0875 | 4.725    |
| Cytokinin biosynthesis | GRMZM2G163544 | endosperm_28DAP | A1ZM074078_s_at | endosperm_28DAP | 130.525  | 13.95    |
| Cytokinin biosynthesis | GRMZM2G008247 | endosperm_28DAP | A1ZM074439_at | endosperm_28DAP | 69.0875  | 1.375    |
| Cytokinin biosynthesis | GRMZM2G077015 | endosperm_28DAP | A1ZM074440_at | endosperm_28DAP | 135.25   | 2.8      |
| Cytokinin biosynthesis | GRMZM2G008247 | endosperm_40DAP | A1ZM000028_at | endosperm_40DAP | 133.75   | 5.2      |
| Cytokinin biosynthesis | GRMZM2G118003 | endosperm_40DAP | A1ZM002666_at | endosperm_40DAP | 8297.313 | 1971.15  |
| Cytokinin biosynthesis | GRMZM2G163544 | endosperm_40DAP | A1ZM003701_s_at | endosperm_40DAP | 239.5125 | 14.45    |
| Cytokinin biosynthesis | GRMZM2G076946 | endosperm_40DAP | A1ZM007439_at | endosperm_40DAP | 108.1375 | 8.75     |
| Cytokinin biosynthesis | GRMZM2G076946 | endosperm_40DAP | A1ZM007439_x_at | endosperm_40DAP | 101.7375 | 13.85    |
| Cytokinin biosynthesis | GRMZM2G112704 | endosperm_40DAP | A1ZM010919_at | endosperm_40DAP | 166.4375 | 16.75    |
| Cytokinin biosynthesis | GRMZM2G108133 | endosperm_40DAP | A1ZM014158_s_at | endosperm_40DAP | 177.0125 | 4.85     |
| Cytokinin biosynthesis | GRMZM2G055699 | endosperm_40DAP | A1ZM020918_at | endosperm_40DAP | 2060.388 | 620.15   |
| Cytokinin biosynthesis | GRMZM2G014844 | endosperm_40DAP | A1ZM021681_a_at | endosperm_40DAP | 151.3375 | 17.15    |
| Cytokinin biosynthesis | GRMZM2G031660 | endosperm_40DAP | A1ZM022664_at | endosperm_40DAP | 525.7375 | 17.85    |
| Cytokinin biosynthesis | GRMZM2G016890 | endosperm_40DAP | A1ZM023447_s_at | endosperm_40DAP | 84.475   | 1        |
| Cytokinin biosynthesis | GRMZM2G163544 | endosperm_40DAP | A1ZM023488_at | endosperm_40DAP | 102.6    | 5.1      |
Supplemental Table S4. Contd.

| Cytokinin biosynthesis | GRMZM2G120962 | endosperm_40DAP | A1ZM024014_at | endosperm_40DAP | 147.9375 | 11.65 |
|------------------------|---------------|----------------|---------------|----------------|----------|-------|
| Cytokinin biosynthesis | GRMZM2G426467 | endosperm_40DAP | A1ZM024168_at | endosperm_40DAP | 162.9    | 11.2  |
| Cytokinin biosynthesis | GRMZM2G108133 | endosperm_40DAP | A1ZM024914_at | endosperm_40DAP | 5294.275 | 2174.5|
| Cytokinin biosynthesis | GRMZM2G148176 | endosperm_40DAP | A1ZM025352_at | endosperm_40DAP | 3443.163 | 1175.25|
| Cytokinin biosynthesis | GRMZM2G108133 | endosperm_40DAP | A1ZM039162_at | endosperm_40DAP | 92.0125  | 2.95  |
| Cytokinin biosynthesis | GRMZM2G16890  | endosperm_40DAP | A1ZM059747_at | endosperm_40DAP | 169.825  | 17.4  |
| Cytokinin biosynthesis | GRMZM2G012236 | endosperm_40DAP | A1ZM058473_at | endosperm_40DAP | 69.95    | 2.6   |
| Cytokinin biosynthesis | GRMZM2G056699 | endosperm_40DAP | A1ZM060572_at | endosperm_40DAP | 10360.88 | 4509.8|
| Cytokinin biosynthesis | GRMZM2G376416 | endosperm_40DAP | A1ZM065193_at | endosperm_40DAP | 1181.663 | 419.725|
| Cytokinin biosynthesis | GRMZM2G148176 | endosperm_40DAP | A1ZM074439_at | endosperm_40DAP | 68.9625  | 2.95  |
| Cytokinin biosynthesis | GRMZM2G108133 | kernel_2DAP    | A1ZM000028_at | kernel_2DAP    | 130.25   | 55.2  |
| Cytokinin biosynthesis | GRMZM2G077015 | kernel_2DAP    | A1ZM007440_at | kernel_2DAP    | 133.3    | 7.2   |
| Cytokinin biosynthesis | GRMZM2G008247 | kernel_2DAP    | A1ZM002666_at | kernel_2DAP    | 27926.74 | 419.725|
| Cytokinin biosynthesis | GRMZM2G163544 | kernel_2DAP    | A1ZM003701_s_at | kernel_2DAP | 195.5125 | 22.275|
| Cytokinin biosynthesis | GRMZM2G076946 | kernel_2DAP    | A1ZM007439_at | kernel_2DAP    | 109.2375 | 140.15|
| Cytokinin biosynthesis | GRMZM2G076946 | kernel_2DAP    | A1ZM007439_x_at | kernel_2DAP | 136.3785 | 2.125 |
| Cytokinin biosynthesis | GRMZM2G112704 | kernel_2DAP    | A1ZM010919_at | kernel_2DAP    | 116.825  | 1.6   |
| Cytokinin biosynthesis | GRMZM2G108133 | kernel_2DAP    | A1ZM014158_s_at | kernel_2DAP | 169.475  | 15.7  |
| Cytokinin biosynthesis | GRMZM2G056699 | kernel_2DAP    | A1ZM020918_at | kernel_2DAP    | 141.75   | 2.2   |
| Cytokinin biosynthesis | GRMZM2G014844 | kernel_2DAP    | A1ZM021681_s_at | kernel_2DAP | 1639.125 | 27    |
| Cytokinin biosynthesis | GRMZM2G031660 | kernel_2DAP    | A1ZM022664_at | kernel_2DAP    | 370.8    | 8.8   |
| Cytokinin biosynthesis | GRMZM2G016890 | kernel_2DAP    | A1ZM023447_s_at | kernel_2DAP | 127.3875 | 10.725|
| Cytokinin biosynthesis | GRMZM2G163544 | kernel_2DAP    | A1ZM023488_at | kernel_2DAP    | 105.6    | 4.05  |
| Cytokinin biosynthesis | GRMZM2G120962 | kernel_2DAP    | A1ZM024014_at | kernel_2DAP    | 96.65    | 0.3   |
| Cytokinin biosynthesis | GRMZM2G426467 | kernel_2DAP    | A1ZM024168_at | kernel_2DAP    | 85.6875  | 1.725 |
| Cytokinin biosynthesis | GRMZM2G108133 | kernel_2DAP    | A1ZM024914_at | kernel_2DAP    | 199.625  | 5.8   |
| Cytokinin biosynthesis | GRMZM2G148176 | kernel_2DAP    | A1ZM025352_at | kernel_2DAP    | 4760.875 | 41.9  |
| Cytokinin biosynthesis | GRMZM2G108133 | kernel_2DAP    | A1ZM039162_at | kernel_2DAP    | 76.5375  | 1.875 |
| Cytokinin biosynthesis | GRMZM2G163544 | kernel_2DAP    | A1ZM048263_s_at | kernel_2DAP | 765.9625 | 8.175 |
| Cytokinin biosynthesis | GRMZM2G118003 | kernel_2DAP    | A1ZM050083_s_at | kernel_2DAP | 7710.1    | 186.3 |
| Cytokinin biosynthesis | GRMZM2G016890 | kernel_2DAP    | A1ZM055974_a_at | kernel_2DAP | 34198.9   | 1238.85|
| Cytokinin biosynthesis | GRMZM2G376416 | kernel_2DAP    | A1ZM058473_at | kernel_2DAP    | 52.025   | 1.6   |
| Cytokinin biosynthesis | GRMZM2G055699 | kernel_2DAP    | A1ZM060572_at | kernel_2DAP    | 127.4    | 2.3   |
| Cytokinin biosynthesis | GRMZM2G376416 | kernel_2DAP    | A1ZM065193_at | kernel_2DAP    | 298.95   | 15    |
### Supplemental Table S4. Contd.

| Cytokinin biosynthesis | GRMZM2G163544 | kernel_2DAP  | A1ZM074078_s_at | kernel_2DAP | 109.475 | 0.8  |
|------------------------|---------------|--------------|-----------------|--------------|----------|------|
| Cytokinin biosynthesis | GRMZM2G008247 | kernel_2DAP  | A1ZM074439_at   | kernel_2DAP | 56.95    | 2.65 |
| Cytokinin biosynthesis | GRMZM2G077015 | kernel_2DAP  | A1ZM074440_at   | kernel_2DAP | 125.125  | 3.55 |
| Cytokinin biosynthesis | GRMZM2G008247 | kernel_7DAP  | A1ZM000028_at   | kernel_7DAP | 142.3125 | 15.325|
| Cytokinin biosynthesis | GRMZM2G118003 | kernel_7DAP  | A1ZM002666_at   | kernel_7DAP | 25394.83 | 986.95|
| Cytokinin biosynthesis | GRMZM2G163544 | kernel_7DAP  | A1ZM003701_s_at | kernel_7DAP | 247.475  | 28.25|
| Cytokinin biosynthesis | GRMZM2G076946 | kernel_7DAP  | A1ZM007439_at   | kernel_7DAP | 83.3     | 5.2  |
| Cytokinin biosynthesis | GRMZM2G076946 | kernel_7DAP  | A1ZM007439_x_at | kernel_7DAP | 94.2875  | 3.875|
| Cytokinin biosynthesis | GRMZM2G112704 | kernel_7DAP  | A1ZM010919_at   | kernel_7DAP | 113.55   | 5    |
| Cytokinin biosynthesis | GRMZM2G108133 | kernel_7DAP  | A1ZM014158_s_at | kernel_7DAP | 168.6375 | 1.725|
| Cytokinin biosynthesis | GRMZM2G055699 | kernel_7DAP  | A1ZM020918_at   | kernel_7DAP | 198.225  | 13.15|
| Cytokinin biosynthesis | GRMZM2G14844  | kernel_7DAP  | A1ZM021681_a_at | kernel_7DAP | 865.0125 | 228.225|
| Cytokinin biosynthesis | GRMZM2G031660 | kernel_7DAP  | A1ZM022664_at   | kernel_7DAP | 470.2    | 10.35|
| Cytokinin biosynthesis | GRMZM2G16890  | kernel_7DAP  | A1ZM023447_s_at | kernel_7DAP | 103.2125 | 4.375|
| Cytokinin biosynthesis | GRMZM2G163544 | kernel_7DAP  | A1ZM023488_at   | kernel_7DAP | 108.5125 | 4.275|
| Cytokinin biosynthesis | GRMZM2G120962 | kernel_7DAP  | A1ZM024014_at   | kernel_7DAP | 91.05    | 8.65 |
| Cytokinin biosynthesis | GRMZM2G424647 | kernel_7DAP  | A1ZM024168_at   | kernel_7DAP | 81.5875  | 4.825|
| Cytokinin biosynthesis | GRMZM2G108133 | kernel_7DAP  | A1ZM024914_at   | kernel_7DAP | 305.8125 | 44.625|
| Cytokinin biosynthesis | GRMZM2G148176 | kernel_7DAP  | A1ZM025352_at   | kernel_7DAP | 4882.125 | 1095.7|
| Cytokinin biosynthesis | GRMZM2G012236 | kernel_7DAP  | A1ZM039162_at   | kernel_7DAP | 75.3625  | 5.255|
| Cytokinin biosynthesis | GRMZM2G148176 | kernel_7DAP  | A1ZM048263_s_at | kernel_7DAP | 772.275  | 207.95|
| Cytokinin biosynthesis | GRMZM2G118003 | kernel_7DAP  | A1ZM050083_s_at | kernel_7DAP | 7265.213 | 223.325|
| Cytokinin biosynthesis | GRMZM2G16890  | kernel_7DAP  | A1ZM055974_a_at | kernel_7DAP | 17455.51 | 2235.275|
| Cytokinin biosynthesis | GRMZM2G376416 | kernel_7DAP  | A1ZM058473_at   | kernel_7DAP | 51.1375  | 3.625|
| Cytokinin biosynthesis | GRMZM2G055699 | kernel_7DAP  | A1ZM060572_at   | kernel_7DAP | 355.3625 | 52.325|
| Cytokinin biosynthesis | GRMZM2G376416 | kernel_7DAP  | A1ZM065193_at   | kernel_7DAP | 750.575  | 157.1|
| Cytokinin biosynthesis | GRMZM2G163544 | kernel_7DAP  | A1ZM074078_s_at | kernel_7DAP | 121.925  | 6    |
| Cytokinin biosynthesis | GRMZM2G008247 | kernel_7DAP  | A1ZM074439_at   | kernel_7DAP | 54.8375  | 2.575|
| Cytokinin biosynthesis | GRMZM2G077015 | kernel_7DAP  | A1ZM074440_at   | kernel_7DAP | 100.425  | 9.65 |
| Cytokinin signaling    | GRMZM2G423456 | endosperm_12DAP | A1ZM005128_at | endosperm_12DAP | 96.225 | 1.25 |
| Cytokinin signaling    | GRMZM2G126834 | endosperm_12DAP | A1ZM009127_s_at | endosperm_12DAP | 487.85  | 15.95|
| Cytokinin signaling    | GRMZM2G423456 | endosperm_12DAP | A1ZM023515_at   | endosperm_12DAP | 418.2   | 17.2 |
| Cytokinin biosynthesis | GRMZM2G047684 | endosperm_12DAP | A1ZM031200_at   | endosperm_12DAP | 269.025 | 11.45|
| Cytokinin biosynthesis | GRMZM2G047684 | endosperm_12DAP | A1ZM036719_at   | endosperm_12DAP | 658.95  | 14.25|
| Cytokinin signaling    | GRMZM2G126834 | endosperm_12DAP | A1ZM056039_at   | endosperm_12DAP | 1338.05 | 73.95|
| Cytokinin signaling    | GRMZM2G126834 | endosperm_12DAP | A1ZM056039_s_at | endosperm_12DAP | 1357.9  | 10.8 |
### Supplemental Table S4. Contd.

| Cytokinin signaling | GRMZM2G126834 | endosperm_12DAP | A1ZM056078_at | endosperm_12DAP | 713.1125 | 16.275 |
|---------------------|---------------|-----------------|---------------|-----------------|----------|--------|
| Cytokinin signaling | GRMZM2G423456 | endosperm_12DAP | A1ZM060982_at | endosperm_12DAP | 161.45 | 4.6 |
| Cytokinin signaling | GRMZM2G423456 | endosperm_15DAP | A1ZM005128_at | endosperm_15DAP | 99.925 | 1.05 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_15DAP | A1ZM009127_s_at | endosperm_15DAP | 286.95 | 13.25 |
| Cytokinin signaling | GRMZM2G423456 | endosperm_15DAP | A1ZM023515_at | endosperm_15DAP | 441.3125 | 55.425 |
| Cytokinin biosynthesis | GRMZM2G047684 | endosperm_15DAP | A1ZM031200_at | endosperm_15DAP | 306.7625 | 8.925 |
| Cytokinin biosynthesis | GRMZM2G047684 | endosperm_15DAP | A1ZM036719_at | endosperm_15DAP | 810.6875 | 78.925 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_15DAP | A1ZM056039_at | endosperm_15DAP | 1433.138 | 7.375 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_15DAP | A1ZM056039_x_at | endosperm_15DAP | 1497.613 | 36.775 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_15DAP | A1ZM056078_at | endosperm_15DAP | 1105.65 | 107.1 |
| Cytokinin signaling | GRMZM2G423456 | endosperm_15DAP | A1ZM060982_at | endosperm_15DAP | 186.7875 | 4.125 |
| Cytokinin signaling | GRMZM2G423456 | endosperm_18DAP | A1ZM005128_at | endosperm_18DAP | 105.675 | 4.35 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_18DAP | A1ZM009127_s_at | endosperm_18DAP | 317.125 | 22.3 |
| Cytokinin signaling | GRMZM2G423456 | endosperm_18DAP | A1ZM023515_at | endosperm_18DAP | 549.7 | 15.1 |
| Cytokinin biosynthesis | GRMZM2G047684 | endosperm_18DAP | A1ZM031200_at | endosperm_18DAP | 258.6875 | 6.225 |
| Cytokinin biosynthesis | GRMZM2G047684 | endosperm_18DAP | A1ZM036719_at | endosperm_18DAP | 816.0375 | 98.125 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_18DAP | A1ZM056039_at | endosperm_18DAP | 1407.763 | 187.525 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_18DAP | A1ZM056039_x_at | endosperm_18DAP | 1467.888 | 180.325 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_18DAP | A1ZM056078_at | endosperm_18DAP | 1078.75 | 209.6 |
| Cytokinin signaling | GRMZM2G423456 | endosperm_18DAP | A1ZM060982_at | endosperm_18DAP | 189.9625 | 16.725 |
| Cytokinin signaling | GRMZM2G423456 | endosperm_22DAP | A1ZM005128_at | endosperm_22DAP | 99.025 | 2.8 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_22DAP | A1ZM009127_s_at | endosperm_22DAP | 293.2 | 5.9 |
| Cytokinin signaling | GRMZM2G423456 | endosperm_22DAP | A1ZM023515_at | endosperm_22DAP | 437.9 | 59.85 |
| Cytokinin biosynthesis | GRMZM2G047684 | endosperm_22DAP | A1ZM031200_at | endosperm_22DAP | 278.8125 | 7.225 |
| Cytokinin biosynthesis | GRMZM2G047684 | endosperm_22DAP | A1ZM036719_at | endosperm_22DAP | 740.8375 | 83.625 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_22DAP | A1ZM056039_at | endosperm_22DAP | 1184.913 | 135.475 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_22DAP | A1ZM056039_x_at | endosperm_22DAP | 1165.65 | 106.6 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_22DAP | A1ZM056078_at | endosperm_22DAP | 920.9875 | 200.625 |
| Cytokinin signaling | GRMZM2G423456 | endosperm_22DAP | A1ZM060982_at | endosperm_22DAP | 174.575 | 17.15 |
| Cytokinin signaling | GRMZM2G423456 | endosperm_28DAP | A1ZM005128_at | endosperm_28DAP | 109.65 | 3.45 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_28DAP | A1ZM009127_s_at | endosperm_28DAP | 315.3125 | 97.025 |
| Cytokinin signaling | GRMZM2G423456 | endosperm_28DAP | A1ZM023515_at | endosperm_28DAP | 644.85 | 18.25 |
| Cytokinin biosynthesis | GRMZM2G047684 | endosperm_28DAP | A1ZM031200_at | endosperm_28DAP | 287.3625 | 3.425 |
| Cytokinin biosynthesis | GRMZM2G047684 | endosperm_28DAP | A1ZM036719_at | endosperm_28DAP | 815.35 | 23.95 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_28DAP | A1ZM056039_at | endosperm_28DAP | 1957.488 | 27.375 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_28DAP | A1ZM056039_x_at | endosperm_28DAP | 2042.45 | 58 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_28DAP | A1ZM056078_at | endosperm_28DAP | 1225.55 | 9.8 |
| Cytokinin signaling | GRMZM2G423456 | endosperm_28DAP | A1ZM060982_at | endosperm_28DAP | 187.6 | 7.9 |
|---------------------|---------------|-----------------|---------------|----------------|-------|----|
| Cytokinin signaling | GRMZM2G423456 | endosperm_40DAP | A1ZM005128_at | endosperm_40DAP | 120.025 | 6.5 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_40DAP | A1ZM009127_s_at | endosperm_40DAP | 173.8125 | 10.65 |
| Cytokinin signaling | GRMZM2G423456 | endosperm_40DAP | A1ZM023515_at | endosperm_40DAP | 661.2875 | 26.45 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_40DAP | A1ZM031200_at | endosperm_40DAP | 429.6125 | 87.25 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_40DAP | A1ZM056039_at | endosperm_40DAP | 1350.8 | 31.3 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_40DAP | A1ZM056039_x_at | endosperm_40DAP | 1422.338 | 152.95 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_40DAP | A1ZM056078_at | endosperm_40DAP | 258.6 | 27.5 |
| Cytokinin signaling | GRMZM2G126834 | endosperm_40DAP | A1ZM060982_at | endosperm_40DAP | 258.6 | 27.5 |
| Cytokinin signaling | GRMZM2G126834 | kernel_2DAP | A1ZM005128_at | kernel_2DAP | 184.5625 | 5.825 |
| Cytokinin signaling | GRMZM2G126834 | kernel_2DAP | A1ZM009127_s_at | kernel_2DAP | 298.15 | 6.7 |
| Cytokinin signaling | GRMZM2G126834 | kernel_2DAP | A1ZM023515_at | kernel_2DAP | 660.0375 | 46.175 |
| Cytokinin signaling | GRMZM2G126834 | kernel_2DAP | A1ZM031200_at | kernel_2DAP | 200.5625 | 4.025 |
| Cytokinin signaling | GRMZM2G126834 | kernel_2DAP | A1ZM036719_at | kernel_2DAP | 587.95 | 4.15 |
| Cytokinin signaling | GRMZM2G126834 | kernel_2DAP | A1ZM056039_at | kernel_2DAP | 889.5875 | 13.975 |
| Cytokinin signaling | GRMZM2G126834 | kernel_2DAP | A1ZM056039_x_at | kernel_2DAP | 973.625 | 9.6 |
| Cytokinin signaling | GRMZM2G126834 | kernel_2DAP | A1ZM056078_at | kernel_2DAP | 454.5 | 13.85 |
| Cytokinin signaling | GRMZM2G126834 | kernel_2DAP | A1ZM060982_at | kernel_2DAP | 141.0375 | 3.475 |
| Cytokinin signaling | GRMZM2G126834 | kernel_7DAP | A1ZM005128_at | kernel_7DAP | 187.9 | 68.8 |
| Cytokinin signaling | GRMZM2G126834 | kernel_7DAP | A1ZM009127_s_at | kernel_7DAP | 334.875 | 40.9 |
| Cytokinin signaling | GRMZM2G126834 | kernel_7DAP | A1ZM023515_at | kernel_7DAP | 491.7125 | 73.125 |
| Cytokinin signaling | GRMZM2G126834 | kernel_7DAP | A1ZM031200_at | kernel_7DAP | 232.6375 | 23.775 |
| Cytokinin signaling | GRMZM2G126834 | kernel_7DAP | A1ZM036719_at | kernel_7DAP | 769.525 | 17.95 |
| Cytokinin signaling | GRMZM2G126834 | kernel_7DAP | A1ZM056039_at | kernel_7DAP | 1109.4 | 44.25 |
| Cytokinin signaling | GRMZM2G126834 | kernel_7DAP | A1ZM056039_x_at | kernel_7DAP | 1150.888 | 21.725 |
| Cytokinin signaling | GRMZM2G126834 | kernel_7DAP | A1ZM056078_at | kernel_7DAP | 439.7375 | 37.425 |
| Cytokinin signaling | GRMZM2G126834 | kernel_7DAP | A1ZM060982_at | kernel_7DAP | 133.325 | 10.7 |
| Cytokinin degradation | GRMZM2G167220 | endosperm_12DAP | A1ZM060982_at | endosperm_12DAP | 208.95 | 0.75 |
| Cytokinin degradation | GRMZM2G162048 | endosperm_12DAP | A1ZM060982_at | endosperm_12DAP | 550.25 | 1.5 |
| Cytokinin degradation | GRMZM2G325612 | endosperm_12DAP | A1ZM060982_at | endosperm_12DAP | 356.95 | 1.25 |
| Cytokinin degradation | GRMZM2G348452 | endosperm_12DAP | A1ZM060982_at | endosperm_12DAP | 551.8625 | 1.5 |
| Cytokinin degradation | GRMZM2G167220 | endosperm_15DAP | A1ZM060982_at | endosperm_15DAP | 518.15 | 1.5 |
| Cytokinin degradation | GRMZM2G325612 | endosperm_15DAP | A1ZM060982_at | endosperm_15DAP | 611.9875 | 1.5 |
| Cytokinin degradation | GRMZM2G348452 | endosperm_15DAP | A1ZM060982_at | endosperm_15DAP | 636.7375 | 1.5 |
| Cytokinin degradation | GRMZM2G348452 | endosperm_15DAP | A1ZM060982_at | endosperm_15DAP | 468.5625 | 1.5 |
### Supplemental Table S4. Contd.

| Cytokinin degradation | GRMZM5G817173 | endosperm_15DAP | endosperm_15DAP | 558.325 |
|-----------------------|---------------|-----------------|-----------------|--------|
| Cytokinin degradation | GRMZM2G167220 | endosperm_18DAP | endosperm_18DAP | 262.6625 |
| Cytokinin degradation | GRMZM2G162048 | endosperm_18DAP | endosperm_18DAP | 552.6 |
| Cytokinin degradation | GRMZM2G325612 | endosperm_18DAP | endosperm_18DAP | 568.7125 |
| Cytokinin degradation | GRMZM2G348452 | endosperm_18DAP | endosperm_18DAP | 569.8625 |
| Cytokinin degradation | GRMZM5G817173 | endosperm_18DAP | endosperm_18DAP | 581.8625 |
| Cytokinin degradation | GRMZM2G167220 | endosperm_22DAP | endosperm_22DAP | 237.175 |
| Cytokinin degradation | GRMZM2G325612 | endosperm_22DAP | endosperm_22DAP | 511.75 |
| Cytokinin degradation | GRMZM2G348452 | endosperm_22DAP | endosperm_22DAP | 447.75 |
| Cytokinin degradation | GRMZM5G817173 | endosperm_22DAP | endosperm_22DAP | 650.825 |
| Cytokinin degradation | GRMZM2G167220 | endosperm_28DAP | endosperm_28DAP | 512.775 |
| Cytokinin degradation | GRMZM2G162048 | endosperm_28DAP | endosperm_28DAP | 220.5125 |
| Cytokinin degradation | GRMZM2G325612 | endosperm_28DAP | endosperm_28DAP | 610.525 |
| Cytokinin degradation | GRMZM2G348452 | endosperm_28DAP | endosperm_28DAP | 735.575 |
| Cytokinin degradation | GRMZM2G325612 | endosperm_28DAP | endosperm_28DAP | 427.525 |
| Cytokinin degradation | GRMZM5G817173 | endosperm_28DAP | endosperm_28DAP | 705.5875 |
| Cytokinin degradation | GRMZM2G167220 | endosperm_40DAP | endosperm_40DAP | 160.5625 |
| Cytokinin degradation | GRMZM2G162048 | endosperm_40DAP | endosperm_40DAP | 585.475 |
| Cytokinin degradation | GRMZM2G325612 | endosperm_40DAP | endosperm_40DAP | 455.7375 |
| Cytokinin degradation | GRMZM2G348452 | endosperm_40DAP | endosperm_40DAP | 534.85 |
| Cytokinin degradation | GRMZM5G817173 | endosperm_40DAP | endosperm_40DAP | 1667.45 |
| Cytokinin degradation | GRMZM2G167220 | kernel_2DAP | kernel_2DAP | 114.5625 |
| Cytokinin degradation | GRMZM2G162048 | kernel_2DAP | kernel_2DAP | 341.925 |
| Cytokinin degradation | GRMZM2G325612 | kernel_2DAP | kernel_2DAP | 283.65 |
| Cytokinin degradation | GRMZM2G348452 | kernel_2DAP | kernel_2DAP | 1156.45 |
| Cytokinin degradation | GRMZM5G817173 | kernel_2DAP | kernel_2DAP | 462.2375 |
| Cytokinin degradation | GRMZM2G167220 | kernel_7DAP | kernel_7DAP | 177.0375 |
| Cytokinin degradation | GRMZM2G162048 | kernel_7DAP | kernel_7DAP | 322.475 |
| Cytokinin degradation | GRMZM2G325612 | kernel_7DAP | kernel_7DAP | 253.4625 |
| Cytokinin degradation | GRMZM2G348452 | kernel_7DAP | kernel_7DAP | 1104.525 |
| Cytokinin degradation | GRMZM5G817173 | kernel_7DAP | kernel_7DAP | 1221.138 |
**Supplemental Table S5.** Levels of active and inactive forms of kernel cytokinins at mid (21-22 DAP) and late (38 DAP) kernel stages in both the embryo and endosperm.

| Trait name          | Crop | Tissue | Sample type       | Sample sub type-2 | Group 3a | Control mean |
|---------------------|------|--------|-------------------|-------------------|----------|--------------|
| DHZ-pmole/g         | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 0.09         |
| DHZ-pmole/g         | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 0.09         |
| DHZR-pmole/g        | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 0.013        |
| DHZR-pmole/g        | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 0.013        |
| IP-pmole/g          | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 0.249        |
| IP-pmole/g          | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 0.249        |
| IPR-pmole/g         | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 5.7426       |
| IPR-pmole/g         | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 5.7426       |
| tZeatin-pmole/g     | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 0.8083       |
| tZeatin-pmole/g     | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 0.8083       |
| tZR-pmole/g         | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 5.1922       |
| tZR-pmole/g         | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 5.1922       |
| ZG-pmole/g          | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 10.7202      |
| ZG-pmole/g          | Corn | Ear    | Kernel - embryo   | 22DAP             | Inbred   | 10.7202      |
| DHZ-pmole/g         | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 0.2843       |
| DHZ-pmole/g         | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 0.2843       |
| DHZR-pmole/g        | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 0.602        |
| DHZR-pmole/g        | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 0.602        |
| IP-pmole/g          | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 1.4182       |
| IP-pmole/g          | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 1.4182       |
| IPR-pmole/g         | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 52.8134      |
| IPR-pmole/g         | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 52.8134      |
| tZeatin-pmole/g     | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 10.7335      |
| tZeatin-pmole/g     | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 10.7335      |
| tZR-pmole/g         | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 70.4014      |
| tZR-pmole/g         | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 70.4014      |
| ZG-pmole/g          | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 12.9407      |
| ZG-pmole/g          | Corn | Ear    | Kernel - endosperm| 22DAP             | Inbred   | 12.9407      |
| DHZ-pmole/g         | Corn | Ear    | Kernel - embryo   | 38DAP             | Inbred   | 0.1274       |
| DHZ-pmole/g         | Corn | Ear    | Kernel - embryo   | 38DAP             | Inbred   | 0.1274       |
| DHZR-pmole/g        | Corn | Ear    | Kernel - embryo   | 38DAP             | Inbred   | 0.1107       |
| DHZR-pmole/g        | Corn | Ear    | Kernel - embryo   | 38DAP             | Inbred   | 0.1107       |
| IP-pmole/g          | Corn | Ear    | Kernel - embryo   | 38DAP             | Inbred   | 0.4807       |
| IP-pmole/g          | Corn | Ear    | Kernel - embryo   | 38DAP             | Inbred   | 0.4807       |
| IPR-pmole/g         | Corn | Ear    | Kernel - embryo   | 38DAP             | Inbred   | 12.304       |
**Supplemental Table S5. Contd.**

| Compound | Plant Part | Organ | Time Point | Genotype | Value  |
|----------|------------|-------|------------|----------|--------|
| IPR-pmole/g | Corn Ear | Kernel - embryo | 38DAP | Inbred | 12.304 |
| tZeatin-pmole/g | Corn Ear | Kernel - embryo | 38DAP | Inbred | 1.4312 |
| tZeatin-pmole/g | Corn Ear | Kernel - embryo | 38DAP | Inbred | 1.4312 |
| tZR-pmole/g | Corn Ear | Kernel - embryo | 38DAP | Inbred | 5.1278 |
| tZR-pmole/g | Corn Ear | Kernel - embryo | 38DAP | Inbred | 5.1278 |
| ZG-pmole/g | Corn Ear | Kernel - embryo | 38DAP | Inbred | 10.341 |
| ZG-pmole/g | Corn Ear | Kernel - embryo | 38DAP | Inbred | 10.341 |
| DHZ-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 0.7858 |
| DHZ-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 0.7858 |
| DHZR-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 1.5036 |
| DHZR-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 1.5036 |
| IP-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 0.9549 |
| IP-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 0.9549 |
| IPR-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 20.8285 |
| IPR-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 20.8285 |
| tZeatin-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 1.2324 |
| tZeatin-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 1.2324 |
| tZR-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 9.6516 |
| tZR-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 9.6516 |
| ZG-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 1.9953 |
| ZG-pmole/g | Corn Ear | Kernel - endosperm | 38DAP | Inbred | 1.9953 |