**Figure 2. Free running conditions effects over gene expression profiles.** **(A)** Boxplot representing rhythmic genes amplitude or maximum expression level reached under long day condition (LD, alternating 16h light / 8h dark, blue), when cultures were transferred to free running conditions consisting of constant light (LL, light blue) and when cultures were transferred to free running conditions consisting of constant dark (DD, dark blue) after LD entrainment. Medians are represented by central horizontal lines, upper and lower quartiles by boxes, minimum and maximum values by whisker ends. LL and DD amplitudes are significantly reduced with respect to LD according to p-values of 4.23 × 10-140 and 1.09 × 10-60 respectively, possibly due to a decline in culture synchrony under free running conditions. LL amplitudes are also reduced when compared to DD according to a p-value of 6.71 × 10-28 suggesting more severe loss of rhythmicity under LL than DD. P-values were computed using Mann-Whitney-Wilcoxon test. Gene expression levels are measured as FPKM (Fragments Per Kilobase of transcript per Million fragments mapped). **(B)** Histograms showing the distribution of the number of genes exhibiting shifts in phase (maximum expression level time point) when cultures are transferred from LD to free running conditions consisting in LL (light blue, left) and DD (dark blue, right). Vertical dashed lines mark no shift. Positive forward phase shifts are observed when cultures are transferred from LD to LL whereas negative backward phase shifts are apparent when transferred to DD. **(C)** Gene expression profiles under LD, LL and DD of *Sedoheptulose-bisphosphatase* (*ostta03g05500*, *SBPase*). White rectangles represent photoperiods (light periods or days), blue filled rectangles correspond to skotoperiods under LD (dark periods or nights), light blue rectangles mark subjective days or nights under LL and DD respectively after LD entrainment. ZTN, Zeitgeber time N, marks the time point N hours after dawn (lights on, ZT0). Vertical black arrows mark LD phases, vertical grey arrows mark LL and DD phases and horizontal black arrows represent phase shifts. *SBPase* illustrates how genes after LD entrainment present reduced amplitudes under LL and DD, forward phase shifts under LL and backward phase shift under DD being these changes more drastic under LL than DD. **(D)** Boxplot representing rhythmic genes amplitude or maximum expression level reached under short day conditions (SD, alternating 8h light / 16h dark, red), when cultures were transferred to free running conditions consisting of constant light (LL, light red) or to constant dark (DD, dark red) after SD entrainment. LL amplitudes are significantly reduced with respect to SD according to a p-value of 5.94 × 10-65 possibly due to a decline in culture synchrony under LL. In contrast, DD amplitudes present a slight significant increase when compared to SD according to a p-value of 2.5 × 10-8 suggesting an increase in culture synchrony under DD. P-values were computed using Mann-Whitney-Wilcoxon test. **(E)** Histograms showing the distribution of the number of genes exhibiting positive and negative shifts in phase (maximum expression level time point) when cultures are transferred from SD to free running conditions consisting in LL (light red, left) and DD (dark red, right). Vertical dashed lines mark no shift. Large positive forward phase shifts are observed when cultures are transferred from SD to LL whereas no substantial phase shifts are apparent when transferred to DD. **(F)** Gene expression profiles under LD, LL and DD of *Sedoheptulose-bisphosphatase* (*ostta03g05500*, *SBPase*). White rectangles represent photoperiods (light periods or days), red filled rectangles correspond to skotoperiods under SD (dark periods or nights), light red rectangles mark subjective days or nights under LL and DD respectively after SD entrainment. Vertical black arrows mark SD phases, vertical grey arrows mark LL and DD phases and horizontal black arrows represent phase shifts. *SBPase* illustrates how genes after SD entrainment present reduced amplitudes and forward phase shifts only under LL with slight increases under DD.