

**Figure S3** The fit results of RNA expression time-series from the two-loop model using re-optimised parameter sets: *L9*, *L12*, *L13*, *L14*, *L27* and *L39* (the re-optimised parameter sets of *set9*, *set 12*, *set13*, *set14*, *set27* and *set39*, respectively). Here, three selected simulations of all twelve fitted RNA time-series were presented, comprising of *TOC1* expression in wild-type under constant light (WT-LL) and 16:8 light;dark cycle (WT-16L8D), and *TOC1* expression in *lhycca1* double mutant under constant light (*lhycca*-LL). The blue solid line with marker demonstrates the experimental data while the pink and red solid line indicates the model simulated results. The y-axis is the RNA concentration, while the x-axis is time in hour.

