INPUTS AND REGULATIONS

LIGHT INPUTS

LHY CCA1 PRR9 GI ZTL

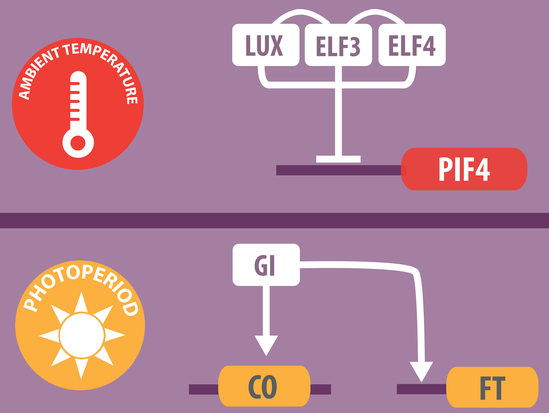
ALTERNATIVE SPLICING & TEMPERATURE

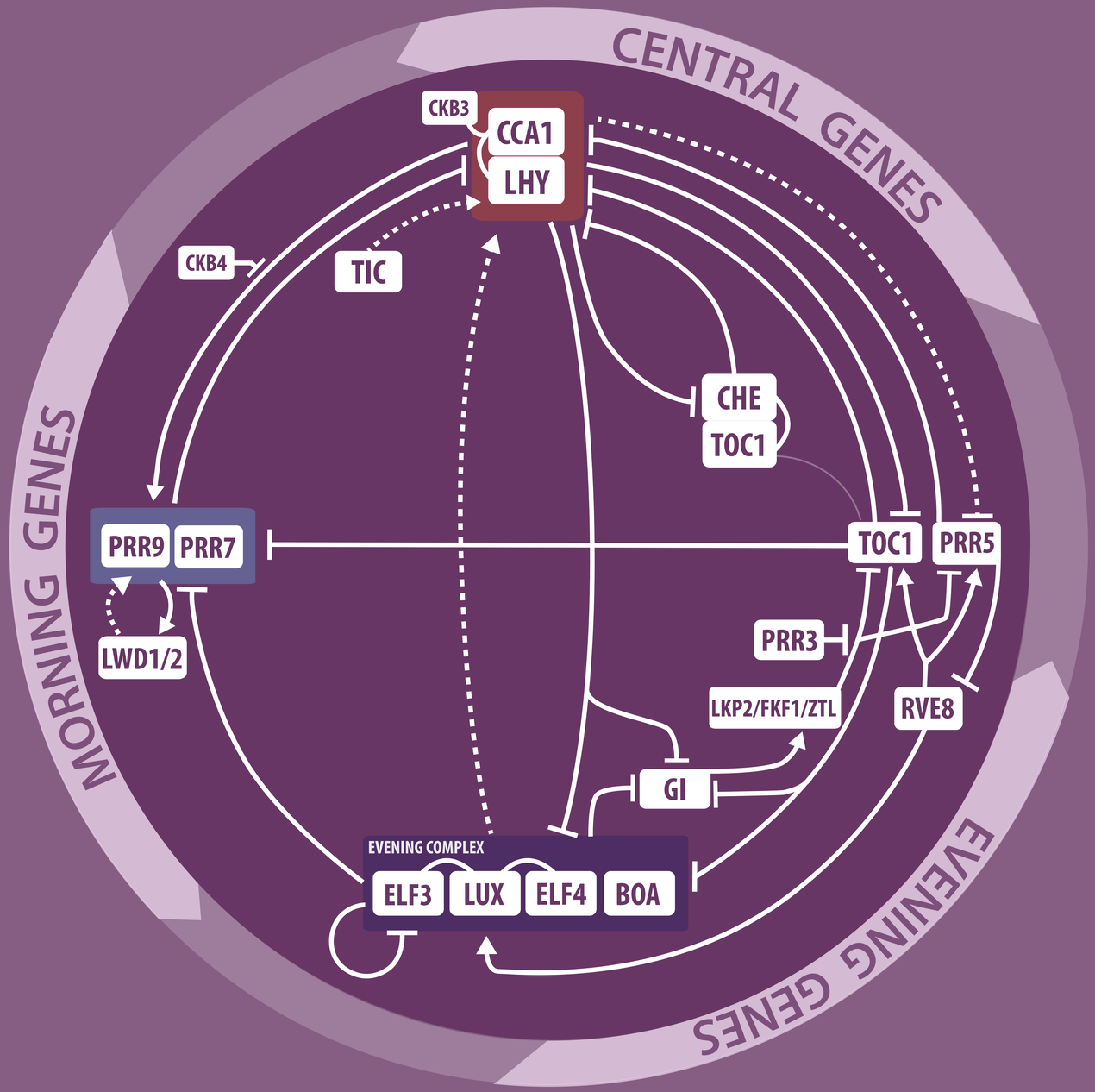
CCA1 LHY TOC1 PRR3
PRR5 PRR7 PRR9 GI ZTL

PHOSPHORYLATION

TOC1 PRR3 PRR7 CCA1 LHY

FLOWERING TIME OUTPUTS





INPUTS & OUTPUTS

MUTANTS & OVEREXPRESSORS

TIME-COURSE GENE EXPRESSION

OTHER PROCESSES CONTROLLED BY THE CIRCADIAN CLOCK

OTHER CIRCADIAN CLOCK REGULATORS

FIO1 LNK1
SRR1 LNK2

WWW.FLOR-ID.ORG

Genes/proteins | Integrator genes/proteins | Positive regulations | Negative regulations | Protein-protein interactions | Putative mechanisms

30 % OF THE GENES EXPRESSED IN SHOOTS ARE CIRCADIAN CLOCK-REGULATED.

Reviewed in Hsu et al., 2014

A SHOOT-TO-ROOT SIGNALLING ALLOWS LONG-DISTANCE CIRCADIAN CLOCK SYNCHRONIZATION.

James et al., 2008

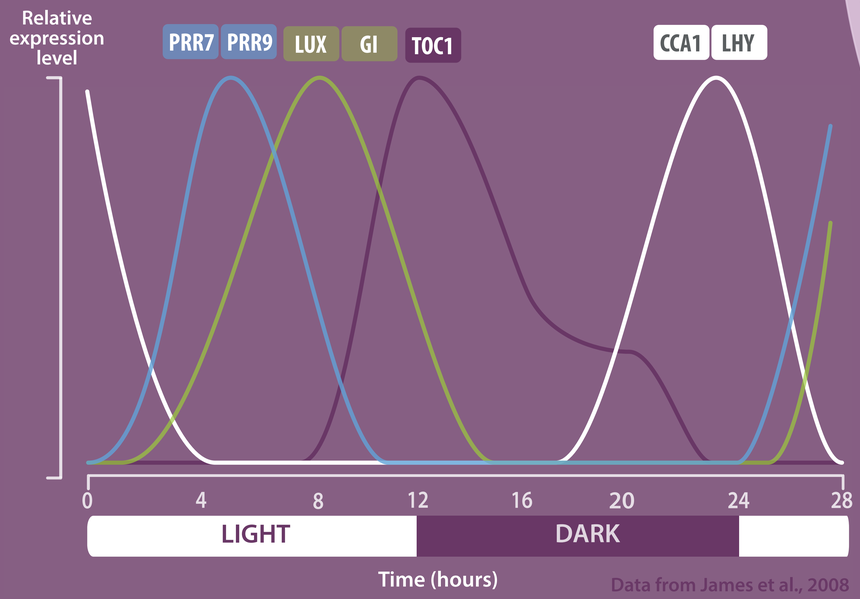
LIGHT INFLUENCES CLOCK BY
(i) AFFECTING TRANSCRIPTION
(ii) REGULATING RNA STABILITY
(iii) CONTROLLING TRANSLATION RATE.

Reviewed in Hsu et al., 2014

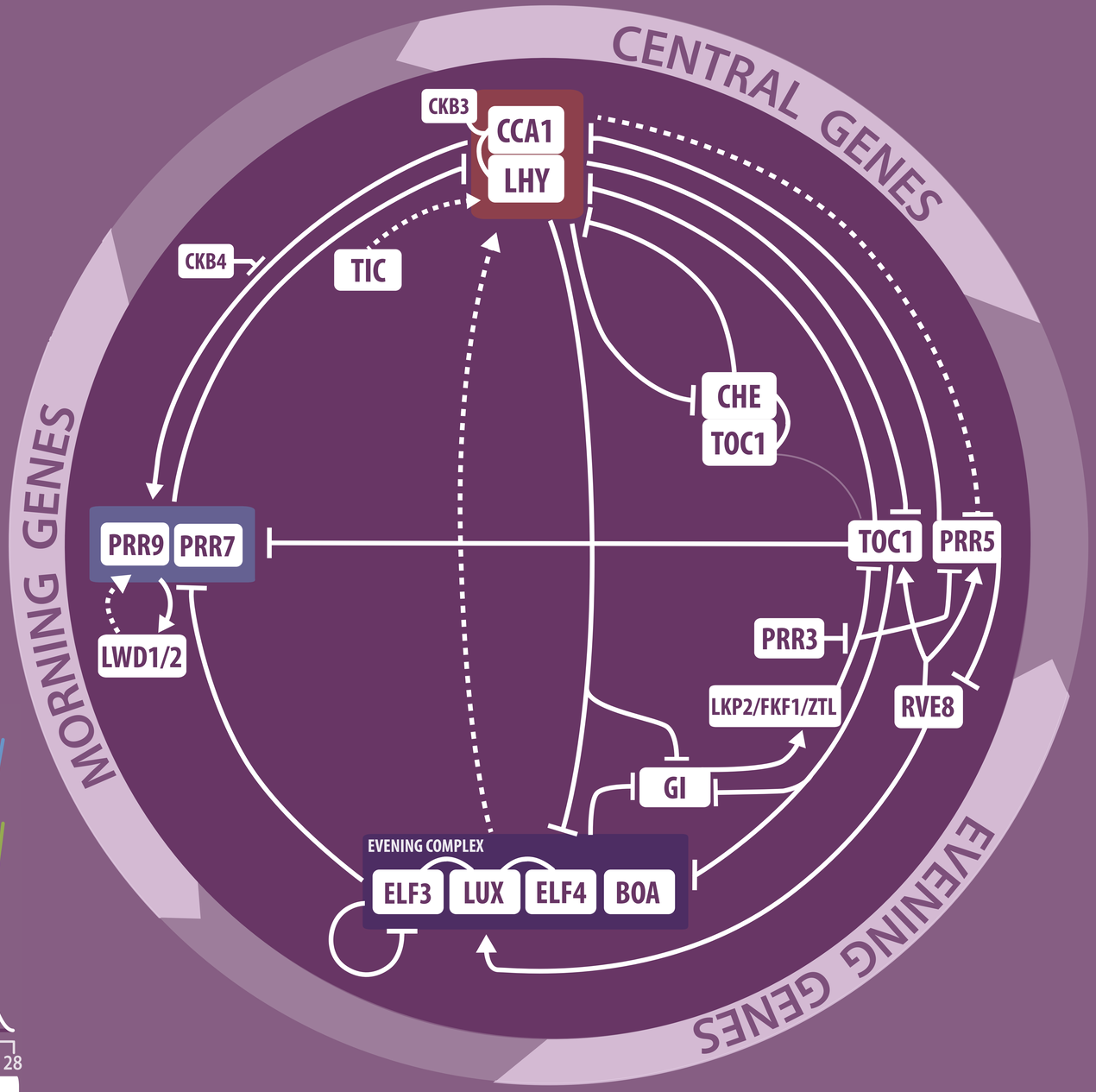
MODULATION OF SOME CLOCK ELEMENTS IS TISSUE SPECIFIC.

Reviewed in Hsu et al., 2014

EXPRESSION PATTERN OF CIRCADIAN CLOCK GENES IN SHOOTS



Data from James et al., 2008



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HYPOCOTYL LENGTH

LONG HYPOCOTYL

elf3 *toc1*
prr7 *prr9*
CCA1ox *LHY ox*

SHORT HYPOCOTYL

lhy *cca1*

FLOWERING TIME

EARLY FLOWERING

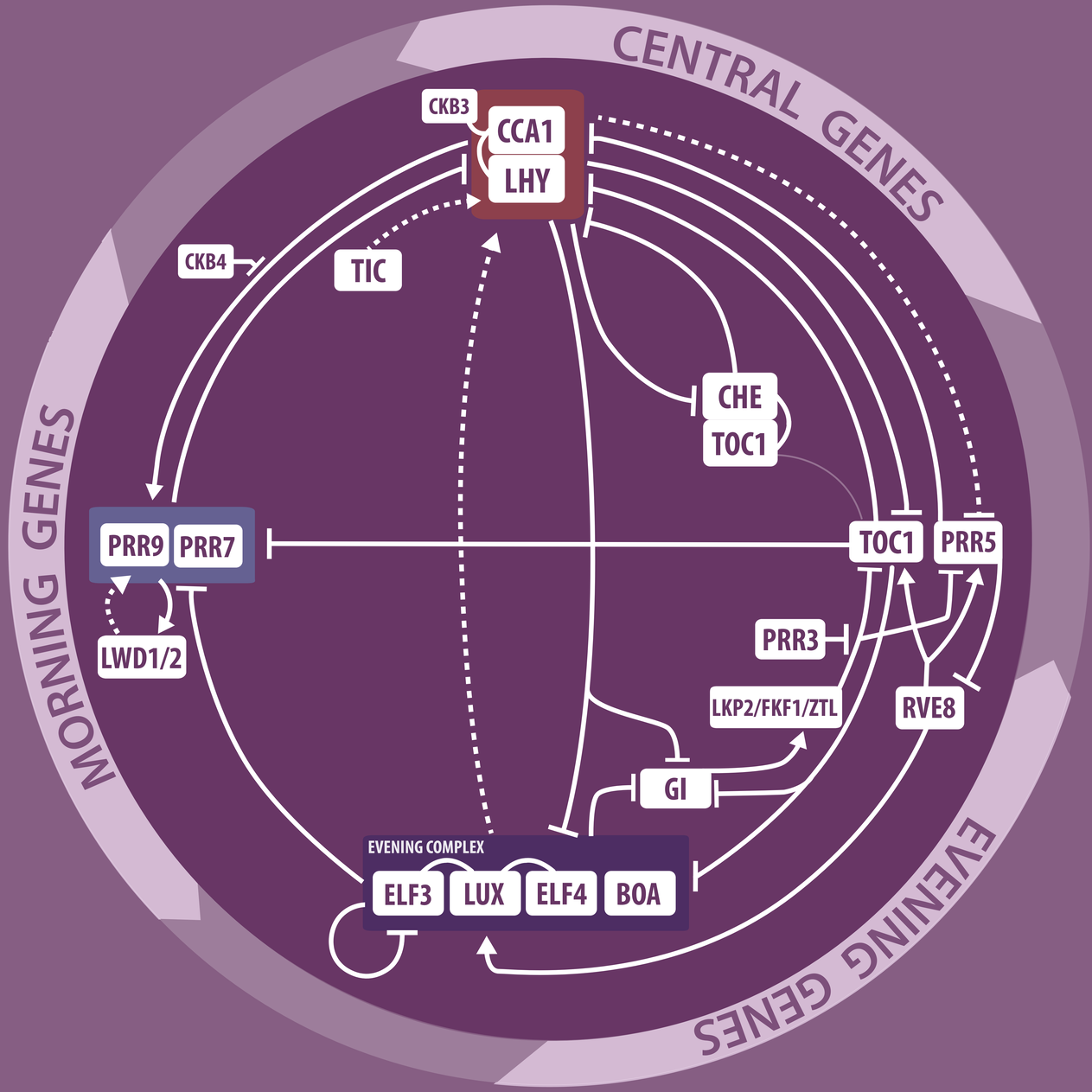
cca1 *elf3*
lhy *toc1*
lwd1 *lwd2*

LATE FLOWERING

gi *prr5* *prr7* *prr9*
CCA1ox *LHY ox*
PRR3 ox

XX MUTANTS *XXox* OVEREXPRESSORS

Adapted from Nagel and Kay., 2012



INPUTS & OUTPUTS

MUTANTS & OVEREXPRESSORS

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FIO1 LNK1
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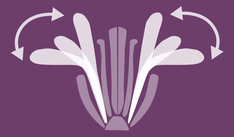
GROWTH PROCESSES CONTROLLED BY THE CIRCADIAN CLOCK


GERMINATION


HYPOCOTYL GROWTH


SHADE AVOIDANCE


FLOWERING

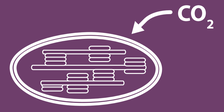

FLOWER OPENING FOR POLLINATION


LEAF MOVEMENT

Processes reviewed in Yakir et al., 2007

CELLULAR PROCESSES CONTROLLED BY THE CIRCADIAN CLOCK


STOMATA OPENING



PHOTOSYNTHESIS

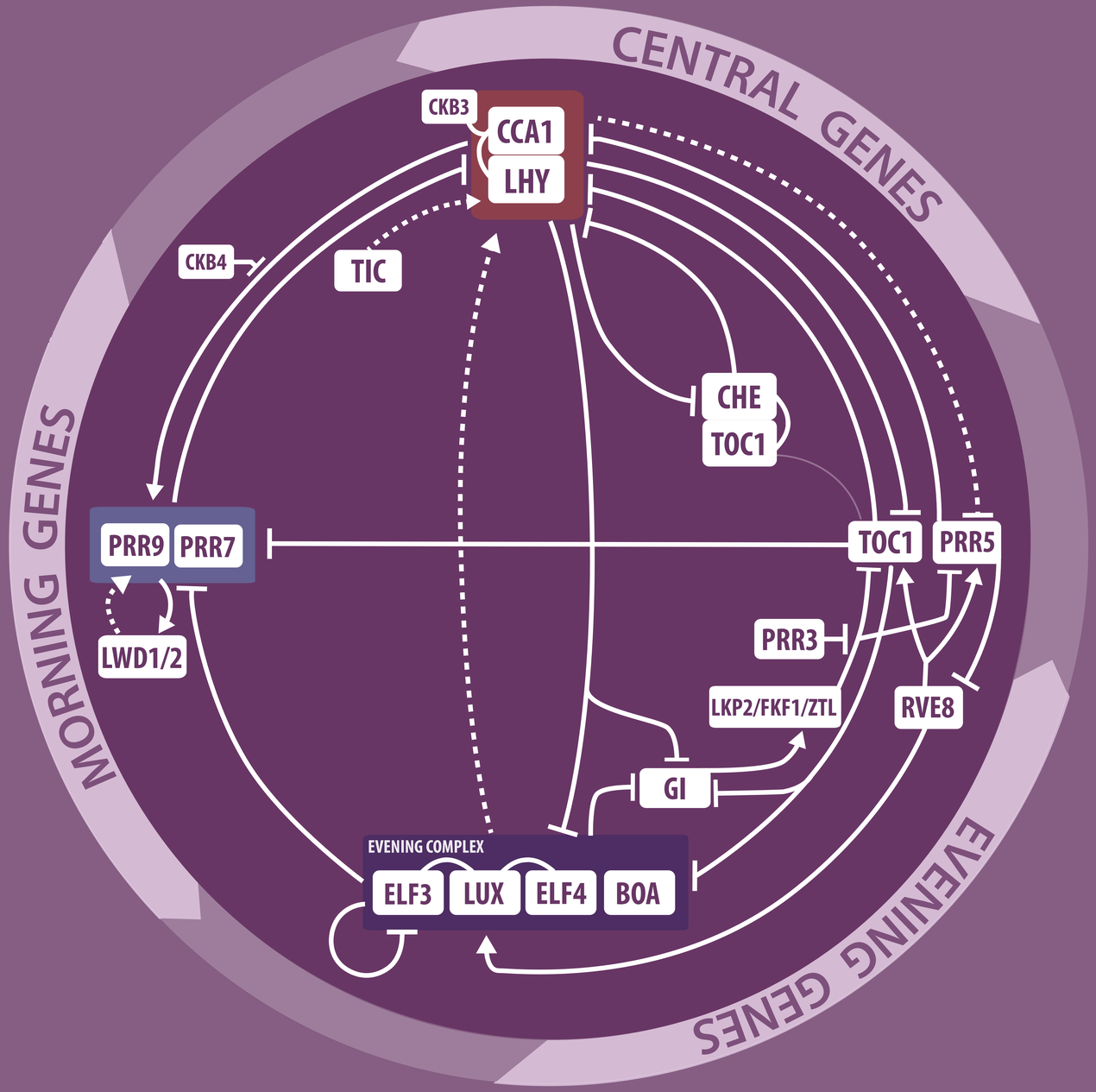

SUGAR METABOLISM & TRANSPORT


COLD RESPONSE


RESPONSE TO PATHOGENESIS

Ca^{++}

Processes reviewed in Yakir et al., 2007



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