

Allele	Lab ref.	Predicted mutation	Reference background	Mutagen	Identification
<i>ZTL-Cvi</i>	-	P035T	Col-0, <i>Ler</i> , <i>Ws</i> , C24	-	Somers et al., 2000
<i>ztl-1</i>	<i>toc7</i>	D425N	C24 <i>CAB:LUC</i>	EMS	Millar et al., 1995 Somers et al., 2000
<i>ztl-2</i>		D320N	C24 <i>CAB:LUC</i>	EMS	Somers et al., 2000
<i>ztl-3</i> (<i>ado1</i>)	SALK_035701	insertion after E440	Col-0	T-DNA	Jarillo et al., 2001
<i>ztl-21</i>	TC338	G119D	<i>Ws CAB:LUC+</i>	EMS	Mapping
<i>ztl-22</i>	D11	E203K	C24 <i>CAB:LUC</i>	EMS	Mapping
<i>ztl-23</i>	TC461	G287D	<i>Ws CAB:LUC+</i>	EMS	Mapping
<i>ztl-24</i>	TC490	P317S	<i>Ws CAB:LUC+</i>	EMS	Mapping
<i>ztl-25</i>	TC652	G347S	<i>Ws CAB:LUC+</i>	EMS	Mapping
<i>ztl-26</i>	TC634	D372N	<i>Ws CAB:LUC+</i>	EMS	Sequence only
<i>ztl-27</i>	C1	G452D	C24 <i>CAB:LUC</i>	EMS	Mapping
<i>ztl-28</i>	TC415	G452S	<i>Ws CAB:LUC+</i>	EMS	Sequence only
<i>ztl-29</i>	TC354	Q544STOP	<i>Ws CAB:LUC+</i>	EMS	Sequence only
<i>ztl-30</i>	TC297	G564R	<i>Ws CAB:LUC+</i>	EMS	Mapping
<i>ztl-31</i>	D6	W594STOP	C24 <i>CAB:LUC</i>	EMS	Mapping
<i>TOC1</i>	-	Identical amino acid sequences	Col-0, <i>Ws</i> , C24		our unpublished data
<i>toc1-1</i>	<i>toc26</i>	A562V	C24 <i>CAB:LUC</i>	EMS	Millar et al., 1995
<i>toc1-2</i>		V45M, splice junction	C24 <i>CAB:LUC</i>	EMS	Strayer et al., 2000
<i>toc1-3</i>		A562V	<i>Ler gal-3</i>	EMS	Blazquez et al., 2002
<i>toc1-4</i>	<i>short02</i> <i>short30</i>	Q103STOP	Col <i>CAB:LUC</i>	EMS	Hazen et al., 2005a
<i>toc1-5</i>	<i>short07</i> <i>short25</i>	P124S	Col <i>CAB:LUC</i>	EMS	Hazen et al., 2005a
<i>toc1-6</i>	<i>short26</i>	splice junction	Col <i>CAB:LUC</i>	EMS	Hazen et al., 2005a
<i>toc1-7</i>	<i>short36</i>	Q496STOP	Col <i>CAB:LUC</i>	EMS	Hazen et al., 2005a
<i>toc1-8</i>	TC442	P96L	<i>Ws CAB:LUC+</i>	EMS	Mapping

<i>toc1-9</i>	TC522	W138STOP	Ws <i>CAB:LUC+</i>	EMS	Mapping
<i>toc1-101</i>		16bp deletion, frameshift, 189STOP	Col, activation tagged population	(activation tagged line)	Kikis et al., 2005

Supplementary Table 1. Origin and sequence of all published *ZTL* and *TOC1* mutations.

Allele numbers for *toc1* alleles of Hazen et al. 2005a were agreed with the originating laboratory (Sam Hazen, personal communication).

Lab ref., line reference from originating laboratory.

Predicted mutation, amino acid code and position of substitution or STOP codon.

C24 *CAB:LUC*, parent transgenic line 2BΩ2CA/C, NASC stock number N3756.

Ws *CAB:LUC+*, parent transgenic line 6a, NASC stock number N9352.

Identification, identification method for new alleles or citation of first description.

Mapping, for *ZTL* complete linkage to marker MSF19-RsaI (TAIR accession

GeneticMarker:4292063) and tight linkage to LFY3 (TAIR accession

GeneticMarker:1945613) within phenotyping error (or *vice versa* for *TOC1*), followed by sequencing of *ZTL* or *TOC1* from at least three independent homozygous plants.

Genotype	Period in red light (h)	± SEM	n	Period in blue light (h)	± SEM	n	Period in red + blue light (h)
C24 (WT)	29.5	0.33	34	25.9	0.26	24	26.1
<i>ztl-1</i>	35.3	0.79	22	32.5	0.48	18	33.0
<i>ztl-22</i>	34.5	0.70	24	31.4	0.57	24	31.4
<i>ztl-27</i>	34.1	0.75	21	32.5	0.29	35	32.1
<i>ztl-31</i>	36.4	0.81	18	32.7	0.61	20	34.3
Ws (WT)	27.3	0.21	77	24.7	0.09	39	26.3
<i>ztl-21</i>	29.4	0.21	39	27.9	0.23	60	28.7
<i>ztl-23</i>	33.7	0.66	29	29.9	0.35	42	31.5
<i>ztl-24</i>	32.1	0.64	23	28.2	0.65	19	30.8
<i>ztl-25</i>	35.0	0.54	21	31.2	0.29	26	33.6
<i>ztl-26</i>	32.1	0.61	24	28.4	0.43	18	32.5
<i>ztl-28</i>	32.9	0.43	29	28.5	0.27	28	30.3
<i>ztl-29</i>	32.3	0.49	22	27.7	0.31	28	30.0
<i>ztl-30</i>	32.7	0.48	20	28.4	0.41	23	31.5

Supplementary Table 2. Comparison of period lengths for all new *ztl* alleles.

The circadian period of rhythmic *CAB2:LUC(+)* luminescence was measured as described in Figure 4B, under constant red light ($\sim 5 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$) or blue light ($\sim 8 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$) or red and blue light ($\sim 5 \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ each). The new alleles are listed after the cognate parent.