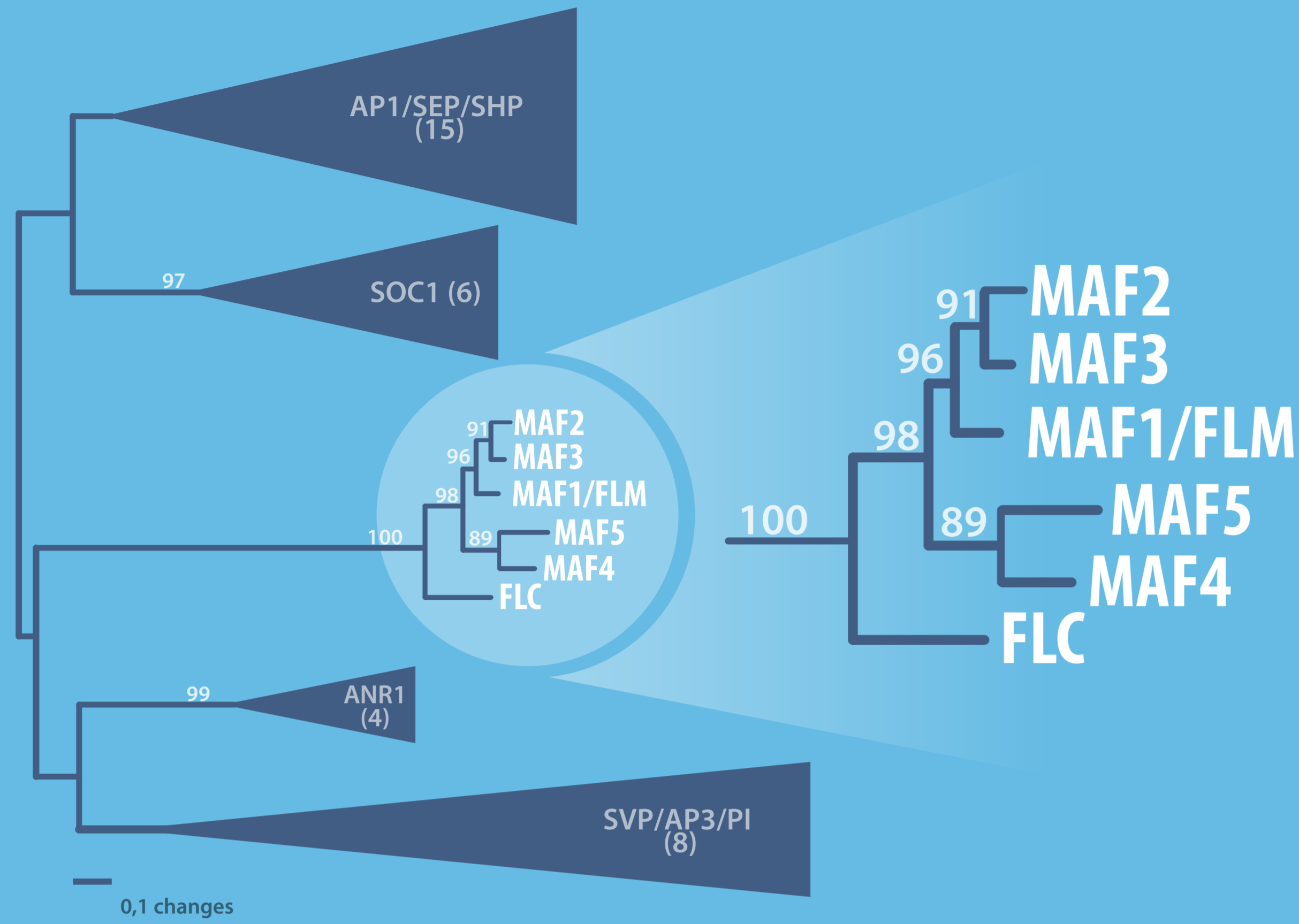


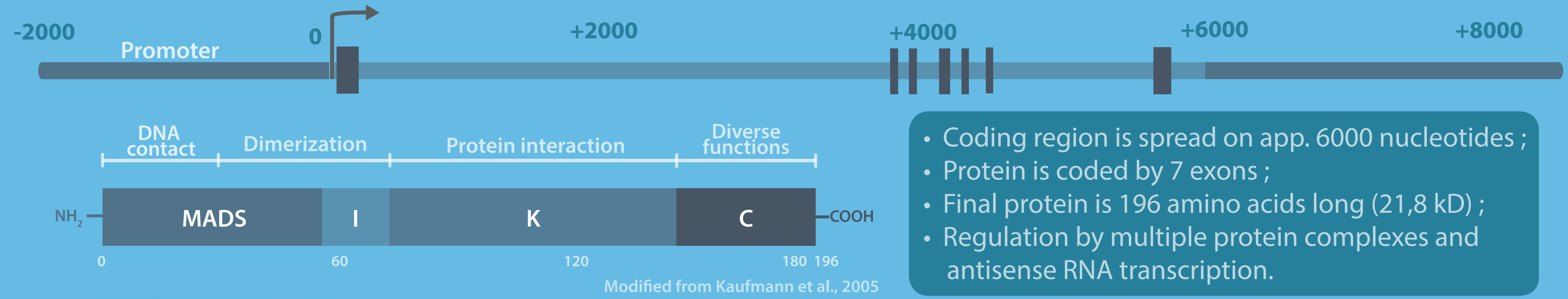
# FLC family is part of MADS-box genes

Phylogenetic analysis of the MIKC MADS box protein sequences. Branches were arbitrarily collapsed and the number of proteins was indicated in brackets.

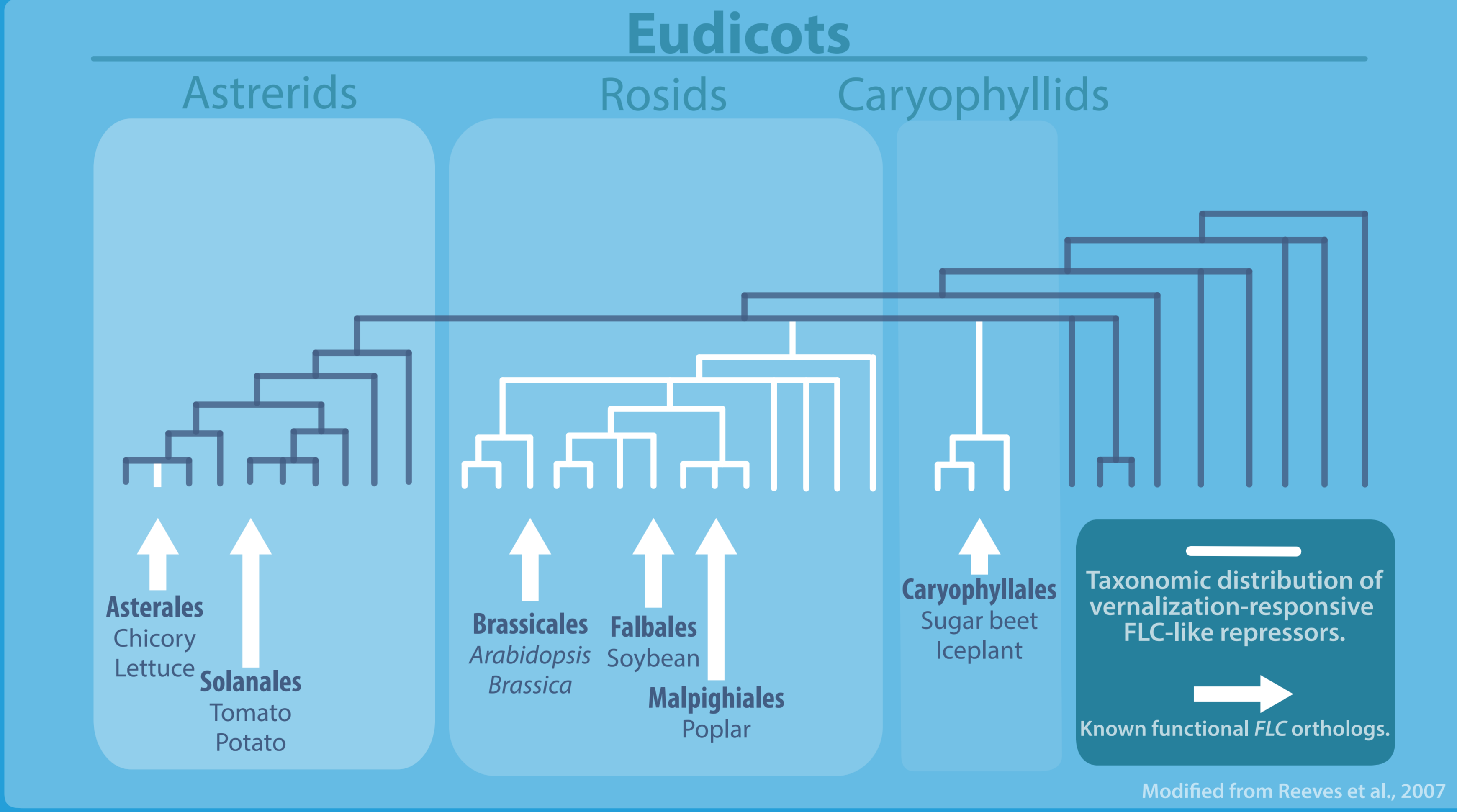


Adapted from Parenicova et al., 2003

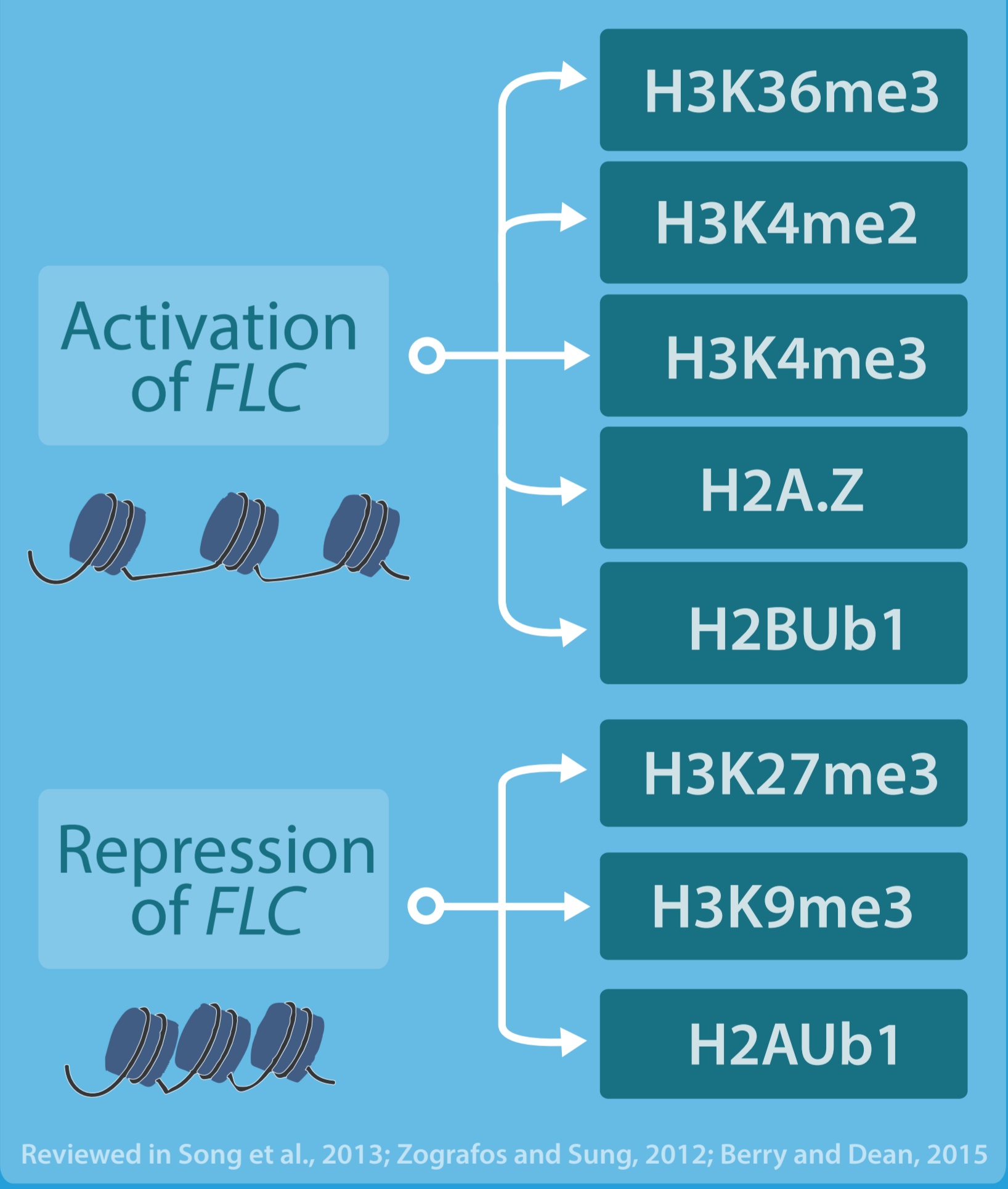
# FLC genomic and protein sequences



# FLC function is conserved among plant species

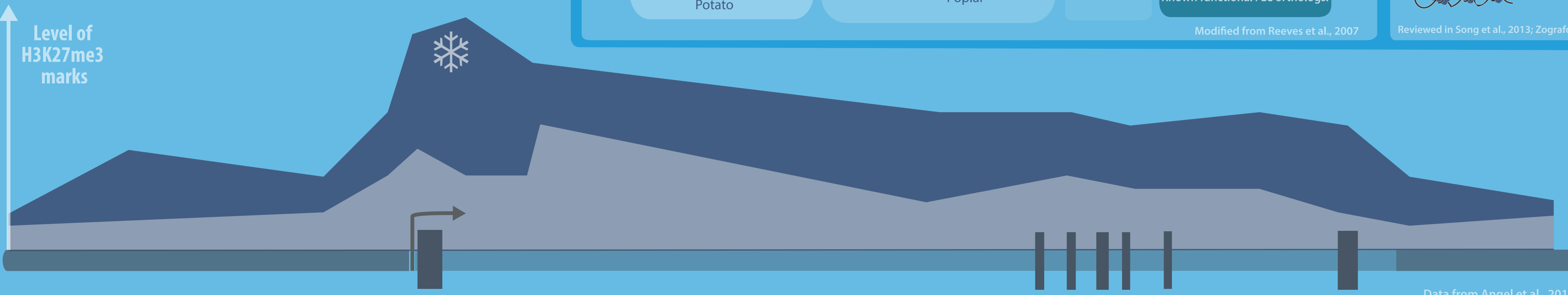


# FLC epigenetic regulations



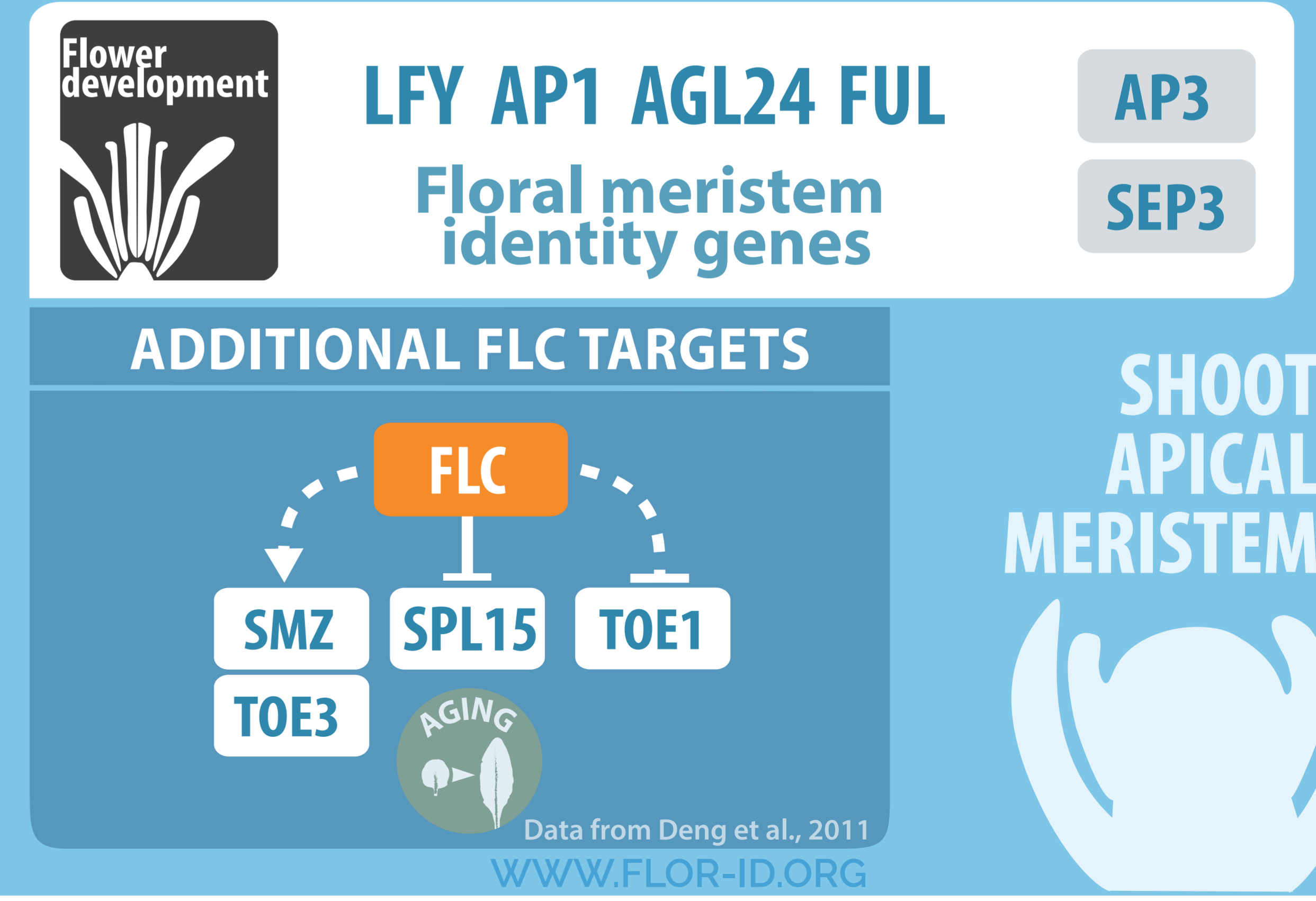
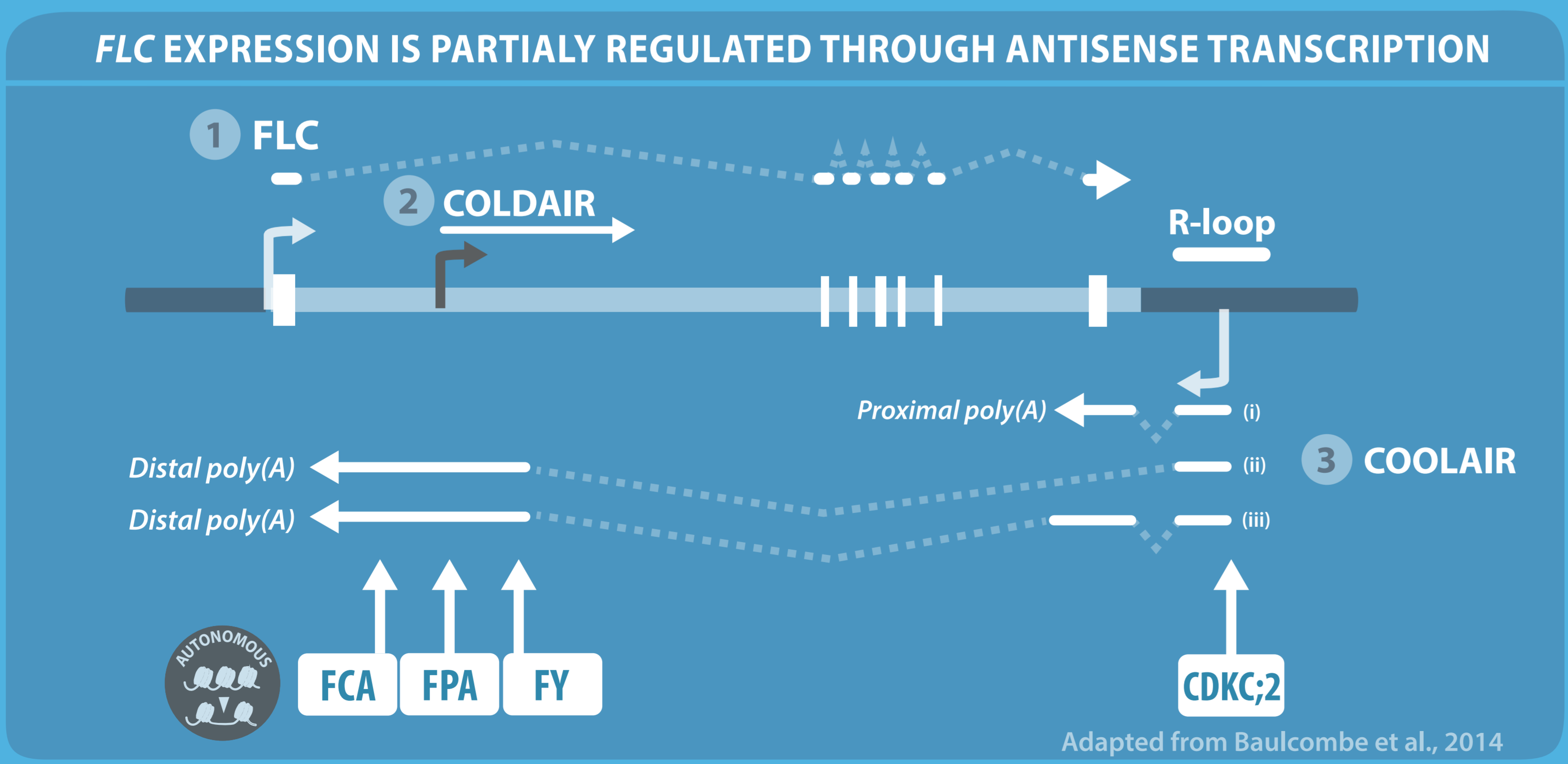
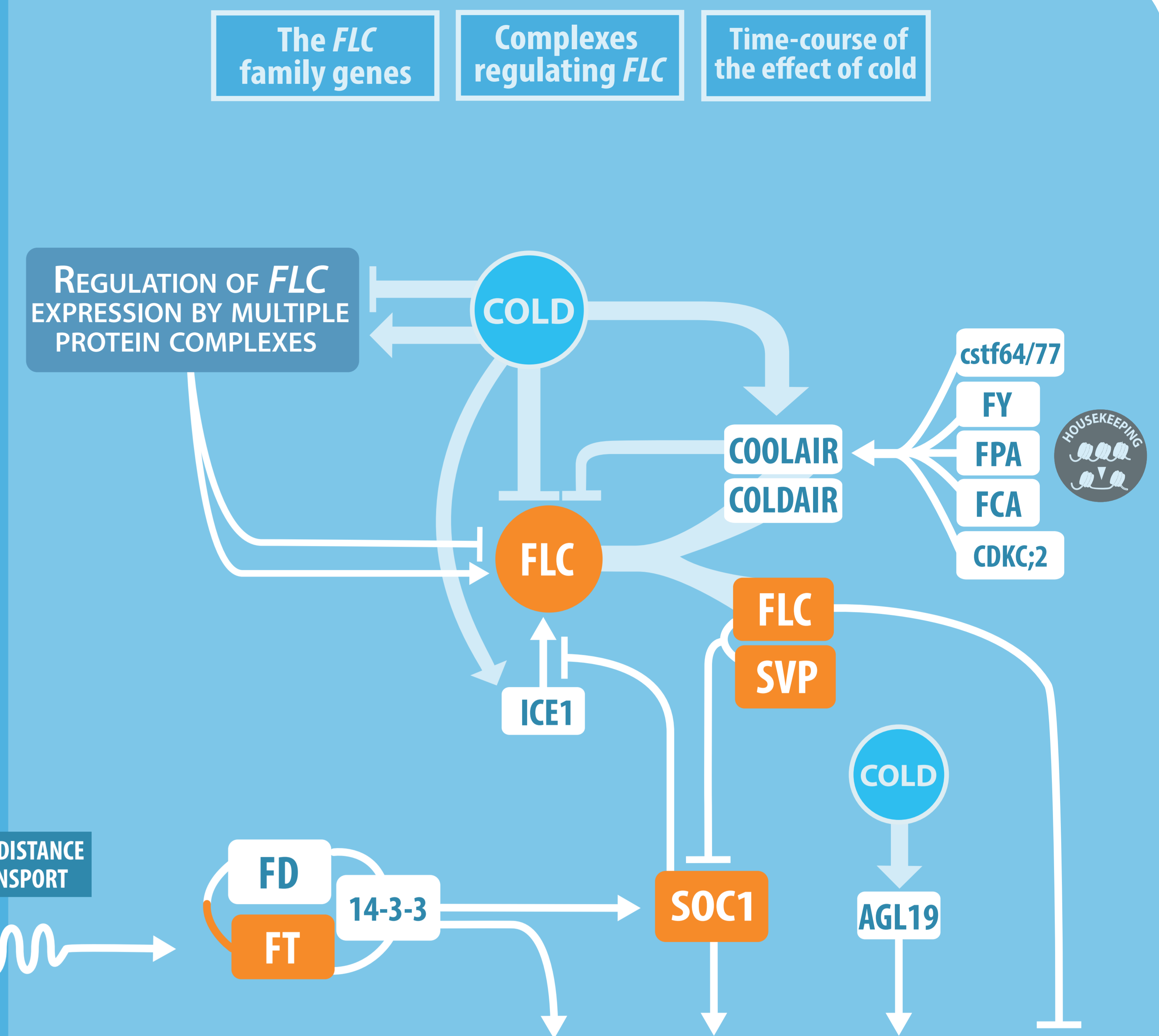
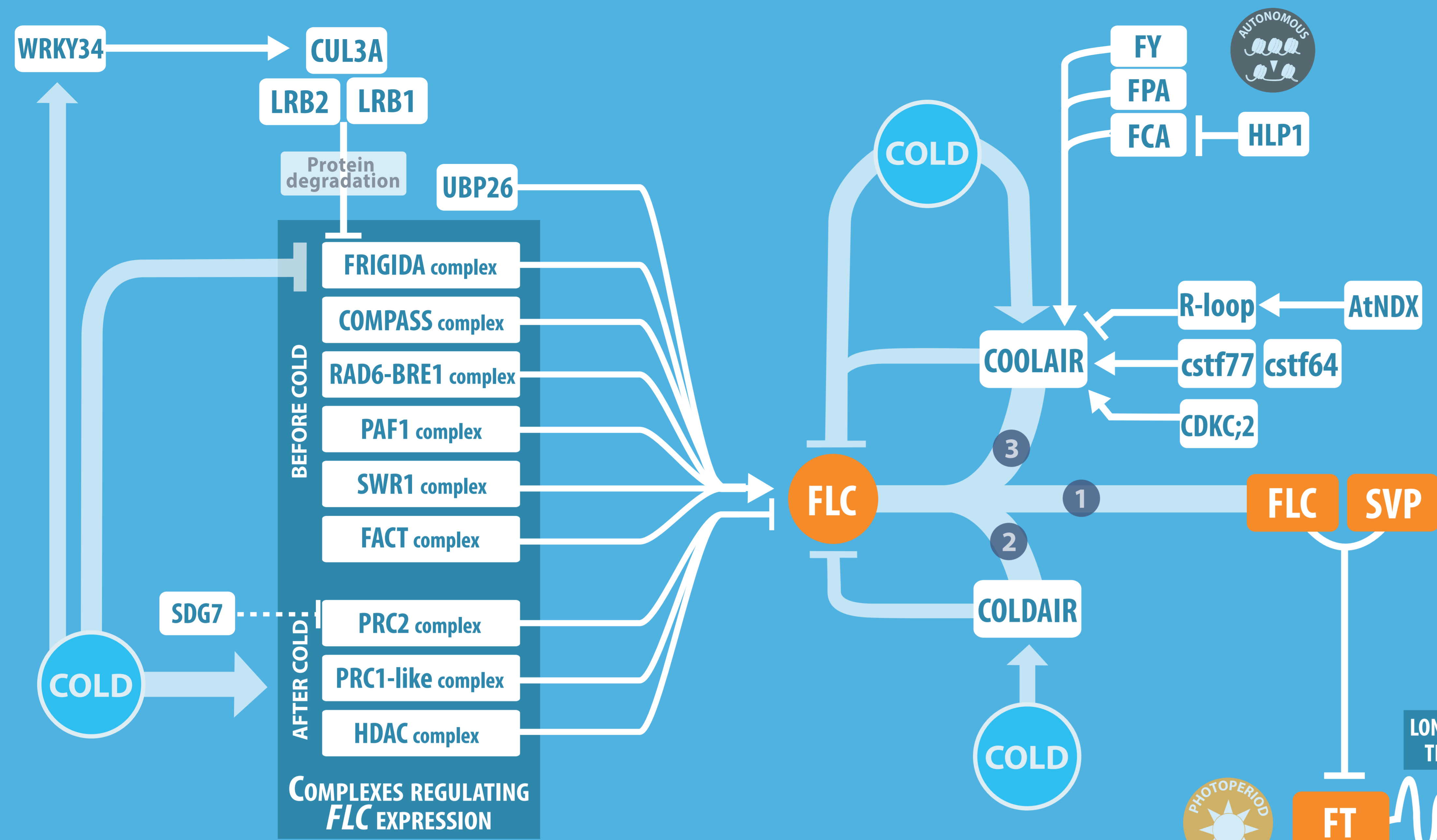
# FLC is regulated through chromatin remodelling

- Level of H3K27me3 marks before vernalization.
- Level of H3K27me3 marks after vernalization.

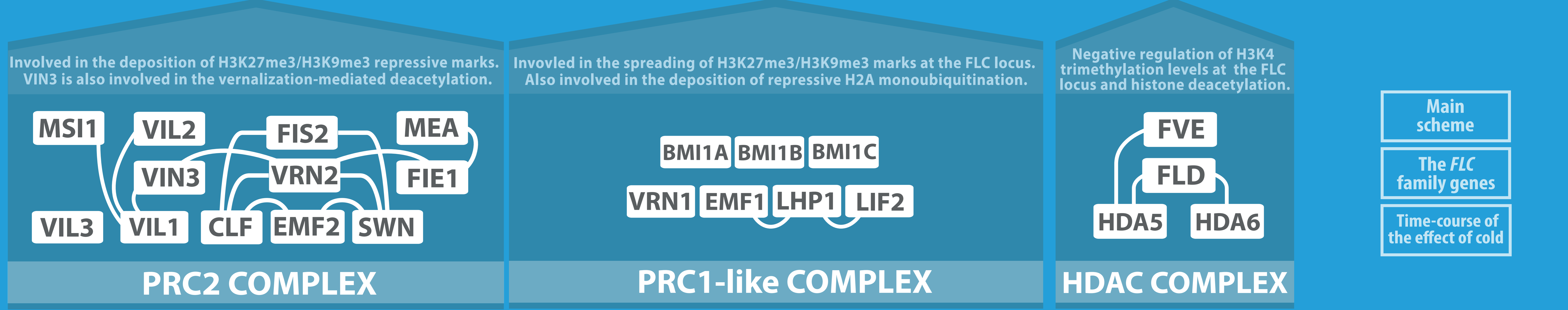
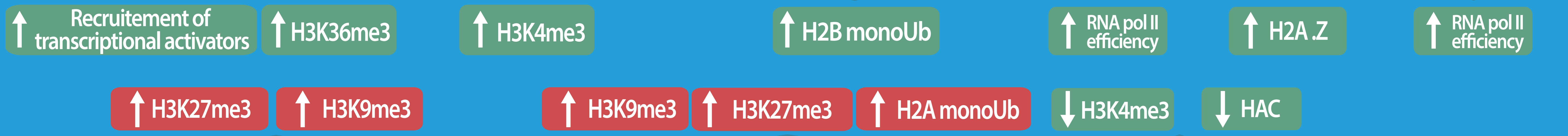
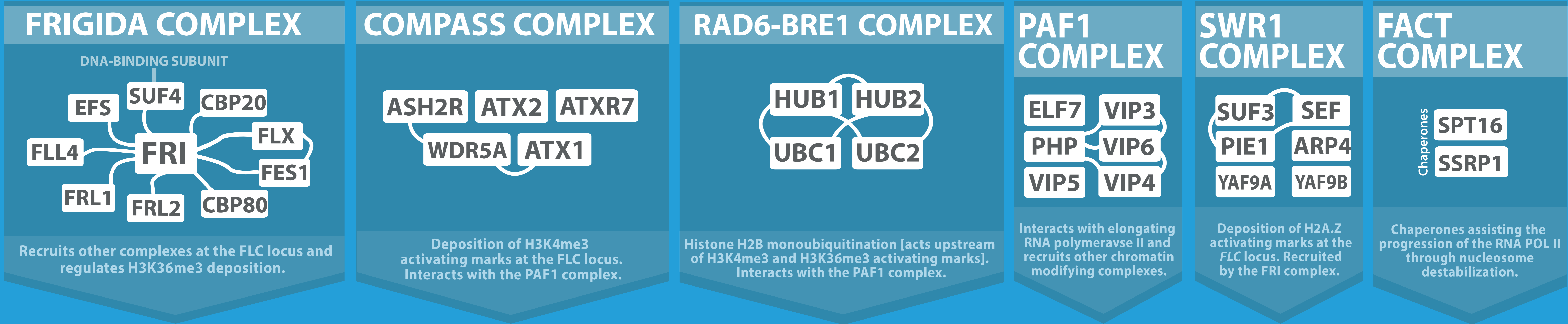


Data from Angel et al., 2011

- Main scheme
- Complexes regulating FLC
- Time-course of the effect of cold



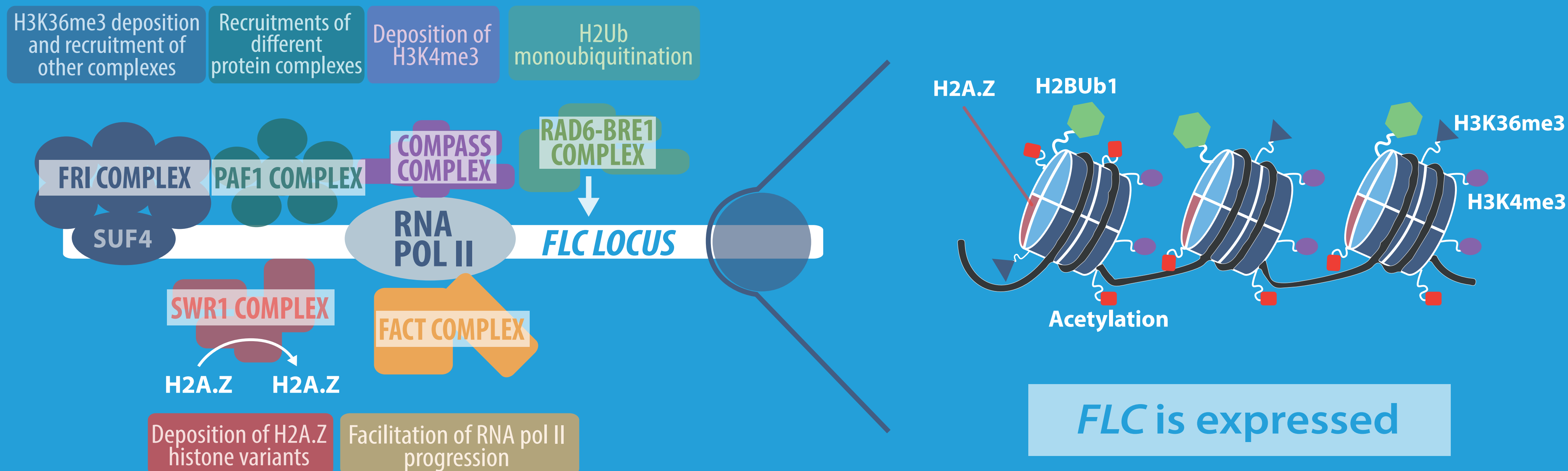
# POSITIVE REGULATION OF FLC EXPRESSION



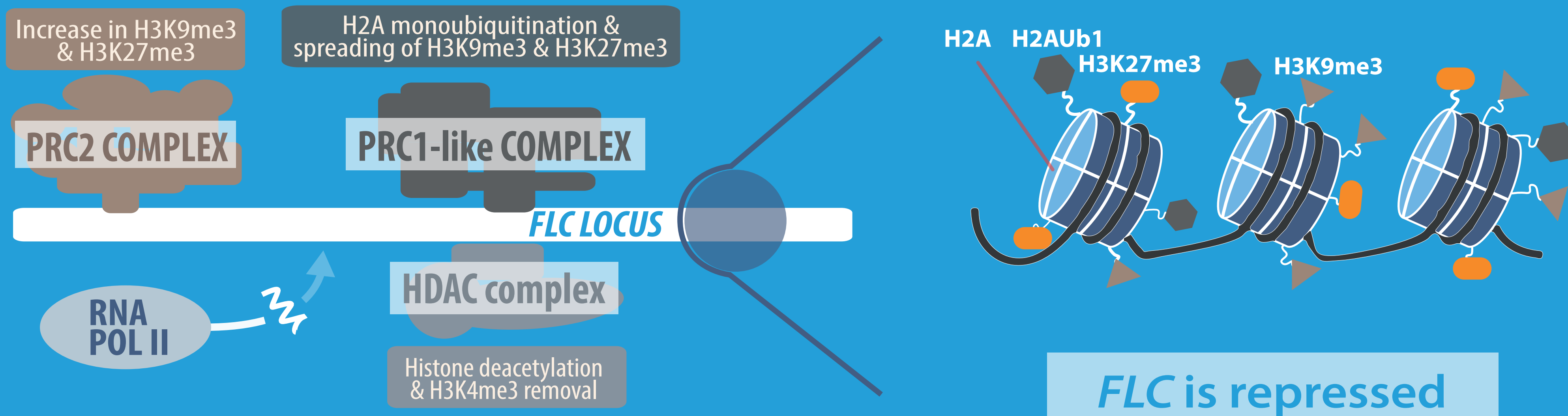
- Main scheme
- The *FLC* family genes
- Time-course of the effect of cold

# NEGATIVE REGULATION OF FLC EXPRESSION

## BEFORE COLD



## AFTER COLD



Main scheme

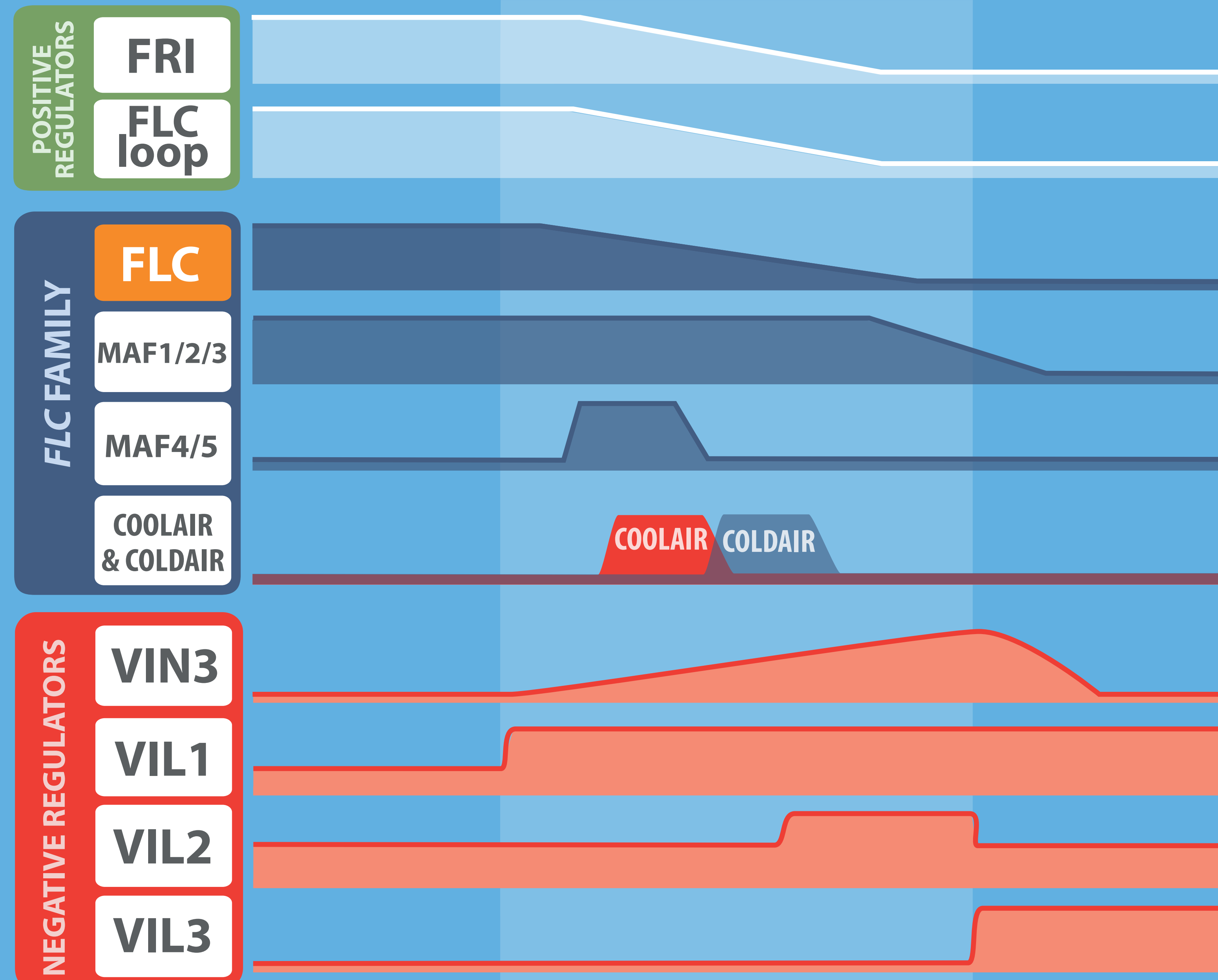
The FLC family genes

Complexes regulating FLC

BEFORE COLD

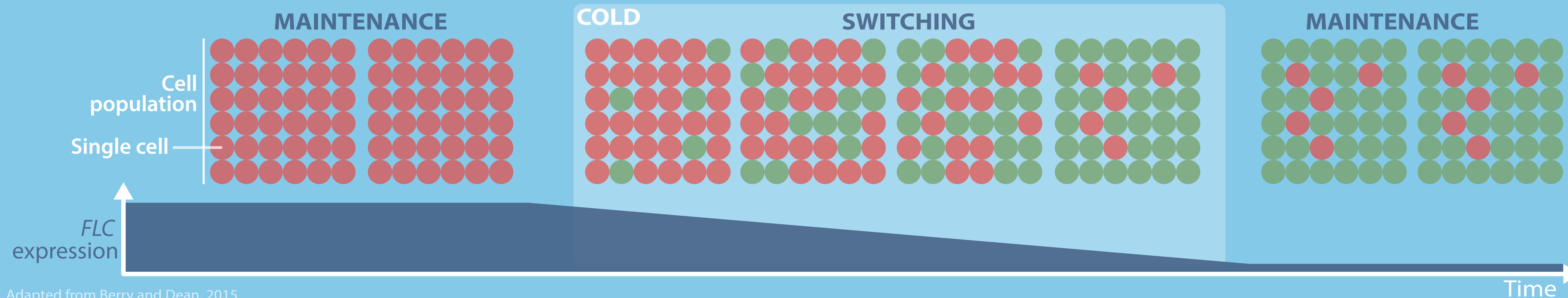
COLD

AFTER COLD

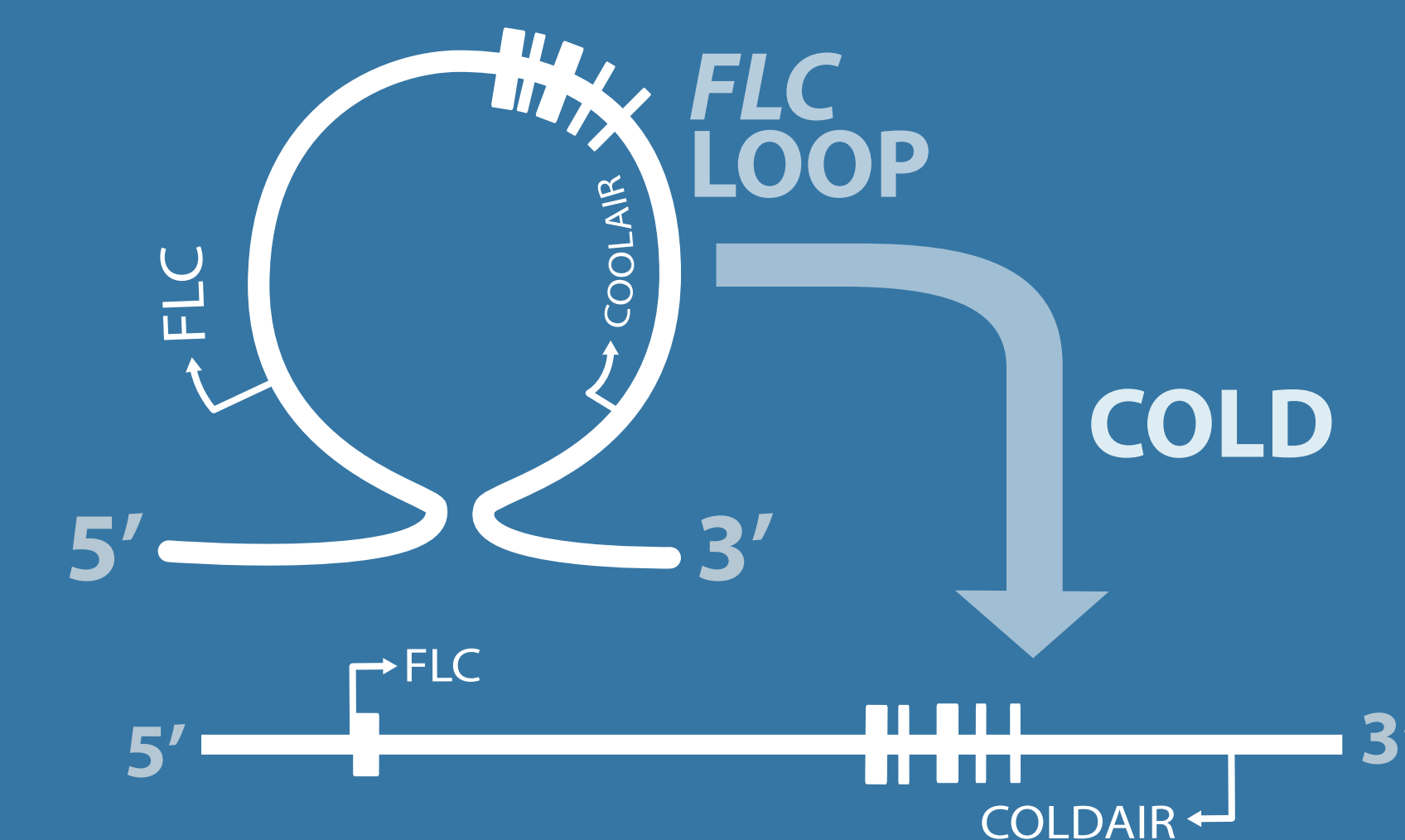


## THE MODEL OF DIGITAL FLC REPRESSION

In a single cell, the expression of *FLC* is restricted to «on» or «off»: the state of the population determine the response to vernalization.



## Gene loop disruption by cold at the FLC locus



Adapted from Zhu et al., 2015