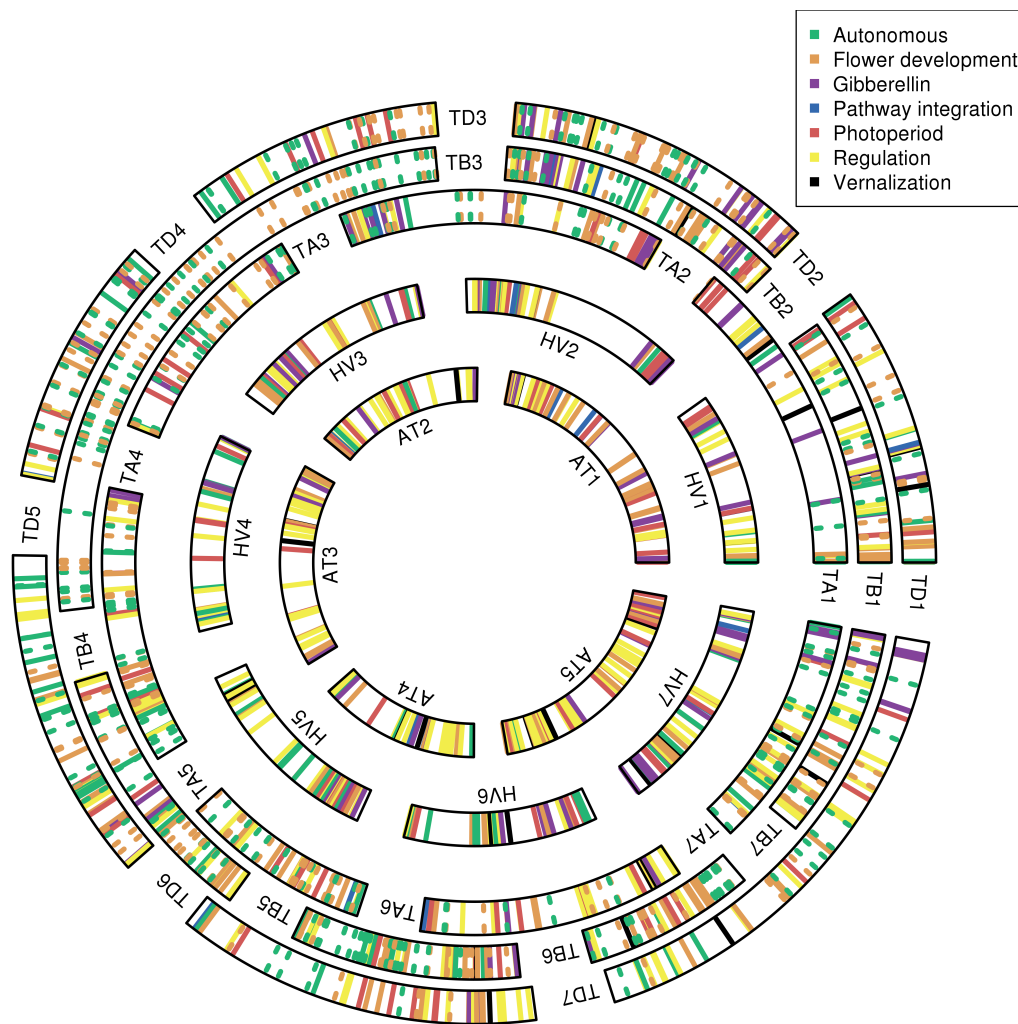**Supplemental Table S1 - Distributions of 101 flowering genes over five chromosomes and seven known functional group in Arabidopsis.**

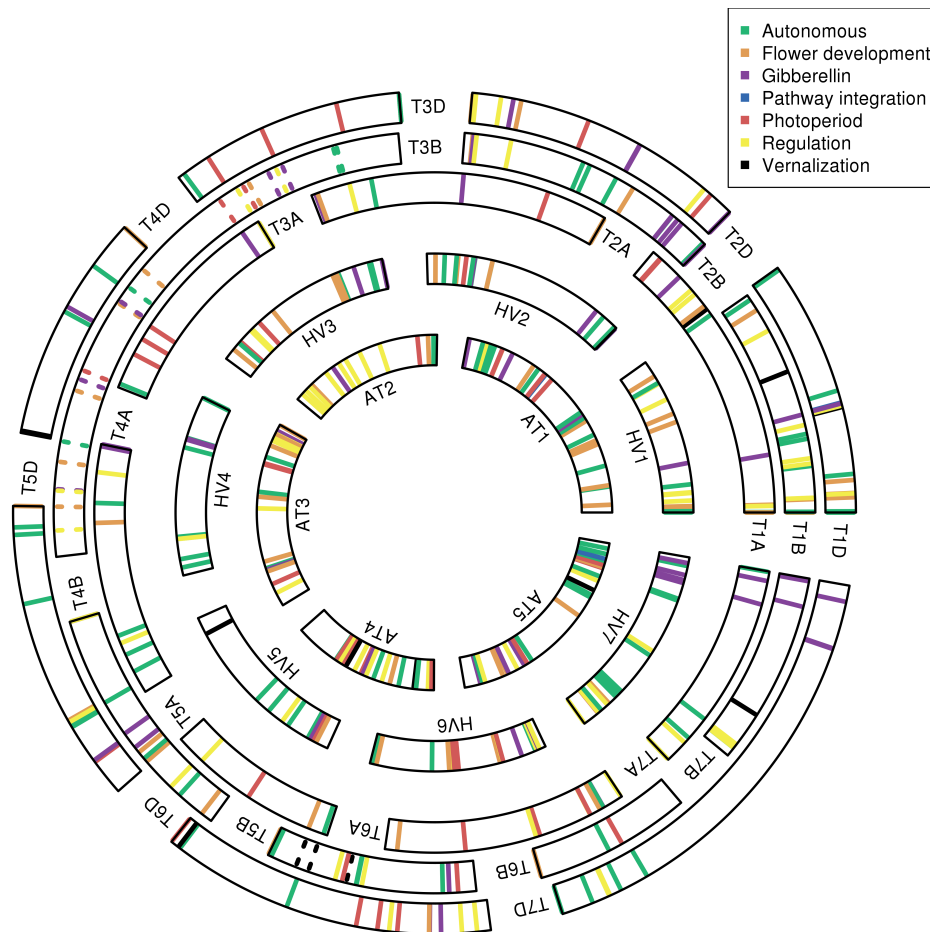| Functional group	AT1	AT2	AT3	AT4	AT5	Total
Autonomous	10	1	4	4	8	27
Flower development	7	1	6	2	4	20
Gibberellin	3	1	2	2	3	11
Pathway integration	1	0	0	0	0	1
Photoperiod	3	1	3	4	4	15
Regulation	1	8	4	5	3	21
Vernalization	0	1	1	2	2	6
Total	25	13	20	19	24	101

Supplemental Figure S1: Distributions of flowering genes in seven functional groups on different chromosomes in Arabidopsis, barley and wheat.

AT1 – AT5 for the five chromosomes in Arabidopsis; HV1 – HV7 for the seven chromosomes in barley; TA1 – TA7 for the seven chromosomes in the A genome of wheat; TB1 – TB7 for the seven chromosomes in the B genome of wheat; TD1 – TD7 for the seven chromosomes in the D genome of wheat. Flowering genes without physical locations on wheat chromosomes are randomly assigned and represented by dashed lines.

Supplemental Figure S2: Distributions of 101 Arabidopsis flowering genes identified through sequence analysis and their barley and wheat counterparts in different functional groups on different chromosomes.

AT1 – AT5 for the five chromosomes in Arabidopsis; HV1 – HV7 for the seven chromosomes in barley; T1A – T7A for the seven chromosomes in the A genome of wheat; T1B – T7B for the seven chromosomes in the B genome of wheat; T1D – T7D for the seven chromosomes in the D genome of wheat. Flowering genes without physical locations on wheat chromosomes are represented by dashed lines.

Supplemental Figure S3: Gene expression profiles in the additional ortholog groups in the PEBP, MADS-box and B-box (BBX) families in different tissues and dvelopment stages in wheat (*Triticum aestivum* cv. Chinese Spring) and barley (*Hordeum vulgare* L. cv. Morex).

A) OG5_127642, and B) OG5_163093 in the PEBP family; C) OG5_144912, D) OG5_177438, E) OG5_135817, and F) OG5_190130 in the MADS-box family; G) OG5_139246 and H) OG5_156319 in the BBX family.