

# Mapping seed lipid QTL using Arabidopsis recombinant inbred populations

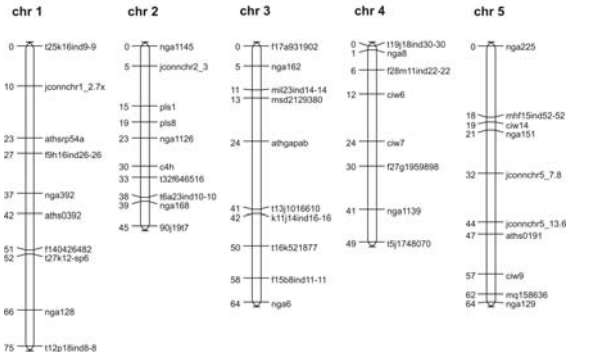
Carmel O'Neill

John Innes Centre

The *Arabidopsis* accessions used to generate the six RI populations and their origins.

<u>Pop</u>	<u>Female parent</u>	<u>Origin</u>	<u>Male parent</u>	<u>Origin</u>
<b>WC</b>	<b>Wt-5</b>	Germany	<b>Ct-1</b>	Italy
<b>SG</b>	<b>Sorbo</b>	Tadjikistan	<b>Gy-0</b>	France
<b>KB</b>	<b>Kondara</b>	Tadjikistan	<b>Br-0</b>	Czech
<b>CA</b>	<b>Cvi-0</b>	Cape Verde Islands	<b>Ag-0</b>	France
<b>TJ</b>	<b>Ts-5</b>	Spain	<b>240#14</b>	Unknown
<b>NG</b>	<b>Nok-3</b>	Netherlands	<b>Ga-0</b>	Germany

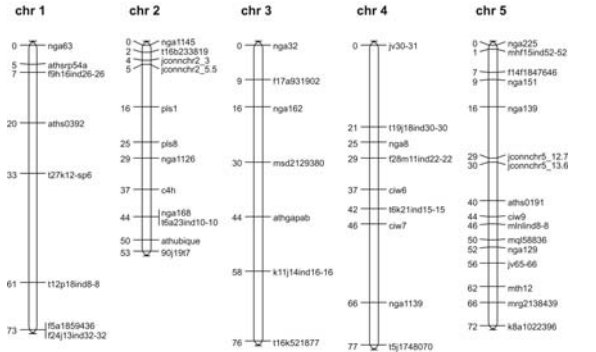
Sorbo x Gy-0



comments on mapping:-  
Kosambi mapping function used in Joinmap, distances in cM

chr 1: mapped at lod 2  
chr 2: mapped at lod 6  
chr 3: mapped at lod 1  
chr 4: mapped at lod 1  
chr 5: mapped at lod 2; fixed order used for loci aths0191 - nga129

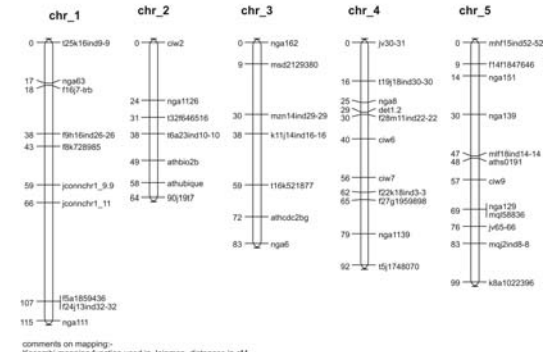
Kondara x Br-0



comments on mapping:-  
Kosambi mapping function used in Joinmap, distances in cM

chr 1: mapped at lod 0; 2 groups with weak link between i27k12-sp6 & i12p1859436  
chr 2: mapped at lod 3  
chr 3: mapped at lod 0; 2 groups with weak link between msd2129380 & athgapab  
chr 4: mapped at lod 0; loci between i19j18ind30-30 & ciw7 mapped at lod 1  
chr 5: mapped at lod 2

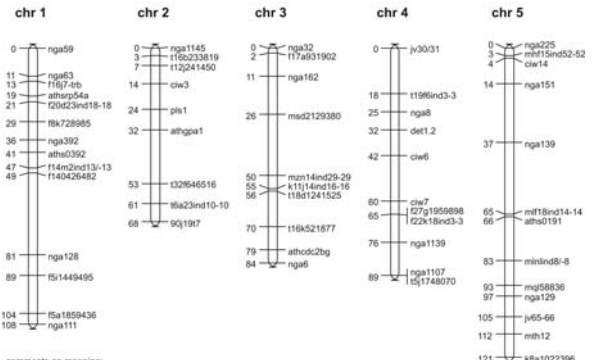
Cvi-0 x Ag-0



comments on mapping:-  
Kosambi mapping function used in Joinmap, distances in cM

chr 1: mapped at lod 0; 2 groups with weak link between f8k728985 & f5a1859436  
chr 2: mapped at lod 2  
chr 3: mapped at lod 0; 2 groups with weak link between msd2129380 & nga162  
chr 4: mapped at lod 1  
chr 5: mapped at lod 0; 2 groups with weak link between ciw6 & nga129 with fixed order for loci mhf15ind52-52 - mhf18ind14-14

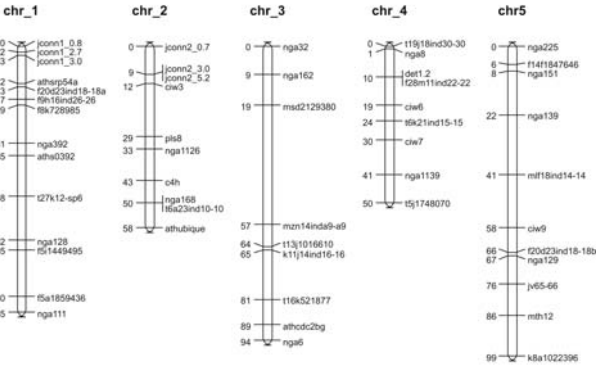
Wt-5 x Ct-1



comments on mapping:-  
Kosambi mapping function used in Joinmap, distances in cM

chr 1: mapped at lod 0; 2 groups with weak link between f140426482 & nga128  
chr 2: mapped at lod 1  
chr 3: mapped at lod 0; 3 groups with weak links between nga162 & msd2129380 & i18k1241525 & i16k521877  
chr 4: mapped at lod 1  
chr 5: mapped at lod 0; 2 groups with weak link between nga139 and mhf18ind14-14

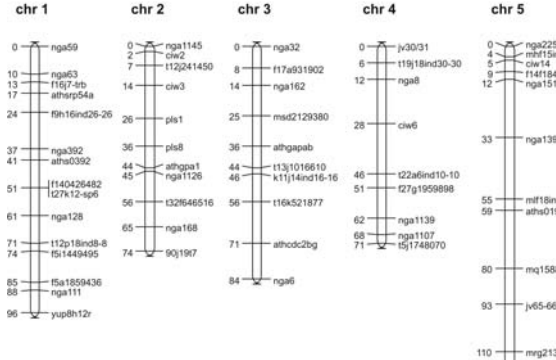
Ts-5 x 240#14



comments on mapping:-  
Kosambi mapping function used in Joinmap, distances in cM

chr 1: mapped at lod 1; 2 groups with weak link between i27k12-sp6 & nga128 and fixed order for loci i27k12-sp6 - nga111  
chr 2: mapped at lod 3  
chr 3: mapped at lod 0; 2 groups with weak links between msd2129380 & mzn14ind9-a9  
chr 4: mapped at lod 3  
chr 5: mapped at lod 0; 2 groups with weak link between nga139 and mhf18ind14-14

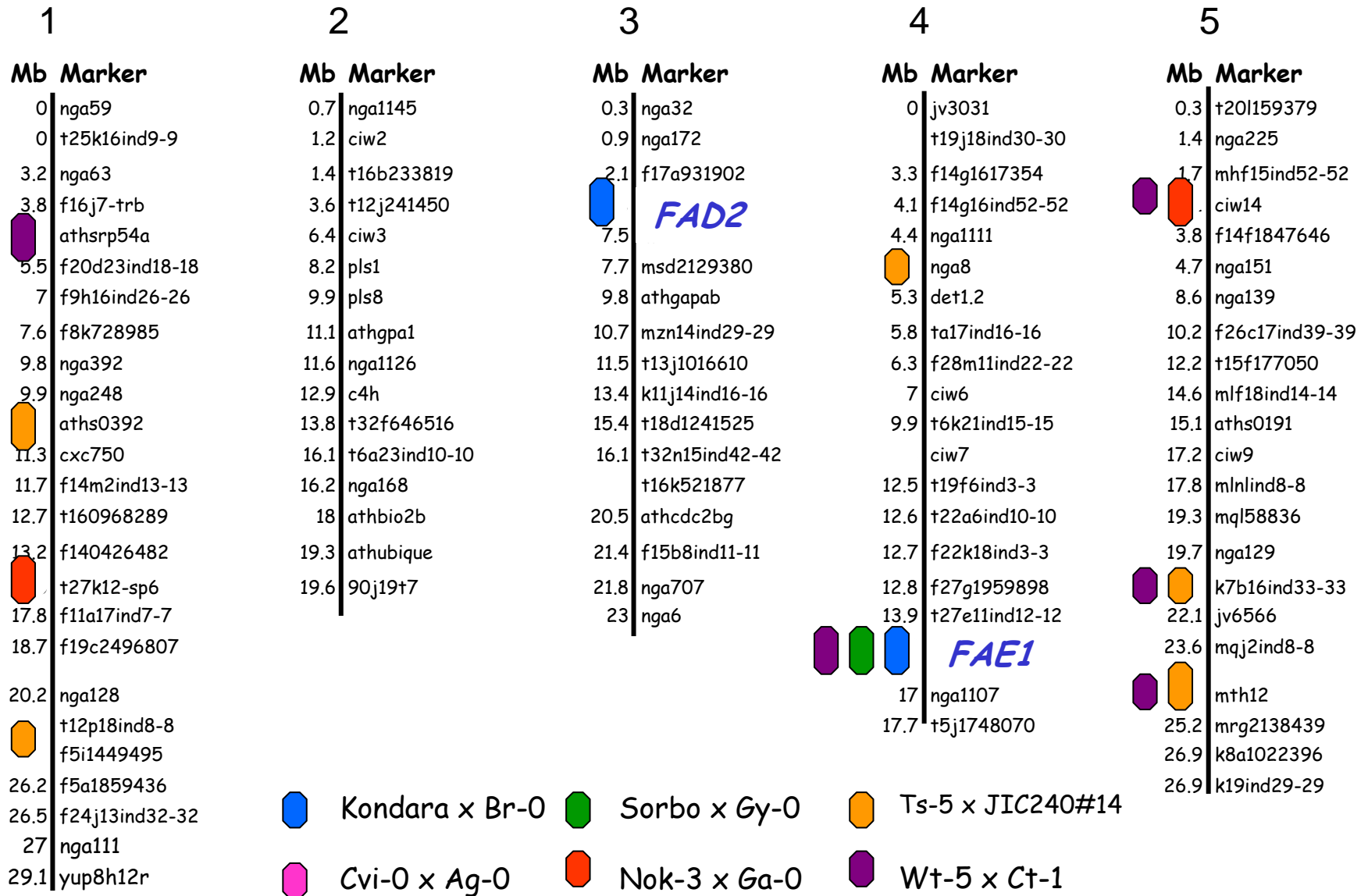
Nok-3 x Ga-0





comments on mapping:-  
Kosambi mapping function used in Joinmap, distances in cM


chr 1: mapped at lod 0; 2 groups with weak link between aths0392 & nga128  
chr 2: mapped at lod 2  
chr 3: mapped at lod 1  
chr 4: mapped at lod 0; 2 groups with weak link between nga8 & ciw6  
chr 5: mapped at lod 0; 2 groups with weak link between nga139 and mhf18ind14-14

# Summary of QTL detected for 18:1 content






















 P = 0.05

 P = 0.01

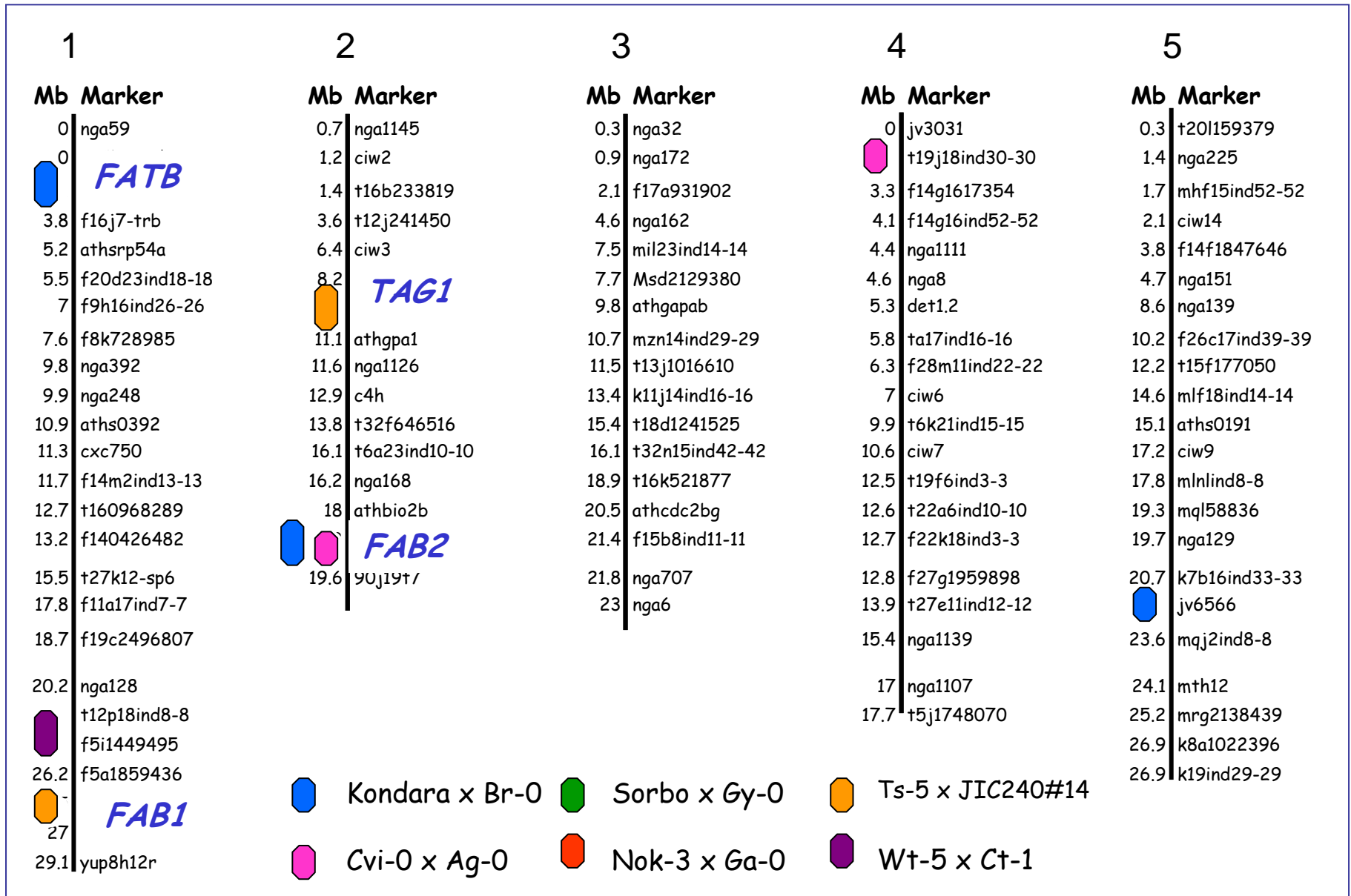
 P = 0.001

# Summary of QTL detected for 18:3 content

1	2	3	4	5
Mb Marker	Mb Marker	Mb Marker	Mb Marker	Mb Marker
0 nga59	0.7 nga1145	0.3 nga32	0 jv3031	0.3 t20l159379
0 t25k16ind9-9	1.2 ciw2	0.9 nga172	2.3 t19j18ind30-30	1.4 nga225
3.2 nga63	1.4 T16b233819	 f17a931902	3.3 f14g1617354	1.7 mh15ind52-52
3.8 f16j7-trb	3.6 t12j241450	4.6 <b>FAD2</b>	4.1 f14g16ind52-52	2.1 ciw14
5.2 athsrp54a	6.4 ciw3	7.5  msd2129380	4.4 nga1111	3.8 f14f1847646
5.5 f20d23ind18-18	8.2 pls1	9.8 athgapab	4.6 nga8	4.7 nga151
7 f9h16ind26-26	9.9 pls8	10.7 mzn14ind29-29	5.3 det1.2	8.6 nga139
7.6 f8k728985	11.1 athgpa1	11.5 t13j1016610	5.8 ta17ind16-16	10.2 f26c17ind39-39
9.8 nga392	11.6 <b>FAD3</b>	13.4 k11j14ind16-16	6.3 f28m11ind22-22	12.2 t15f177050
9.9 nga248	12.9  t32f646516	15.4 t18d1241525	7 ciw6	14.6 mlf18ind14-14
 aths0392	16.1 t6a23ind10-10	16.1  t16k521877	9.9 t6k21ind15-15	 aths0191
11.3 cxc750	16.2 nga168	20.5 athcdc2bg	10.6 ciw7	17.2 ciw9
11.7 f14m2ind13-13	18 athbio2b	21.4 f15b8ind11-11	12.5 t19f6ind3-3	17.8 mlnind8-8
12.7 t160968289	19.3 athubique	21.8 nga707	12.6 t22a6ind10-10	 mql58836
13.2 f140426482	19.6 90j19t7	23 nga6	12.7 f22k18ind3-3	19.7 nga129
15.5 t27k12-sp6			12.8 f27g1959898	20.7 k7b16ind33-33
17.8 f11a17ind7-7			13.9 t27e11ind12-12	22.1 jv6566
18.7 f19c2496807			 nga1139	 mqj2ind8-8
20.2 nga128			17 nga1107	24.1 mth12
23.5 t12p18ind8-8			17.7 t5j1748070	25.2 mrg2138439
24 f5i1449495	 Kondara x Br-0	 Sorbo x Gy-0	 Ts-5 x JIC240#14	26.9 k8a1022396
 f5a1859436	 Cvi-0 x Ag-0	 Nok-3 x Ga-0	 Wt-5 x Ct-1	26.9 k19ind29-29
26.5 f24j13ind32-32				
27 nga111				
29.1 yup8h12r				

 P = 0.05  
  P = 0.01  
  P = 0.001

# Summary of QTL detected for oil content



P = 0.05    
 P = 0.01    
 P = 0.001