



CottonGen: A Central Data Repository and Analysis Resource for the Cotton Community

www.cottongen.org



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Abstract

CottonGen is a genomics, genetics and breeding database for the cotton community. It provides a comprehensive collection of data, various analysis tools, Breeding Information Management System, and links to external resources of interest to cotton researchers. CottonGen currently contains 55 (21 tetraploids and 33 diploids) annotated genome sequences; 5,725,571 genes/transcripts, 117 genetic maps; 690,386 markers; 7,436 QTLs; 20,177 germplasm; metabolic pathways for 13 species (AD1-AD5, A, B, D, E, F, G, K, and kirkii); 31,148,121 SNP and 14,284 SSR genotype measurements; 540,457 phenotype measurements (mainly from RBTN and NCGC projects), 45,155 images (mainly of NCGC); and synteny data for 53 genomes with links to genes, mRNA, orthologs and function. Analysis and visualization tools in CottonGen include the genome browser JBrowse, Synteny Viewer, MapViewer, CottonCyc, BLAST+, BIMS (the Breeding Information Management System), and MegaSearch, a powerful search engine, both with recently added new features and functions. All the data are integrated within CottonGen and can easily be queried through various CottonGen's search engines. In this presentation, examples of using CottonGen search engines to find marker/QTL/trait/Genome location and integration among them.

MegaSearch to find all markers that associate with seed cotton yield, have genetic map position on Chromosome 23, and identify their genomic locations.

Step 1. Go to CottonGen's MegaSearch, select 'Data Type' = Marker

View Search Result. Genome locations are hyperlinked to a genome browser. In example below, click on green text at red arrow, then its genome location in JBrowse view appears above

Step 2. In sections of 'Genetic Position' and 'Trait', select 'Standardized Linkage Group' and 'Trait' of interest (red arrows), then from 'Downloadable Field', select contents that you want to 'View' or 'Download'

Marker Name	Marker Type	Map	Linkage Group	Standardized Linkage Group	Genome	Standardized Chromosome	Landmark	Location	Trait
1	NAU3052	SSR	Yumian-1, RIL (2017)	AD_ch23_D1.09	Gossypium hirsutum (AD1) 'TM-1' genome NAU-NBI_v1.1	AD_ch09_At.09	A09	A09.66057227.66057399	seed cotton yield
2	NAU3052	SSR	Yumian-1, RIL (2017)	AD_ch23_D1.09	Gossypium hirsutum (AD1) 'TM-1' genome NAU-NBI_v1.1	scaffold4321_D09	scaffold4321_D09.72022.72206		seed cotton yield
3	NAU3052	SSR	Yumian-1, RIL (2017)	AD_ch23_D1.09	Gossypium hirsutum (AD1) 'TM-1' genome UTX-JGI-Interim-release_v1.1	AD_ch09_At.09	A09	A09.71121857.71122029	seed cotton yield
4	NAU3052	SSR	Yumian-1, RIL (2017)	AD_ch23_D1.09	Gossypium hirsutum (AD1) 'TM-1' genome UTX-JGI-Interim-release_v1.1	AD_ch23_D1.09	D09	D09.42970904.42971088	seed cotton yield
5	NAU3052	SSR	Yumian-1, RIL (2017)	AD_ch23_D1.09	Gossypium hirsutum (AD1) 'TM-1' genome UTX_v2.1	AD_ch19_D1.05	D09	D09.44251323.44251507	seed cotton yield
6	NAU3052	SSR	Yumian-1, RIL (2017)	AD_ch23_D1.09	Gossypium hirsutum (AD1) 'TM-1' genome UTX_v2.1	AD_ch22_D1.04	A09	A09.74035893.74036055	seed cotton yield

Download Search Result. Click on 'CSV' to download data as comma-separated values table (below).

#	Marker Name	Type	Map	Linkage Gr	Standard Genome	Standardized Chrom	Landmark	Location	Trait
294	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch19_D1.05	D1_ch19	DL_ch5:8296173..8296357		seed cotton yield
295	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch09_At.09	A09	A09:72657808..72657980		seed cotton yield
297	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch23_D1.09	D09	D09:4248022..4248206		seed cotton yield
298	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch09_At.09	Ghr_At09	Ghr_At09:70893120..70893292		seed cotton yield
299	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch23_D1.09	Ghr_D09	Ghr_D09:42816875..42817059		seed cotton yield
300	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch09_At.09	A09	A09:66057227..66057399		seed cotton yield
301	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome NAU-NBI_v1.1	scaffold433	scaffold43321_D09:72022..72206		seed cotton yield
302	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch09_At.09	A09	A09:71121857..71122029		seed cotton yield
303	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch23_D1.09	D09	D09:42970904..42971088		seed cotton yield
304	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch19_D1.05	D09	D09:44251323..44251507		seed cotton yield
305	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch22_D1.04	A09	A09:74035893..74036055		seed cotton yield
306	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome ZIU-improved_v2.009	A09	A09:7351584..7351586		seed cotton yield
307	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome ZIU-improved_v2.009	D09	D09:42375175..42375359		seed cotton yield
308	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch09_At.09	A09	A09:69271048..69271220		seed cotton yield
309	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch23_D1.09	D09	D09:40648254..40648438		seed cotton yield
310	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium mustelinum (AD4) genome JGI_AD_ch09_At.09	CM017644	CM017644:1.71380176..71380350		seed cotton yield
311	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium mustelinum (AD4) genome JGI_AD_ch23_D1.09	CM018221	CM018221:1.40768869..40769053		seed cotton yield
312	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium tomentosum (AD3) genome HK_AD_ch09_At.09	CM017618	CM017618:1.68480412..68480384		seed cotton yield
313	NAU3052	SSR	0-153 x sG9708, chr23-1	AD_ch23_	Gossypium tomentosum (AD3) genome HK_AD_ch23_D1.09	CM017613	CM017613:1.41664661..41664839		seed cotton yield
314	NAU3052	SSR	CCRI-35 x Yumiar chr23	AD_ch23_	Gossypium barbadense (AD2) '3-79' genom AD_ch16_D1.07	D107	D107:17425853..17426037		seed cotton yield
315	NAU3052	SSR	CCRI-35 x Yumiar chr23	AD_ch23_	Gossypium barbadense (AD2) '3-79' genom HAU_v1	scaffold23	scaffold23:1.195168..195352		seed cotton yield
316	NAU3052	SSR	CCRI-35 x Yumiar chr23	AD_ch23_	Gossypium barbadense (AD2) '3-79' genom HAU_v1	scaffold60	scaffold60:24.33922..334097		seed cotton yield
317	NAU3052	SSR	CCRI-35 x Yumiar chr23	AD_ch23_	Gossypium barbadense (AD2) '3-79' genom AD_ch23_D1.09	Gbar_D09	Gbar_D09:41453232..41453416		seed cotton yield
318	NAU3052	SSR	CCRI-35 x Yumiar chr23	AD_ch23_	Gossypium barbadense (AD2) '3-79' genom AD_ch23_D1.09	CM018221	CM018221:1.40768869..40769053		seed cotton yield
319	NAU3052	SSR	CCRI-35 x Yumiar chr23	AD_ch23_	Gossypium barbadense (AD2) 'H124' genome ZIU_v1.1_a1	D09	D09:43922140..43922324		seed cotton yield
320	NAU3052	SSR	CCRI-35 x Yumiar chr23	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome H65_V1AD_ch23_D1.09	CM017703	CM017703:1.42250506..42250634		seed cotton yield
321	NAU3052	SSR	CCRI-35 x Yumiar chr23	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch19_D1.05	D1_ch19	DL_ch5:8296173..8296357		seed cotton yield
322	NAU3052	SSR	CCRI-35 x Yumiar chr23	AD_ch23_	Gossypium hirsutum (AD1) 'TM-1' genome AD_ch09_At.09	A09	A09:72657808..72657980		seed cotton yield

BIMS to store, manage, archive and analyze public or private breeding data (genotype/phenotype/germplasm)

Select trials and compare their trait measurements

Search specific region of micronaire and save the result

BIMS ONLINE WORKSHOP WILL BE SCHEDULED, WE WILL SEND OUT A NOTICE SOON

