

**CMD****cotton microsatellite database**

Newsletter April 2007

Welcome to the April 2007 issue of the CMD newsletter. This issue will cover the progress made by the CMD Development Team in the first quarter of 2007, and will inform cotton researchers about new or updated data and features in CMD, and other community related news. Please feel free to provide feedback and news directly by email to Anna Blenda blenda@clermson.edu or Dorrie Main dorrie@wsu.edu. A PDF version of the newsletter will be available on the CMD Downloads page.

CMD Work Summary (January 1 – March 31, 2007)

I. Presentations and Meetings.

1. CMD was presented during the ICGI poster session at the annual [Plant and Animal Genome XV Conference](#), January 13-17, 2007, San Diego, CA.
2. The CMD Advisory Board meeting was held at PAG on January 13, 2007. 3. It was devoted to a more detailed discussion of the possibility of including cotton SNPs into the CMD. The CMD Advisory Board agreed to depositing cotton SNPs to the CMD with the further possible change of the name Cotton Microsatellite Database to a Cotton Marker Database. The first cotton SNP project was provided by Allen Van Deynze (UC Davis).
3. Bayer BioScience organized presentation and discussion of the Cotton Genome Sequence White Paper for cotton genome researchers at PAG on January 13, 2007.
4. The International Cotton Genome Initiative ICGI Workshop was held at PAG on January 14, 2007.

II. New Data.

1. Data for a new project DPL was provided by David Fang (Delta and Pine Land Company, 200 DPL SSRs). It is the first SSR project provided by a private company for public display through the CMD.

DPL markers were developed from *G. hirsutum* small insert genomic libraries enriched with multiple microsatellite motifs. These 200 markers were chosen to be

deposited in the CMD because each of these markers is mapped at only one location in the RILs of *G. hirsutum* cv. TM-1/*G. barbadense* cv. 3-79. All the 200 DPL markers have been mapped, and screened on the CMD standardized panel. Their exact map locations will be published in the paper by Yu et al. (manuscript in preparation). The DPL project data was organized, curated, and displayed through the individual project websites and the overall download page.

2. Panel screened data for 200 DPLs was provided by David Fang (Delta and Pine Land Company). The data was displayed through the individual project page, panel page and overall download page.
3. During the first 3 months of 2007, the total number of cotton SSRs currently displayed through CMD increased from 5,795 to 5,995.
4. An additional 700 cotton genomic SSRs were provided by Alan Pepper for the new project **Gh**. The data will be available on CMD after the manuscript has been accepted for publication.
5. Since 2007, the Publications and Community pages were updated with 5 new relevant publications:
 - a. Konan ON, D'Hont A, Baudoin JP, Mergeai G. 2007. **Cytogenetics of a new trispecies hybrid in cotton: [(*Gossypium hirsutum* L. x *G. thurberi* Tod.)² x *G. longicalyx* Hutch. & Lee].** *Plant Breeding*. 126(2): 176-181
 - b. Abdurakhmonov IY, Buriev ZT, Saha S, Pepper AE, Musaev JA, Almatov A, Shermatov SE, Kushanov FN, Mavlonov GT, Reddy UK, Yu JZ, Jenkins JN, Kohel RJ, Abdukarimov A. 2007. **Microsatellite markers associated with lint percentage trait in cotton, *Gossypium hirsutum*.** *Euphytica*. DOI 10.1007/s10681-007-9361-2
 - c. Lacape JM, Dessauw D, Rajab M, Noyer JL, Hau B. 2007. **Microsatellite diversity in tetraploid *Gossypium* germplasm: assembling a highly informative genotyping set of cotton SSRs.** *Molecular Breeding*. 19(1): 45-58
 - d. He DH, Lin ZX, Zhang XL, Nie YC, Guo XP, Zhang YX, Li W. 2007. **QTL mapping for economic traits based on a dense genetic map of cotton with PCR-based markers using the interspecific cross of *Gossypium hirsutum* x *Gossypium barbadense*.** *Euphytica*. 153(1-2): 181-197
 - e. Shen X, Guo W, Lu Q, Zhu X, Yuan Y, Zhang T. 2007. **Genetic mapping of quantitative trait loci for fiber quality and yield trait by RIL approach in Upland cotton.** *Euphytica*. DOI: 10.1007/s10681-006-9338-6
 - f. Liu D, Guo X, Lin Z, Nie Y, Zhang X. 2006. **Genetic diversity of Asian cotton (*Gossypium arboreum* L.) in China evaluated by microsatellite analysis.** *Genetic Resources and Crop Evolution* 53(6): 1145-1152

III. Updated tools and searches.

1. The databases of cotton SSR-containing sequences used for FASTA and BLAST search servers were updated to reflect the current cotton SSR-containing sequences (5,994) by adding the DPL sequences in a separate database DPL(200) and to the ALL(5994) database. The number of SSR-containing sequences in CMD database is 5,994, since we were not able to find the sequence for CM161 (never submitted to the Genbank). Users can search all the SSR sequences or individual projects.
2. To update the homology data, a search was performed for all 5,994 cotton SSR-containing sequences including DPLs (except CM161) against the Genbank non-redundant protein database, SWISS-PROT database and the MIPS Arabidopsis protein database. Updated March 2007 the results for all 3 searches are available in Homology Data on the Downloads page. The output files with homology search results have a new format with the best match per query, as well as top 10 matches per query (in a separate spreadsheet). BLASTX searches were performed using more stringent parameters ($E < 1e-10$ vs $E < 1e-6$ used previously).
3. The CMD SSR Server was updated with the new optimized format for the Excel output file. A single spreadsheet now has four worksheets with 1) a summary report, 2) identified SSRs and their details, 3) alternate primers, and 4) a motif frequency report.

IV. On-going work.

1. The View and Search functions are being updated for SSR, Marker and Homology data to reflect the currently available DPL SSRs. View Homology and search Homology pages are in the process of being updated with the most current (March 2007) results from the search against the NCBI non-redundant protein database.
2. Preparations are on-going for visual display of original chromatograms with the CMD standardized panel screened data. Currently, the freely available software STRand is the program of choice. We would appreciate any other suggestions in terms of free softwares for the visual display of panel screened data chromatograms.
3. Preparations are on-going to display the first cotton SNP project data provided by Allen Van Deynze, on the CMD.
4. Preparations are on-going for presenting the CMD at the ICGI symposium at WCRC-4 meeting in Lubbock, TX, September 10-14, 2007.

V. CMD WEB Usage report.

Since 2007, users from the following countries accessed the CMD: Belgium, France, Argentina, Germany, Japan, Greece, India, Russia, Brazil. The CMD pages accessed most often were View Sequence, View Publications, CMap, Blast search, Downloads.

Community News

New Technology

The Molecular Plant Breeding CRC has developed a new technology that permits the low-cost, high throughput analysis of SSRs on an automated DNA fragment analyzer. The technology provides a number of advantages over other methods including reduced marker deployment costs, substantially reduced PCR assay costs via multiplexing, and a high amenability to automation. The technology comprises a single-step, closed-tube multiplex PCR assay that combine the principles of the M13-tailed primer method (Oetting et al. 1995) and two-step multiplex PCR amplification (Belgrader et al. 1996). Multiplex-Ready Marker Technology" facilitates faster, cheaper and higher-throughput automated multiplex PCR assays. This technology is being used or evaluated by several research groups and cereal breeding programs in Australia. Contact details are available on the CMD Community page.

Conferences

[World Cotton Research Conference-4](#)

to be held in Lubbock, TX, September 10-14, 2007

Subscriptions

Visit our mailing list to be added/removed to the available [CMD mailing list](#). Once you have registered you may use the mailing list to send out relevant information the community and it will be stored in searchable web archives. If you have any difficulties please [contact us](#).

CMD Newsletter

The next CMD Newsletter issue is tentatively scheduled for July 1, 2007