(05-4-9)

Brassica-Arabidopsis genome browser: Overview of Brassica genome based on comparative genomics with Arabidopsis

Tae-Jin Yang[1], Jungsun Kim[1], Ki-Byung Lim[1], Soo-Jin Kwon[1], Jin-A Kim[1], Mina Jin[1], Jee Young Park[1], Beom-Soon Choi[1], Hyo-Jin Lee[1], Myung-Ho Lim[1], Ho-Il Kim[1], Seok-Hyoung Kim[1], Yong Pyo Lim[2], Seung-Wook Lee[3], Tae-Suk Park[3], Jin-Han Hong[3], and Beom-Seok Park[1]*

1. Brassica Genomics Team, National Institute of Agricultural Biotechnology (NIAB), 224 Suinro Gwonseon-gu, Suwon, Gyeonggi-do, 441-707, Republic of Korea 2.Chungnam National University, Daejeon, , 305-764, Republic of Korea 3.Macrogen Co. Gasan-dong, Seoul 153-023.

Objectives

Application of comparative genomics information for Brassica genome sequencing

Materials and Methods

BAC end sequence information of *B.rapa* BAC libraries (KBrB, KBrH, KBrS)

Results and Discussion

The genus *Brassica* is triplicated after divergence of *Arabidopsis* and *Brassica*. Comparative genome analyses of about 70 sequenced Brassica BAC clones revealed overall co-linearity with 82% sequence similarity with their counterpart regions of *Arabidopsis* genome. We have obtained 91,179 BAC end sequences (BES) from 46,848 BAC clones originated three BAC libraries (*Hin*dIII, *Bam*HI, and *Sau*3AI). All BES were used for comparative genome analysis with the *Arabidopsis*. A total of 45,232 (45%) BES show significant hit (E-6) on a spot of *Arabidopsis* chromosomes. And a total of 4,317 BAC clones (9.5%) are allocated on *Arabidopsis* chromosomes by directional matches of both ends (8,634 BES), within 30-500 kb interval on *Arabidopsis* chromosome. These 4,317 clones span 92 Mb of *Arabidopsis* genome. We have selected a total of 629 BACs that are on the minimum tiling path of 86 Mb *Arabidopsis* genome. Sequencing and chromosomal allocation of the 629 minimum tiled path BACs will show the comparative overview of *Arabidopsis* and *Brassica* genome. All the comparative genome analysis of the BAC and BES are available from our Arabidopsis-Brassica Genome Browser (www.brassica-rapa.org) showing the positions of Brassica BAC clones on the counterpart Arabidopsis chromosomes. The genome browser will give great opportunity to the enlargement for understanding of the Brassica genome.

* *Corresponding author* : Beom-Seok Park, TEL: 031-299-1677, E-mail: pbeom@rda.go.kr