



## Sequencing and Analyses of the Hexaploid Wheat Chromosome 3B

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## Sequencing and Analyses of the Hexaploid Wheat Chromosome 3B

Frédéric Choulet, Patrick Wincker, Hadi Quesneville, Dominique Brunel, Bikram S. Gill, Rudi Appels, Beat Keller, Catherine Feuillet

*INRA Université Blaise Pascal UMR 1095 Génétique, Diversité et Ecophysiologie des Céréales, Clermont-Ferrand 63100, France*

*Génoscope, Institut de Génomique, CEA, Evry 91057, France*

*INRA UR 1164 Génomique-Info, Versailles 78026, France*

*INRA UR1279 Etude du Polymorphisme des Génomes Végétaux, CEA-IG-CNG, Evry 91057, France*

*Department of Plant Pathology, Wheat Genetic and Genomic Resources Center, Kansas State University, Manhattan, KS 66506-5502, USA*

*Centre for Comparative Genomics, Murdoch University, WA 6150, Australia*

*Institute of Plant Biology, University Zurich, 8008 Zurich, Switzerland*

Because of its 17 Gb hexaploid genome, wheat genomics has been lagging behind the one of the other major crops. Two years after the establishment of the first physical map of the biggest wheat chromosome, the 3B, which represents 1 Gb, its complete sequencing is now underway (ANR project 3BSEQ). In order to prepare for its complete sequencing and analysis, we performed a pilot project on 18 Mb of large BAC contigs which allowed us to improve our understanding of the wheat genome composition and dynamics. Comparative and evolutionary analyses revealed that increase of the genome size, mainly mediated by transposable element amplification, was uneven and has led to the formation of small gene islands. In addition, it was accompanied by rearrangement of the ancestral gene content. Indeed, a significant amount of nonsyntenic genes are interspersed into a conserved ancestral grass gene backbone, revealing that, in our sample, about 50% of the annotated genes was unexpected based on synteny with model genomes.