

## **Towards a large sized Axiom SNP array for the allo-octoploid strawberry**

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A central goal of the RosBREED consortium has been to establish SNP arrays for peach, cherry, apple, and strawberry, to facilitate QTL discovery and marker-assisted breeding. This goal has been advanced by the release of three Illumina® Infinium® arrays for apple, peach, and cherry (8K, 9K and 6K, respectively). Here, we report on the development of a 90K Strawberry Affymetrix Axiom® genotyping array.

The cultivated strawberry is an allo-octoploid. This level and type of ploidy creates challenges to overcome, which we address in several ways. First, the large size of the array permits success despite a lower conversion rate of candidate to functional SNPs than for diploid crops. Second, we exploit site-specific, biological reductions in ploidy resulting from subgenome-specific deletions. Third, we exploit designed reductions in ploidy by targeting probes to sites of subgenome-specific sequence motifs. Fourth, we include SNPs and/or probes specific to one sub-genome.

We are using a diverse germplasm discovery panel of 19 octoploids. The array will target several polymorphism types, including indels and di- and multi-allelic SNPs. Here we describe our approaches to reduce the effective ploidy level so as to choose subgenome-specific SNPs. We also report on a new bioinformatics pipeline, which includes local re-alignment around indels and polymorphism type-specific filtering strategies. Production of the array starts in September 2012 and it will become commercially available.