The Status of *Setaria viridis* Transformation Methodologies: *Agrobacterium*-mediated to Floral Dip

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An overview of the various methods that have been reported for *Setaria viridis* transformation will be provided. The Van Eck lab utilizes an *Agrobacterium tumefaciens* transformation method based on infection of seed-derived callus. In brief, mature seeds from which the seed coats have been removed are cultured on an MS-based callus induction medium (CIM) that contains 2,4-D and kinetin. Following infection of 6-week-old callus and a cocultivation period of 3 days, the callus is transferred to selective CIM. The vectors they use contain the hygromycin phosphotransferase II selectable marker gene driven by either *Panicum virgatum* or *Zea mays* ubiquitin promoters. They have used the *Agrobacterium*-mediated method to generate transgenic lines for functional analyses of genes by groups utilizing overexpression, RNAi, and CRISPR/Cas9 vectors. To explore the possibility of bypassing the callus phase for transformation, Van Eck acquired a construct from DuPont Pioneer for the recently reported maize *Baby boom* and *Wuschel* genes system that induces a morphogenic response. Transgenic lines were recovered from direct infection of mature embryos and shoot tips harvested from seedlings. The Van Eck lab also investigated the two methods reported for floral dip transformation of inflorescences of young *S. viridis* plants and results will be presented.