

## The APTF-Pearl Millet Transformation System™

**Avesthagen Plant Transformation Facility (APTF)** has been instrumental in successfully establishing workable transformation protocols for producing a number of agronomically important crops that include cereals, vegetable crops, oilseeds and cotton, using **Biolistic gun-/Agrobacterium-mediated** transformation systems.

The **APTF-Pearl Millet Transformation System™** is a very well established protocol that has been utilized in developing Environmental Stress Tolerant (**Avesthagen EnSTol™**) and Fungal resistant (**Avesthagen Myco-FIT™**) varieties of Pearl Millet.

### Biolistic gun-mediated

**Target tissue:** Embryonic calli

**Delivery method:**

Biorad PDS 1000/He biolistic gun

**Selection:** *hptII* / Hygromycin resistance

**Time schedule for bombardment to transgenic plant/seed:**

- Bombardment & Selection: 10 wk
- Regeneration of plantlets: 15 wk
- Transfer of plantlets to soil: 2 wk
- Confirmation of transformation (PCR and Southern analysis): 1 wk
- Transgenic seeds: 20 wk

### Agrobacterium-mediated

**Target tissue:** Seeds

**Delivery method:**

*Agrobacterium tumefaciens* strain EHA105

**Selection:** *hptII* / Hygromycin resistance

**Time schedule for Agrobacterium co-cultivation to transgenic plant/seed:**

- Co-cultivation with *Agrobacterium* & Selection/Regeneration: 10 wk
- Transfer of plantlets to soil: 2 wk
- Confirmation of transformation (PCR and Southern analysis): 1 wk
- Transgenic seeds: 20 wk

**Avesthagen** has a complete 'gene to field' facility that places us in a unique position for not only discovering novel genes and their subsequent cloning, analysis and transformation into plants, but also in raising the transgenic plants in containment, up to the production of hybrid seeds. Facilities at **Avesthagen** include a modern molecular biology laboratory readied with the latest scientific equipment needed for gene discovery, cloning, sequencing, molecular analysis and transformation, well supported by the Bioinformatics and Proteomics team.



**Avesthagen Transformation Technologies at work**