

Al-Farabi Kazakh National University (KazNU)

Faculty of Biology and Biotechnology



DISCIPLINE: «Modern Problems of Plant Genetics»

Lecture 9

Method of biolistic transformation of plants.



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* Method of biological ballistics (biolistics)

- A gene gun (**biolistic particle delivery system**) is a device developed for plant transformation. The gene gun delivers heavy metal particles coated with plasmid DNA.
- This technology is often called bioballistics and biolistics (from the English bioballistics, biolistics).
- Using a gene gun, it is possible to modify any type of cell, including plant cells. In this case, genetic modification of both the nucleus and organelles, for example, plastids, can occur.



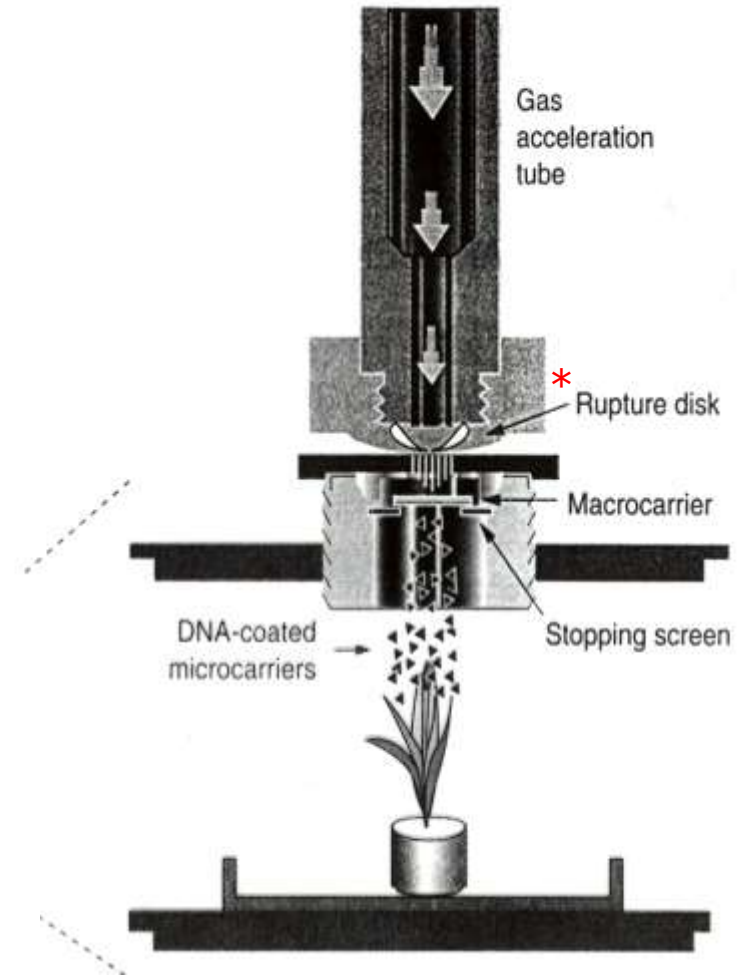
A gene gun (biolistic particle delivery system) PDS-1000/He

Microprojectile bombardment or biolistic-mediated DNA transfection equipment

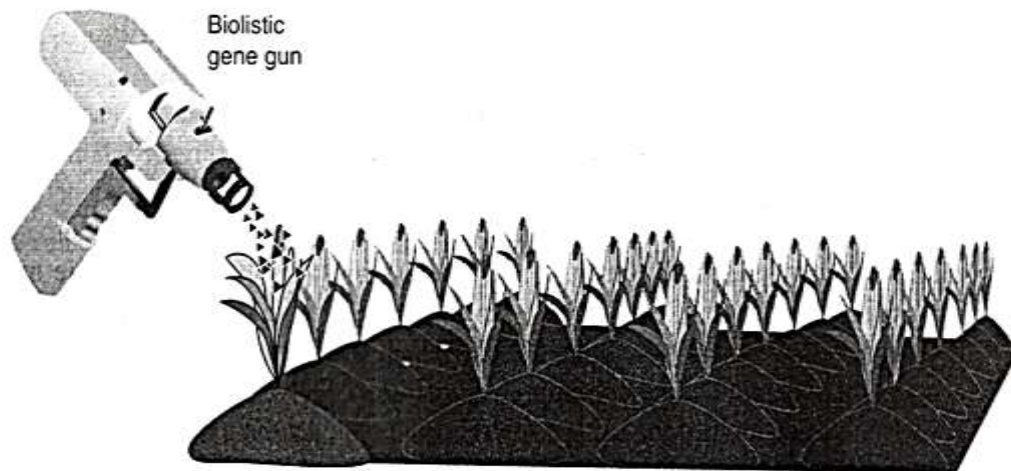
(a) lab version

(b) portable version

(a)

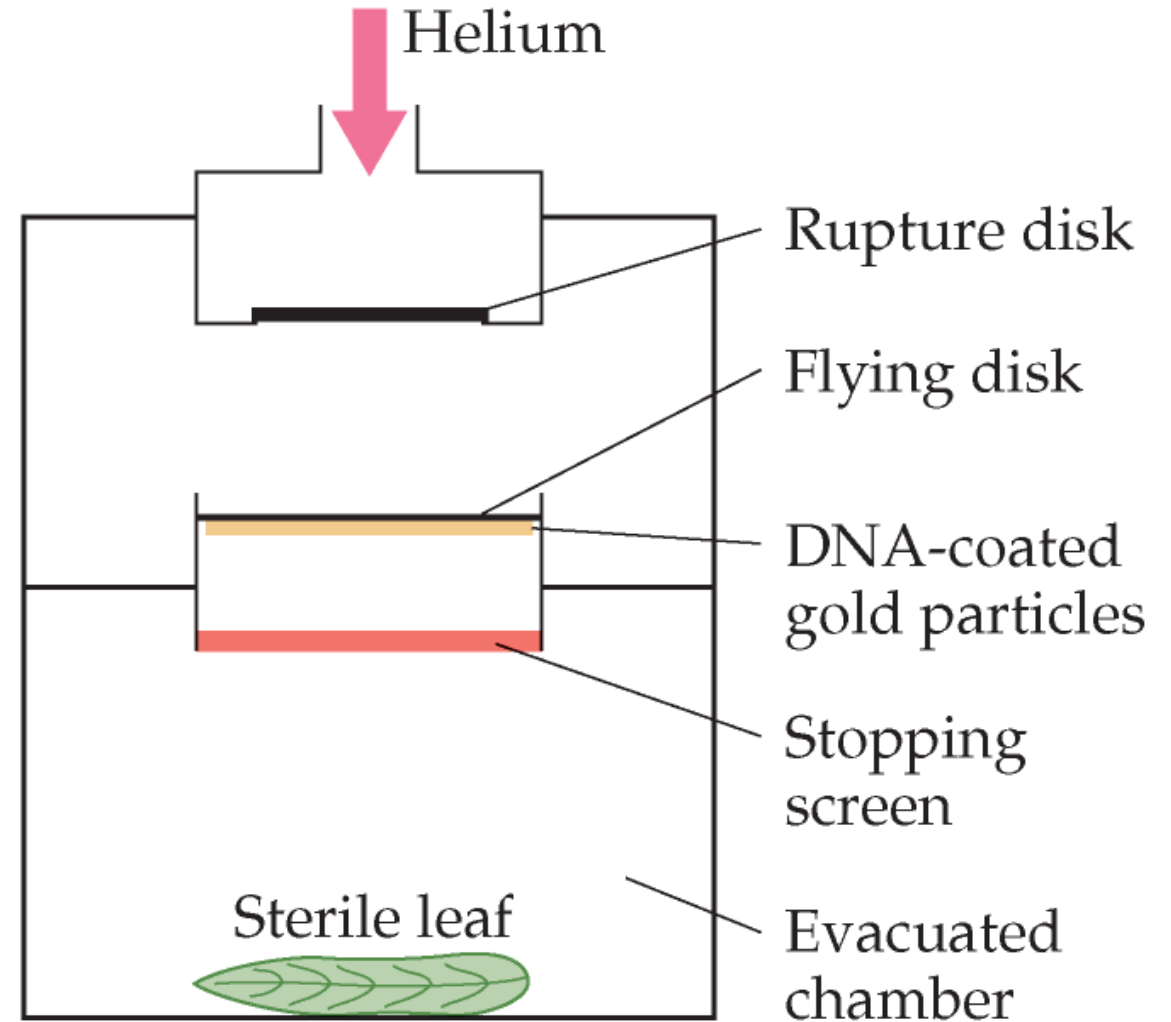


(b)



Microprojectile bombardment (biolistics) apparatus

When the helium pressure builds to a certain point, the plastic rupture disk bursts, and the released gas accelerates the flying disk* with the DNA-coated gold particles on its lower side. The gold particles pass the stopping screen, which holds back the flying disk, and penetrate the cells of the plant.



- Detection of **gfp** gene expression in leaves and roots of transgenic tomato plants:
- 1) control(white light)
- 2) leaf (UV);
- 3) root (UV).

