

## GMO Food (activity)

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## PCR detection of GM food

Briefly, genomic DNA will be isolated from food items derived from vegetation. Genetic modification will then be identified by PCR of the plant promoter used in genetic engineering, **CaMV 35S**. As a **positive control** for the appropriate extraction of DNA, PCR for **plant specific tubulin** will be used.

1. Add 100  $\mu$ L of lysis buffer to each tube containing the plant or food material.
2. Twist a clean plastic pestle against the inner surface of the 1.5-mL tube to forcefully grind the plant tissue or food product for 1 minute.
3. Add 900  $\mu$ L of lysis buffer to each tube containing
4. Boil the samples for 5 minutes in a water bath
5. spin for 2 minutes to pellet cell and food debris.
6. Transfer 350  $\mu$ L of each supernatant to a fresh tube
7. Add 400  $\mu$ L of isopropanol to each tube
8. Mix and leave at room temperature for 3 minutes.
9. Spin for 5 minutes.
10. Carefully pour off and discard the supernatant from each tube. Air dry pellet.
11. Add 100  $\mu$ L of TE buffer to each tube. 5 min at room temperature then keep on ice.

### PCR for 35S Promoter:

1. Label one tube "35S FP" for food product.
2. Label one tube "35S WT" for wild-type soy: Negative control.
3. Label "35S RR" for Roundup Ready® soy plant: Positive control.
4. Different groups will only do one control.
5. Add **22.5  $\mu$ L** of the 35S primer/loading dye mix to each tube containing PCR bead.
  - 5'-CCGACAGTGGTCCCAAAGATGGAC-3' (Forward Primer)
  - 5'-ATATAGAGGAAGGGTCTTGCGAAGG-3' (Reverse Primer)
6. Add **2.5  $\mu$ L** of food product DNA to the reaction tube marked "35S FP."
7. Add **2.5  $\mu$ L** of wild-type or Roundup Ready® soybean DNA to the appropriate reaction tube marked "35S WT" or "35S RR."

### PCR for Tubulin: (positive control for DNA quality and PCR conditions)

1. Label one tube "T FP" for food product.

2. Label one tube "T WT" for wild-type soy.
3. Label "T RR" for Roundup Ready® soy plant.
4. Different groups will only do one control.
5. Add **22.5 µL** of the Tubulin primer/loading dye mix to each tube containing PCR bead.
  - 5'-GGGATCCACTTCATGCTTTTCGTCC-3' (Forward Primer)
  - 5'-GGGAACCACATCACCACGGTACAT-3' (Reverse Primer)
6. Add **2.5 µL** of food product DNA to the reaction tube marked "T FP."
7. Add **2.5 µL** of wild-type or Roundup Ready® soybean DNA to the appropriate reaction tube marked "T WT" or "T RR."