Online Resource 2 – Pre-lab Test (translated from Dutch**)**

Below are a few questions on the theory of genotyping that connect to the lecture and the upcoming practical. Answer these questions individually and as good as possible without looking for answers within the lab manual. Teachers won't receive the individual answers to this test. The test will not be used for course assessment.

Studentnumber: _____

I have attended the most recent lecture on linkage mapping:

- ❑ yes
- ❑ no

I have read the theory on gene mapping in the lab manual:

- ❑ yes
- ❑ no

I have done both computer modules on gene mapping:

- ❑ yes
- ❑ no

Mapping

1. Please indicate whether the following statements are correct or incorrect.

   a. "With mapping you approach the distance between a marker and a mutation"
      - ■ **Correct**
      - ☐ Incorrect

   b. "With mapping you can determine the genotype of the mutation"
      - ❑ Correct
      - ■ **Incorrect**

   c. "It is essential that the location of the markers on the genome is known when mapping"
      - ■ **Correct**
      - ❑ Incorrect

   d. "If mapping shows that about half of the F2 offspring is heterozygous for a specific marker than the mutation is most probably located near the marker"
      - ❑ Correct
      - ■ **Incorrect**

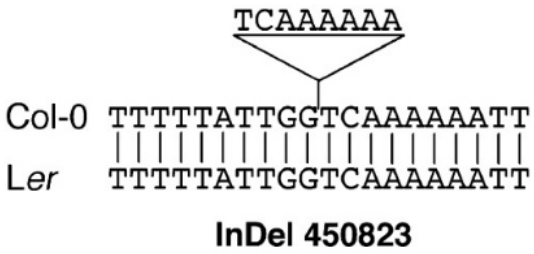
InDel Markers

You want to run a PCR on six InDel markers of two *Arabidopsis* plants; one plant with ecotype Col-0 and the other with ecotype Ler-0.

2. How many primers do you need for this analysis?
   - ☐ 2
   - ☐ 6
   - ■ **12**
   - ☐ 18
   - ☐ 24

DNA gel electrophoresis

The Indel marker 450823 is located on chromosome 3 and different for *Arabidopsis* plants with the ecotype Landsberger (Ler) and Columbia (Col-0). Plants of the ecotype Col-0 have an insertion of 8 basepares within this InDel marker when compared to plants of the ecotype Ler (see figure below):



InDel 450823

You pollinate plants of the Ler ecotype with plants of the Col-0 ecotype, followed by self pollination of the F1 offspring. You isolate DNA of the parent plants, F1 offspring and F2 offspring. Next, you amplify the DNA around Indelmarker 450823 with PCR and separate these fragments with gel electrophoresis.

3. How many bands do you expect to see for the Col-0 parent, Ler-0 parent, F1 plant and F2 plant? *Multiple answers are possible per plant.*

	1 band	2 bands	3 bands
Ler parent	■	☐	☐
Col-0 parent	■	☐	☐
F1	☐	■	☐
F2	■	■	☐