review questions

1. Why is the Ti plasmid from *A. tumefaciens* well suited for developing a vector to transfer foreign genes into plant chromosomal DNA?

2. How do (1) binary and (2) cointegrated Ti plasmid–based vector systems for plant transformation differ from one another?

3. What are reporter genes, and how are they used when plant cells are transformed?

4. How are plants transformed by microprojectile bombardment?

5. How is foreign DNA targeted for integration into chloroplast DNA?

6. How would you produce a transgenic plant that does not contain a marker gene in its nuclear DNA? in its chloroplast DNA?

7. How would you ensure that a foreign gene that has been inserted into the chloroplast is expressed at a high level?

8. How can you create specific targeted alterations in a plant’s nuclear DNA?

9. What is the advantage of introducing foreign genes into chloroplast rather than nuclear DNA?

10. What is rhizosecretion? Why is it useful? How can it be engineered?

11. How can foreign proteins be expressed in plant seeds? How can these proteins be easily purified?

12. How do enhancer sequences facilitate plant gene expression?

13. How would you modify the glycosylation pattern of a mammalian protein produced in plants?

14. How can foreign genes be transiently expressed in plants? Why is this useful?

15. Why would you use different promoters in constructing transgenic plants?