

## **Virology Live Fall 2021**

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### **Study Questions for lecture 9 – Reverse transcription and integration**

*These questions are intended to summarize key points from this session and prepare you for the exams.*

1. What is the unique viral enzyme that is required to make more retroviral genomes? What does it do? What is the origin of the name of the enzyme?

2. Why are retroviral genomes diploid?

3. What is a provirus?

4. Understand how retroviral reverse transcription works: what are the primers for the polymerase? Why are there several 'jumps' on the template? How does the DNA product differ from the RNA template?

5. What are the functions of RNase H and integrase during retroviral replication?

6. Which enzyme produces viral mRNAs in a cell infected with a retrovirus? What role do the LTRs play in this process?

7. Nearly half of your DNA consists of mobile genetic elements. What is their relationship to retroviruses? Are they of any use to us?

8. Both hepadnaviruses and retroviruses encode reverse transcriptase, yet the retroviral virion has a (+) ssRNA inside while the hepadnaviral virion has a gapped dsDNA molecule inside. How does this happen?

9. Does the hepadnavirus genome encode an RNase H? An integrase? Why or why not?