

## **Virology Live Fall 2021**

**Vincent Racaniello**

### **Study Questions for lecture 7 – Transcription and RNA processing**

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

1. What is the first biosynthetic event that must take place after viral ssDNA enters the cell? dsDNA? Gapped dsDNA? Why must this be the first event? Where does this event take place in the cell?

2. Describe the individual steps that take place during the production and processing of mRNAs.

3. How is RNA pol II recruited to the DNA template, and how is transcription regulated? How do viral proteins regulate transcription?

4. What is the purpose of splicing? Provide an example.

5. It is known that splicing marks cellular mRNAs for nuclear export. How are unspliced viral mRNAs exported from the nucleus?

6. Why is viral transcription temporally regulated during the infectious cycle? How is such regulation achieved? (in your answer include positive and negative autoregulation and transcriptional cascades).

7. What is the origin of the various noncoding RNAs? What is known about how they regulate gene expression?