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Instructions: watch the video. Pause it at the indicated times, and answer the question before re-starting.

https://www.youtube.com/watch?v=pyqBvxeVtG4&list=PLx1I6vEp40NQgAS0wxs53Y9A8-8cL9h_y

Start at 16:00

18:00 Do the calculation!

21:00 Where does the noise come from that he is talking about?

22:00 What is the cognitive problem of the cell?

What are the inputs and outputs of a genetic circuit?

What are the internal components?

31:00

How does the cell create a responsive genome?

33:00

What is meant by separation of timescales?

44:00

What does it mean when an arrow connects two genes?

Why does he call the gene network a brain?

55:00

What are the assumptions that go into the differential equation describing the concentration of protein Y?

1:07:00

Why doesn't the production rate appear in the characteristic response time in Case #2?

Why is the response time the same in Case #3 as in #2?

1:13:00

How can the response time be increased in this first, simple regulatory circuit?