

Name: _____

Date _____ Period _____

CRISPR on Radiolab

Start at 0:47 (that's 47 seconds in) so you skip ads! <http://www.radiolab.org/story/antibodies-part-1-crispr/>

I. CRISPR IN NATURE

1) What first gave scientists the first hint that bacteria could do something strange? (A fabulous auditory representation, right?)

2) What does CRISPR actually stand for? (You don't need to memorize this, but it's useful)

C _____ R _____ I _____

S _____ P _____ R _____

3) What is CRISPR a defense system against? What was the first clue for Eugene Koonin?

4) If you're a bacterium and you've never seen a virus before, what do you do (around 9:15)?

5) If you survive, what does the bacterium then do?

6) So instead of the ground troops, what do you make if you're a bacterium and see this viral threat again?

7) What does this Pacman-shaped protein, holding its sequence, end up doing?
(Image from Wikipedia)



II. CRISPR IN THE LAB:

8) What did Jennifer Doudna realize we can do in the lab?

9) A real experiment: Say you have a mouse with something like _____. How could you cure it?
Two steps...

10) Q: What's different about this genetic engineering and previous editing technologies?

A: CRISPR is cheap, precise, and _____.

III. CRISPR IN THE FUTURE:

Skip the ads by going to 19:27.

11) How could we re-animate ancient things? Use the mammoth as an example.

12) Carl Zimmer says we can't make winged pigs using CRISPR (that's a lot of blueprint instructions to impart that are not already in the pig genome). But what organism *does* he think we need to regulate?

13) Write a little bit about CRISPR and cancer -- the mechanism and the ethics ...

15) What did the Chinese team do that made splashy, controversial headlines? Get some details down here.

14) After listening all the way through to Jad, Robert, Jennifer and Carl ... what do you think? What are the ethics about it in humans? Did you hear an ethical stance with which you agree or disagree strongly?