High School Science Virtual Learning

Applied Biological Science

Prions

April 28, 2020

High School Applied Biological Science
Lesson: April 28, 2020

Objective/Learning Target:

Students will be able to understand and explain what prions are and how they cause diseases in animals and humans.

Let's Get Started:

1. What type of molecule are Prions?

2. What type of tissue does Prions attack in the body the most?

Let's Get Started: Answers

1. Prions are proteins

2. The main type of tissue that prions attack is nervous tissue (Brain)

Lesson Activity:

Directions:

1. Go to the websites linked below and take notes on what Prions are and how they work. *Make sure you enable flash player*
2. List out 3 types of prions causing diseases and what animals they are commonly found in.

Link(s):

Prions Basics CDC Website on Prions

Examples of answers for types of prion caused diseases.

1. CJD - CJD is an inherited disease found in humans.

2. Bovine Spongiform Encephalopathy (BSE) - Better known as Mad Cow Disease

3. Chronic Wasting Disease (CWD) - This type of disease affects Elk, Deer, and Moose.

4. Scrapie - goats & sheep

Practice

You will use the information from the lesson activity to answer the following practice questions.

Practice Questions

Use the notes from the lesson activity and the following website to answer the questions:

1. What is a prion?
2. What is the name of the disease that prions cause?
3. How do prions kill?
4. Why can’t you kill a prion?

Answer Key

Once you have completed the practice questions check with the work.

1. Prions (PREE-ons) are proteins that are unique in their ability to reproduce on their own and become infectious. They can occur in two forms called PrP-sen and PrP-res.
2. Spongiform Disease
3. Because of their abnormal shape, PrP-res proteins tend to stick to each other. Over time, the PrP-res molecules stack up to form long chains called “amyloid fibers”. Amyloid fibers are toxic to cells, and ultimately kill them.
4. You cannot kill a prion because it is not a living thing. They don’t even break down the way that other proteins do under immense heat or chemicals.

More Practice

Prion Case Study

Prion Quizizz

Additional Resources

Johns Hopkins Prions

Prions (Spongiform encephalopathy)