

Molecular Mechanisms of Targeted Cancer Therapies

2023 Annual Video Challenge for High School Students

Cancer cells are normal human cells that multiply faster due to mutations in the key genes that regulate the protein division and growth. The traditional cancer chemotherapies that have been in use since the 1940s target all fast-growing and dividing cells. As cancer researchers learn more and more about the genetic mechanisms driving the disease, they design therapies that target specific proteins in cancer cells. These therapies are referred to as Targeted Cancer Therapies. Most drugs used in targeted therapies are monoclonal antibodies (antibodies developed in the lab), or small molecules.

In the 2023 challenge you will research one of the examples of targeted therapies listed below:

1. Fighting breast cancer by targeting HER2 receptor
2. Preventing blood vessel formation in tumors by targeting the VegF receptor
3. Interrupting cell growth by targeting the G12C variant of ras protein

Then you will create a 2 minute-long video entry that tells a coherent story that communicates the following components to the viewers:

- A brief introduction to the concept of targeted therapy
- A brief introduction to the structure and function of the targeted protein
- An explanation of the molecular mechanism by which the cancer cells respond to targeted therapy

Visit pdb101.rcsb.org for detailed information about the challenge and learning resources.

News and Updates

To sign up for the monthly newsletter, email info@rcsb.org with the subject **Video Challenge News**.



Important Dates for 2023 Video Challenge

Video Submission

January 17 – April 24

Judging and Voting

May 2 – May 8

Winners Announced

May 16

Awards

Qualifying entries will be eligible to win one or more awards:

Judge's Award

A panel of expert judges select the top three entries using the following criteria:

30% Quality of Narrative Storytelling

30% Quality of Science Communication

20% Originality and Creativity

10% Quality of Production

10% Proper Accreditation

Viewer's Choice Award

As voted online.

The winning entries will be recognized on rcsb.org, and in the RCSB PDB Newsletter.