

PDB-101 Video Challenge: Creating a Winning Entry

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PDB-101 (pdb101.rcsb.org) is the educational portal of the RCSB Protein Data Bank (rcsb.org). The portal offers educational resources integrating the 3D structures from the PDB with the goal of promoting the importance of structural biology research as well as its role in technology and medicine.

As part of this effort, PDB-101 runs an annual Video Challenge for high school students. Participants create short videos that connect structural biology and global health challenges. Previous topics have included: HIV/AIDS, diabetes, and antimicrobial resistance. The 2021 Challenge focused on Molecular Mechanisms of Drugs for Mental Disorders. The challenge entries are scored by a panel of independent judges based on the quality of science communication and public health message, quality of production, originality, and creativity.

The 1st-place winner for the 2021 challenge was the entry "Inhibiting Acetylcholine Destruction to Combat Alzheimer's Disease" by Ethan Cartagena, a now-graduated high school senior. The entry communicates the mechanism of reversible acetylcholinesterase inhibition within the context of Alzheimer's Disease and of the transduction pathway it disrupts. Its innovative approach couples stop motion animations with visualization of relevant PDB structures while exploring public health aspects of the disease.

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