

Scenario

Dr. Snerd was found murdered in his office shortly before he could turn in his final term grades for organic chemistry, and his computerized gradebook erased from his hard drive. The hard copy of his grades did not yet contain the results of the organic laboratory unknown which counted 50% of the term grade or the final exam. It appeared that the professor died from a blow to the head. A broken 2-liter filter flask which was stained with a substance that looked like blood was found in the broken glass receptacle of the organic lab. The flask was believed to be the murder weapon since the blood stain matched Dr. Snerd's blood type and had an indistinguishable DNA fingerprint to a blood sample analyzed from Dr. Snerd. There were neither fingerprints on the flask nor any fingerprints other than Dr. Snerd's on his computer keyboard or mouse. Among the physical evidence collected at the crime scene was a blond hair found on the computer keyboard which could not have come from Dr. Snerd (dark brown hair).



Detectives investigating the case interviewed all of the students in the class and identified two suspects. Classmates had indicated that Suspect #1 had been highly agitated when Dr. Snerd refused to check the answer key provided by the laboratory assistant which had an identity for the student's unknown that did not remotely resemble the answer submitted by the student. IR and C-13 NMR spectra showed no evidence of a carbonyl peak or a benzene ring although the answer key identified the unknown as acetophenone. Suspect #1's high hopes of going to medical school would be greatly dashed because the zero that was given for the unknown would drop the "A" earned on exams to a "D" grade for the course. Suspect #2 was a student who had requested an incomplete in the course to avoid receiving a failing grade that would cause the loss of an athletic scholarship (and destroy hopes of earning the big bucks as a professional athlete!)

You are the forensic chemist assigned to the case. You are to determine if the hair sample came from one of the suspects by analyzing the DNA extracted from the hair. You will submit a one page document that details the results of your experiment and the conclusion that you draw from those results.