

Analyzing CM-272 Properties using a Nanospectrometer and a Fluorescence Spectrometer

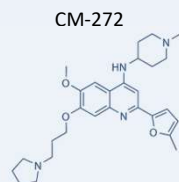
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Abstract

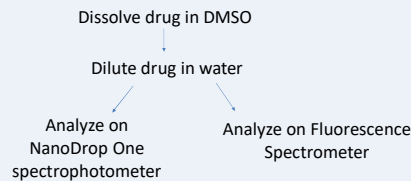
CM-272 is a DNA methyltransferase inhibitor. Previous work in the Militello laboratory indicates that CM-272 has novel antibacterial properties. Unexpectedly, we have determined CM-272 fluoresces blue. The purpose of this project is to discover the absorbance, excitation, emission properties of CM-272 in order to take advantage of CM-272 for fluorescence applications. For all tests, readings were taken at multiple CM-272 concentrations to determine which concentration yields the best results. We found that the concentration yielding best results was with 10% CM-272. On an absorbance spectrum, 2 peaks were found at around 300 and 350 nanometers. Next, a fluorescence spectrometer was used to detect the excitation and emission. We suspected the emission would be at about 450 nm since the compound fluoresces blue. The emission value is 380 nm and the excitation value found is about 310 and 360 nm. The values found from these experiments can be used in future experiments when tracking CM-272 and will help to determine the mechanism of antibacterial action.

Introduction

- CM-272 is a DNA-methyltransferase inhibitor.
- Our laboratory found that CM-272 has antibacterial action.
- Preliminary experiments suggest that the compound fluoresces so we wanted to determine the fluorescent properties to best utilize the compound.



Materials & Methods



Results



Figure 1: Evidence of Fluorescence of CM-272. Kirby Bauer analysis of CM-272 with *E. coli* bacteria.

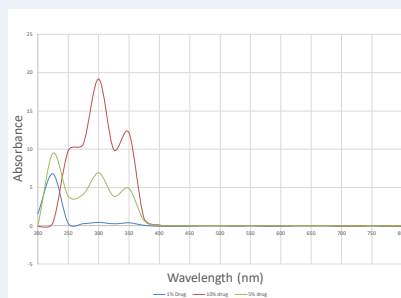


Figure 2: Absorbance spectrum of CM-272 at different concentrations. CM-272 was diluted using water and analyzed using the NanoDrop One spectrophotometer.

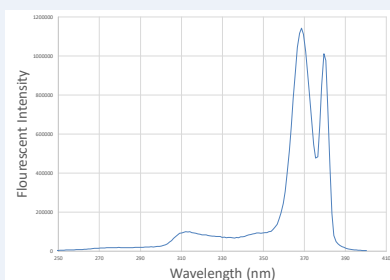


Figure 3: Excitation spectrum of CM-272 at 10%. CM-272 was diluted to 10% using water and analyzed using the fluorescence spectrometer.

Results continued...

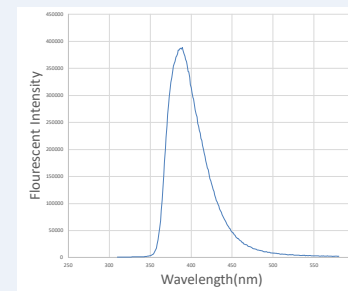


Figure 4: Emission spectrum of 10% CM-272. CM-272 was diluted to 10% using water and analyzed using the fluorescence spectrometer.

Conclusions and Future Directions

- CM-272 absorbs light at 300nm and 350nm.
- CM-272 is excited at about 310 and 360 nm.
- CM-272 emits light at about 380nm.
- These values can be used in the future to determine the mechanism of antibacterial action exhibited by the drug.

Acknowledgements

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