# Illuminating the Cell's Secrets

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All living organisms are spontaneously emitting ultra-weak photons in basic metabolism and cellular respiration. This photon emission which occurs in living organisms is known as biophoton emission. The primary purpose of this research is to identify the effects of UV-C on the biophoton emissions of two different test subjects: E.coli(Escherichia coli) and yeast(Saccharomyces cerevisiae). The main hypothesis of this research is that biophoton emission will differ when UV-C is applied to the subjects for a sufficient amount of time (defined as an amount of time which can cause significant harm to the test subjects). UV-C was applied to the stationary and log phases of each subject, generating different results. The overall results can be summarized as the following: 1.E.coli in its log phase emits photon 2.E.coli in its log phase emits more photon when exposed to UV-C 3.E.coli in its stationary phase does not emits photon 4.E.coli in its stationary phase does not emits photon when exposed to UV-C 5.Yeast in its log phase emits photon 6.Yeast in its log phase emits more photon when exposed to UV-C 7.Yeast in its log phase fails to emit photon without the absence of oxygen 8.Yeast in its stationary phase emits photon for some degree 9.Yeast in its stationary phase emits more photon when exposed to UV-C 10.The increase in biophoton emission apexes before 10 minutes after applying UV-C in both E. coli and yeast 11.E. coli tends to decrease faster after the apex while yeast tends to decrease at a slower rate : they both bound back to their original state within their doubling time.

**Awards Won:**