

Cold Light

Fireflies are winged beetles that emit light to attract mates or prey. Fireflies produce a 'cold light' that glows and light up the darkness especially in the forest. They use bioluminescence without infrared or ultraviolet frequencies during evening twilight. The light is chemically produced by enzymatic reaction from the specialised light-emitting structures located on their lower abdomen. The light colour varies from yellow, green, to pale red.

In the medical field, the immunofluorescence technique is widely used to diagnose diseases including autoimmune diseases (AID). This technique is based on the use of specific antibodies that have been chemically conjugated to fluorescent dyes. Fluorescent conjugated antibodies are very attractive under the fluorescence microscope. They shine in the dark background, with a brilliant greenish-yellow glow and produce patterns that mimic many objects from nature. The centromere pattern, made up of 40 to 60 tiny bright speckles throughout every cell nucleus resembles groups of fireflies. This pattern can be seen in an AID called scleroderma.

The appearance of groups of fireflies under the microscope is projected using Augmented Reality (AR) where the UPM iconic tree is used as a marker. Download the 'Firefly (Nyawa 2017)' app at Play Store and scan the UPM iconic tree picture to experience the fireflies during evening twilight.

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