# Light source

It remains uncertain how light intensities of the blue light source and 5-ALA-derived fluorescence intensities of the illuminated tissue are connected. Aim of the present study was to compare light intensities of different blue light sources and Protoporphyrin (PpIX) fluorescence intensities of PpIX solutions with defined concentrations after illumination with different light sources.

The light spectrum of seven different blue light sources and the fluorescence intensity of two PpIX solutions (0.15 µg/ml and 5 µg/ml) were quantified after illumination. We compared the Zeiss OPMI Pentero microscope, the Zeiss OPMI Pentero 900 microscope, the Leica M530 OH6 microscope, an endoscope equipped with the 5-ALA technique, a mini-spectrometer equipped with a multi-channel LED source (MCLS) emitting monochromatic light, a modified commercially available LED-Head Lamp and a commercially available unmodified UV-LED lamp. PpIX fluorescence was quantified in a standardized setup using a mini-spectrometer.

Maximum light intensities of the evaluated light sources were reached at different wavelengths. All tested devices were able to detect PpIX-induced fluorescence. However, the intensity of PpIX-fluorescence of the differently concentrated PpIX solutions (0.15 µg/ml and 5 µg/ml) was significantly dependent on the light source used.

Intensity of the 5-ALA-derived fluorescence is related to the light source used [1].

1)
Kamp MA, Knipps J, Neumann LM, Mijderwijk HJ, Dibué-Adjei M, Steiger HJ, Slotty PJ, Rapp M, Cornelius JF, Sabel M. Is the intensity of the 5-ALA-derived fluorescence related to the light source? World Neurosurg. 2019 Jul 24. pii: S1878-8750(19)32042-X. doi: 10.1016/j.wneu.2019.07.136. [Epub ahead of print] PubMed PMID: 31351208.