Study examines the use of light in medical therapy

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A study published in a special issue of *Photochemistry and Photobiology* examines the emerging practice of drug delivery systems which use the application of light to activate medications in the body.

The process uses biocompatible materials that are sensitive to certain physiological variables or external physicochemical stimuli. Changes in external or internal body conditions can be used to achieve control of the delivery. There are drug delivery systems that can respond to small changes in light, temperature, pH or the concentration of specific substances.

Current research on the drug delivery systems is focused on developing systems capable of delivering the adequate dose of drug at the target site, avoiding collateral effects and enhancing the therapeutic efficiency. In the case of cancer, light-sensitive systems are particularly useful for direct treatment of malignant cells and minimizing damage to healthy cells.

External control of drug delivery offers a number of advantages. The process enables an easy and precise control of the medication. Switching the light on and off also triggers or stops the release of medication. This can often be done by the patient.

"Near-infrared (NIR) light is particularly useful as an agent capable of triggering the drug release," says Carmen Alvarez-Lorenzo, co-author of the study. "NIR is innocuous, does not cause significant heating in the

area of its application and can be useful in the difficult to access areas of the body."

Source: Wiley (news : web)