

Pain relievers without dangerous side effects

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Scientists from Freie Universität Berlin and Charité – Universitätsmedizin Berlin at Campus Benjamin Franklin have developed a new class of pain medication. Using new chemical synthesis methods, the conventional pain medication morphine was coupled to carrier molecules, so-called nanocarriers. Their bond is only broken in the target tissue, in the case of injuries in the inflamed environment, so the morphine cannot cause side effects in healthy tissues such as the brain or the intestinal wall.

The research findings were published in the latest issue of the science journal *eLife*.

Opioids are strong pain-killing substances. They are used in particular for pain caused by injuries to tissues and inflammation, for example, after operations or to treat arthritis or tumors. Common, sometimes dangerous, side effects include dizziness, nausea, constipation, or even respiratory arrest. By means of innovative chemical synthesis methods, carried out by scientists in the group of Prof. Dr. Rainer Haag at the Institute of Chemistry and Biochemistry, Freie Universität Berlin, the team of researchers was able to develop a new class of molecules.

Working in collaboration with the group led by Prof. Dr. Christoph Stein at the Department of Anesthesiology and Operative Intensive Care Medicine at Charité – Universitätsmedizin Berlin, they were able to prove that the newly developed polymer conjugate polyglycerol morphine only took [effect](#) in inflamed tissues, which eliminates the risk of dangerous side effects.

More information: Sara González-Rodríguez et al. Polyglycerol-opioid conjugate produces analgesia devoid of side effects, *eLife* (2017).
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