

Chemotherapy: Point of Care Monitoring Device for Irinotecan Drug

Method for real time therapeutic drug monitoring (TDM) of Irinotecan CPT-1 to improve the effectiveness of cancer therapy.



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IP Status

Patent application submitted

Seeking

Licensing, Development partner

Background

The effectiveness of many anticancer drugs varies greatly from patient to patient and personalized dosages are required to avoid adverse side effects. The invention provides for the first time an electrochemical method to measure the concentration of the drug Irinotecan in patient's plasma and then to establish the optimal dose, with an on-site real time test.

Tech Overview

Irinotecan or CPT-11 is a cytotoxic pro-drug used in particular for the treatment of colorectal cancer (**Figure 1**). The therapeutic drug monitoring (TDM) greatly improves the effectiveness of the cancer treatment and helps to personalize the doses and to limit side effects: quick procedures are therefore essential. This new electrochemical method provides a simple, fast and cost-effective protocol for the measurement of Irinotecan concentration through plasma collection. Said method is suitable for the manufacturing of a device, that will make the test results readily and easily accessible at the patient's bed (point-of-care), avoiding lengthy delays required by specialized analysis. The method involves a first step of selective extraction of the drug on a solid phase extraction column and a following measurement of its concentration using an electrochemical technique, in particular differential pulse voltammetry (**Figure 2**).

Benefits

- Simple protocol to be performed also by non-specialized personnel
- Rapid and accurate diagnosis on site
- Minimum amount of plasma required
- Results in real time
- Determination of drug concentration and therefore of treatment effectiveness for a timely adjustment of individual dosage

Applications

- Protocol to determine Irinotecan concentration in patients' plasma
- Suitable for developing a portable device to perform therapeutic Irinotecan drug monitoring

Opportunity

Open to collaborative projects to further develop the technology and/or licensing.

Patents

- IT: 102019000008841 PCT:IB2020/055546

Appendix 1

Figure 1

Structure of CPT-11

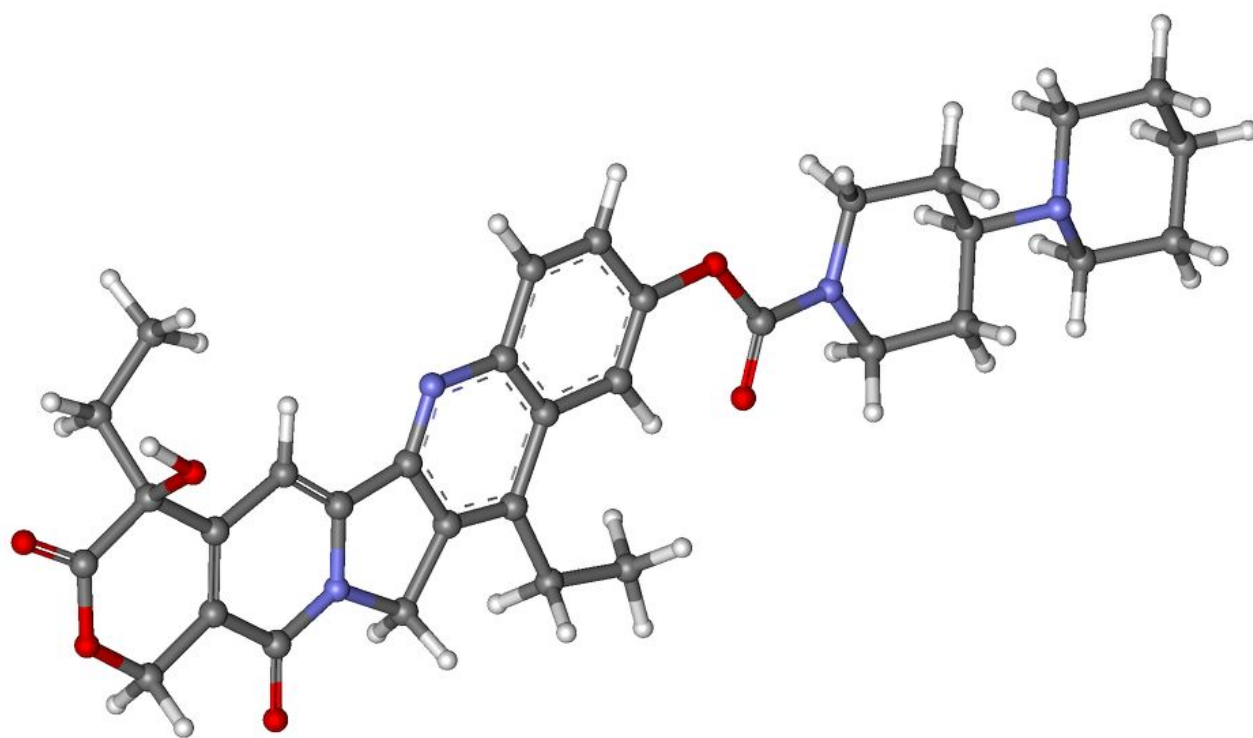


Figure 2

