

SYNTHESIS OF PHOTOACTIVABLE CAGED CYCLOFEN-OH

A new method for the synthesis of caged inducers that enables the photo-activation of proteins with spatial and temporal control.

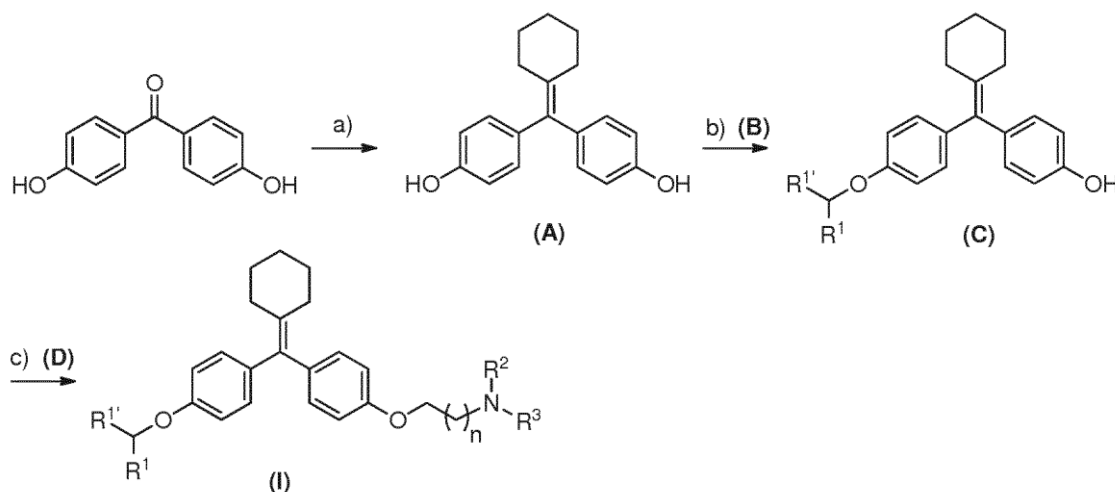
Context

Revealing and understanding the spatial and temporal dynamics of biological cells is a major goal in biology. The development of means to control spatially and temporally protein interactions is a major issue in this respect. Photoactivation methods are used to control the activity of proteins, and photo-releasing cyclofen-OH from a caged precursor is an efficient strategy to restore the function of a protein fused to the steroid receptor ERT.

Prior route of synthesis of caged precursors have many limitations (not reproducible, low yield, purification step) which prevent scale-up process.

Invention description

The invention is a new process for manufacturing photoactivable caged precursors: caged cyclofen-OH and derivatives or salts thereof.



Synthesis route

Added value

The invention present many advantages. The proposed route of synthesis of cyclofen-OH is reproducible, and enables a twofold increase in the overall yield, with respect to prior art. It implies no significant purification steps and is suitable for scale-up.

Potential market

Physiological studies (tumorigenesis, somitogenesis, apoptosis...) at the cellular scale:

- Control of gene expression.
- Control of protein activity at any developmental stage.
- Cell-specific permanent genetic modifications.
- Labelling and monitoring in live animals.

Intellectual property and publications

Patents (pending)

EP3266771

WO2017212059

Scientific publication

Zhang *et al.* 2018. Control of protein activity and gene expression by cyclofen-OH uncaging. ChemBioChem, <https://doi.org/10.1002/cbic.201700630>.

Keywords

Photoactivable caged inductors; Cyclofen-OH; Photoactivation of protein functions

Technology domain

Bio-chemistry; Cellular biology; Protein interactions

Technology transfer contact

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