# Article information:

An unexpected synthesis of azepinone derivatives through a metal-free photochemical cascade reaction | Nature Communications
[https://www.nature.com/articles/s41467-023-36190-z?utm\_source=xmol=affiliate=meta=DDCN\_1\_GL01\_metadata](https://www.nature.com/articles/s41467-023-36190-z?utm_source=xmol&utm_medium=affiliate&utm_content=meta&utm_campaign=DDCN_1_GL01_metadata)

# Article summary:

1. This article describes a metal-free photochemical cascade reaction for the synthesis of azepinone derivatives.

2. The reaction involves the generation of 2-aryloxyaryl nitrene, [2 + 1] annulation, and ring expansion/water addition cascade without using any metal catalyst.

3. Computational studies suggest a pathway involving a step-wise aziridine formation, followed by a ring-expansion to the seven-membered heterocycle and water addition in a regio-selective manner.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

This article is generally reliable and trustworthy as it provides detailed information on the synthesis of azepinone derivatives through a metal-free photochemical cascade reaction. The authors provide evidence for their claims with computational studies that suggest a pathway involving a step-wise aziridine formation, followed by a ring-expansion to the seven-membered heterocycle and water addition in a regio-selective manner. Furthermore, they provide an extensive scope of the reaction with different nitrene precursors tested under blue light irradiation and Brønsted acid catalysis.

The article does not appear to be biased or one sided as it presents both sides equally and does not contain any promotional content or partiality towards any particular point of view. It also mentions possible risks associated with the reaction such as high power UV light or noble metal catalysis which could be hazardous if not handled properly.

The only potential issue with this article is that it does not explore counterarguments or other possible approaches to synthesizing azepinone derivatives which could have been beneficial in providing further insight into this topic.

# Topics for further research:

* Alternative methods for synthesizing azepinone derivatives
* Hazards associated with metal-free photochemical cascade reactions
* Regio-selective water addition in azepinone synthesis
* Nitrene precursors for azepinone synthesis
* Computational studies of azepinone synthesis
* Brønsted acid catalysis in azepinone synthesis

# Report location:

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