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# Expanding the Chemical Space of Electrophilic β-Glycosyl β-Lactams through Photoinduced Diastereoselective Functionalization

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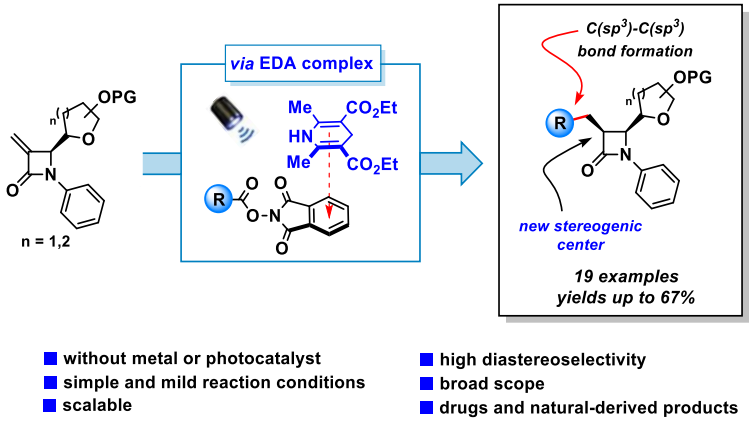
## ABSTRACT

A photoinduced diastereoselective C-3 functionalization of electrophilic β-glycosyl β-lactams is presented. The developed protocol is simple, mild and explores the use of 3-exomethylene β-lactams, which are still unexplored under photochemical conditions, as reaction partners in a Giese type reaction. The key nucleophilic alkyl radical is generated by a photoinduced electron transfer process in the *EDA* complex formed by NHPI and Hantzsch esters. The diastereoselective hydrogen atom transfer to the β-lactam radical intermediate enables the synthesis of various *N*-phenyl β-glycosyl β-lactams. This strategy features excellent functional group tolerance, scalability, and high diastereoselectivity and offers an alternative way to functionalize position C-3 in the β-lactams core, wich is increasingly recognized as crucial given its direct correlation with the biological efficacy of these compounds.[1]




- without metal or photocatalyst
- simple and mild reaction conditions
- scalable
- high diastereoselectivity
- broad scope
- drugs and natural-derived products

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## REFERENCES

1 - Tordato, E. A.; Gonçalves, R. O.; Baldassari, L. L.; Jiménez, C. A.; Lüdtke, D. S.; Paixão, M. W. Expanding the Chemical Space of Electrophilic β-Glycosyl β-Lactams through Photoinduced Diastereoselective Functionalization. *Org. Lett.*, **2024**, *26*, 5500-5505.