



A04



Synthesis of enzyme-cleavable and photocaged (d)ADPR Derivatives

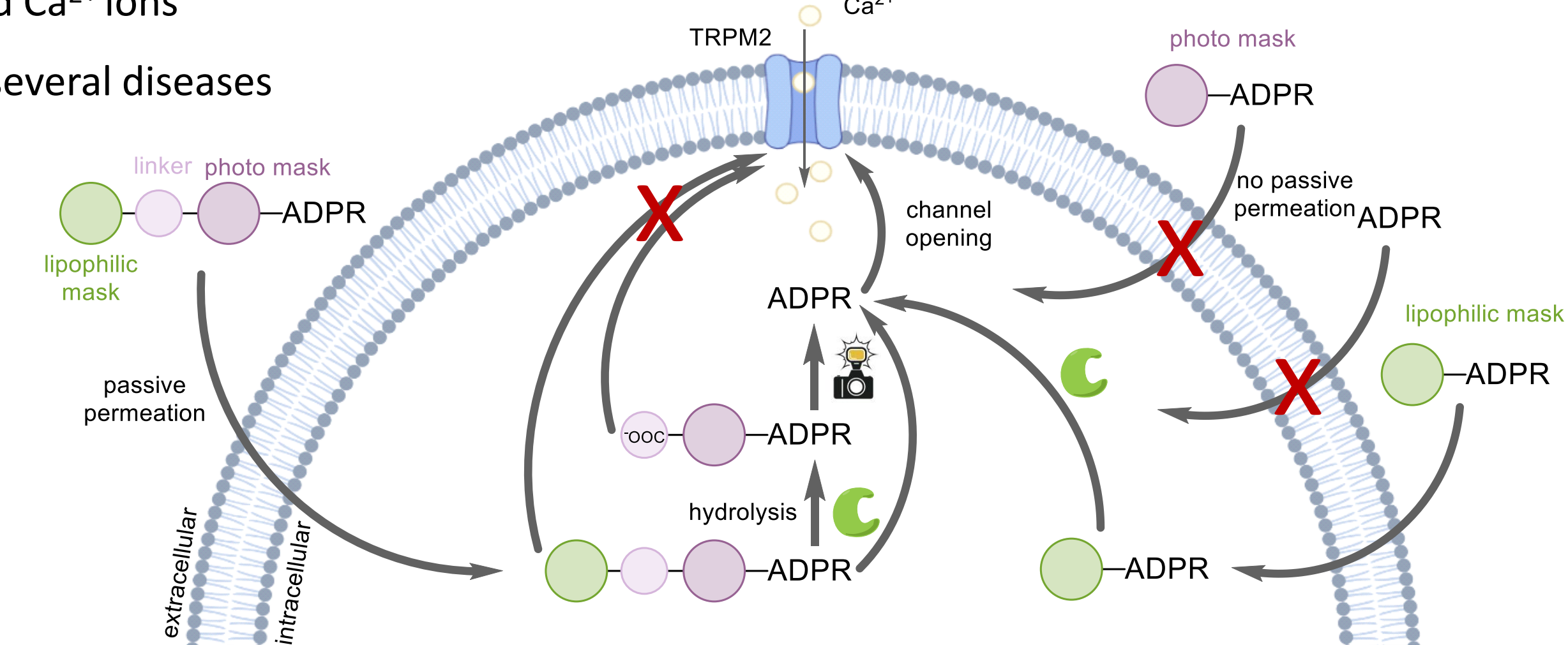
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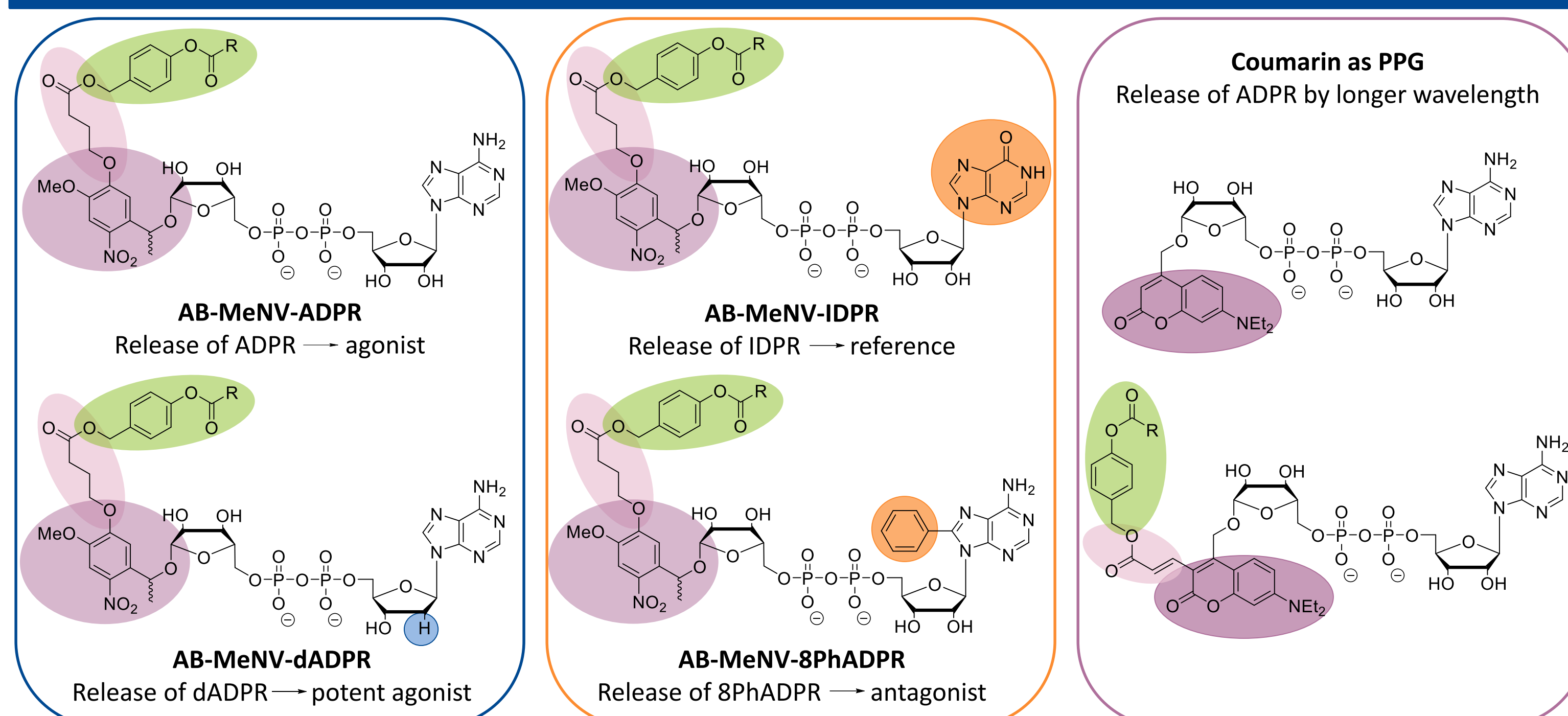
Introduction

Transient Receptor Potential Melastatin 2

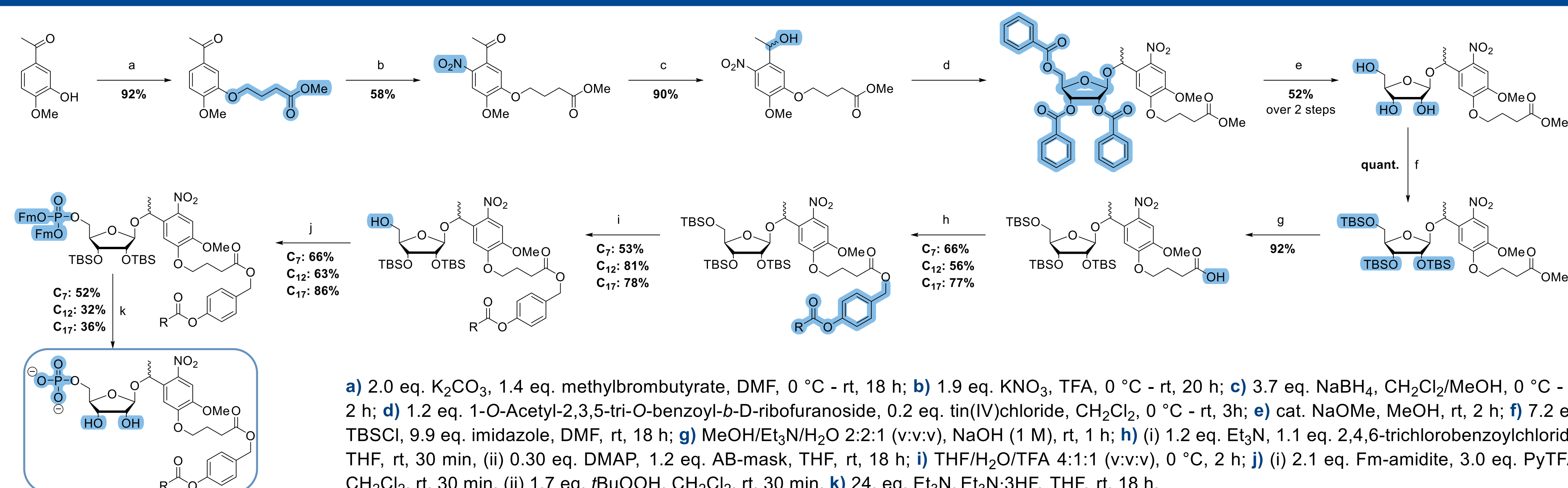
- Ca²⁺ transporting cation channel
- Activated by ADPR und Ca²⁺ ions
- Plays a crucial role in several diseases



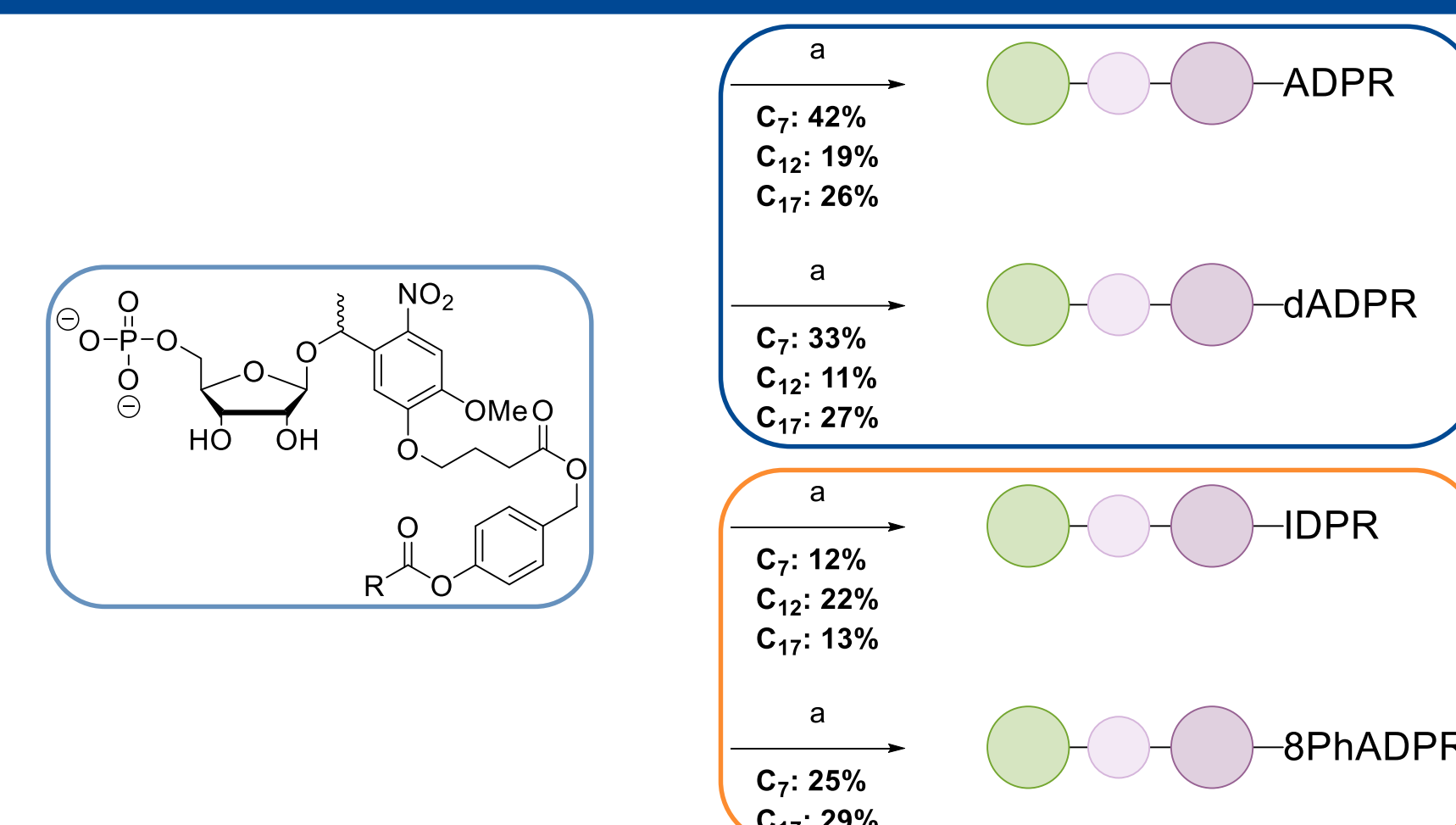
Objective



AB-MeNV Monophosphate

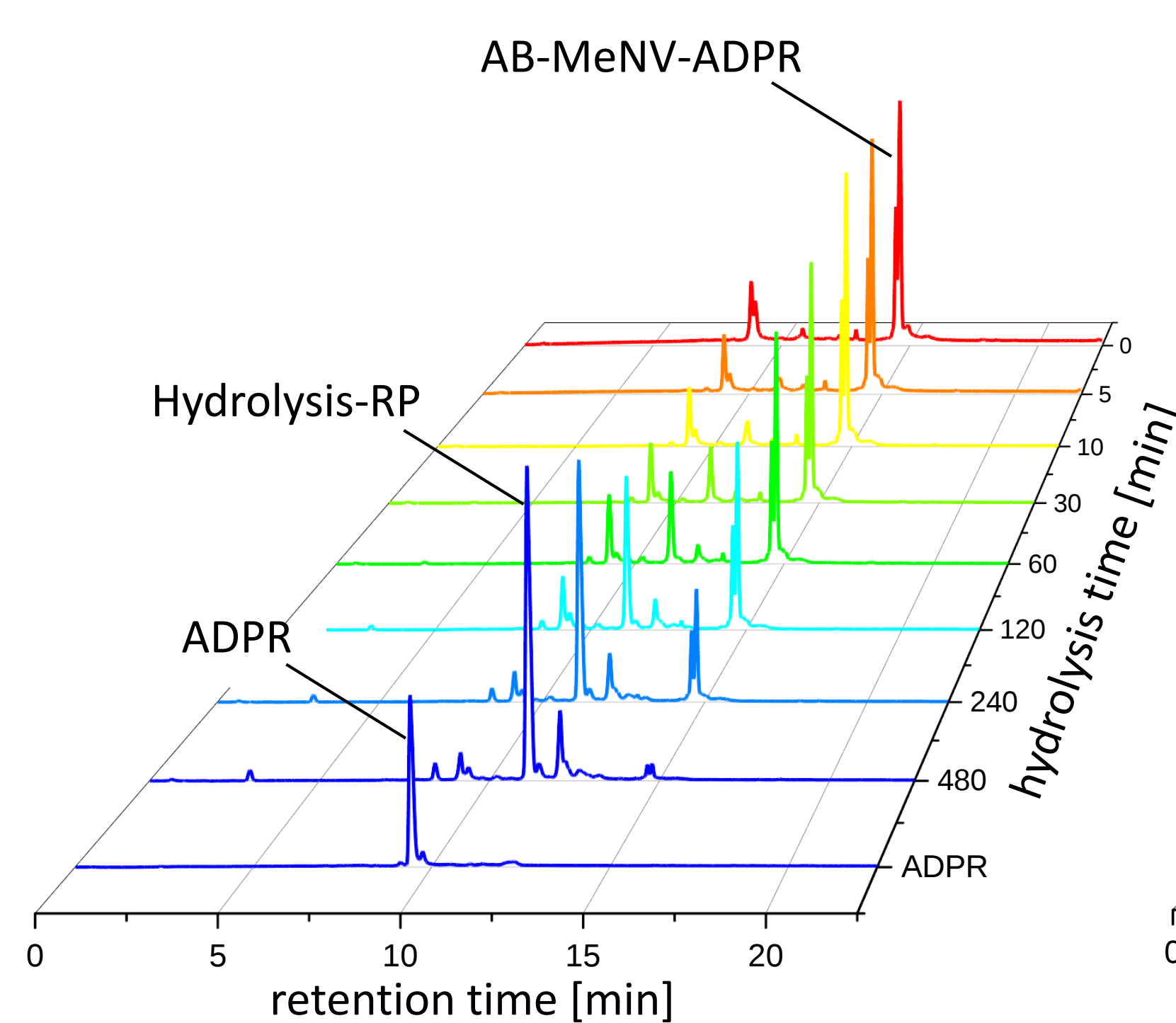


AB-MeNV-ADPR Derivatives

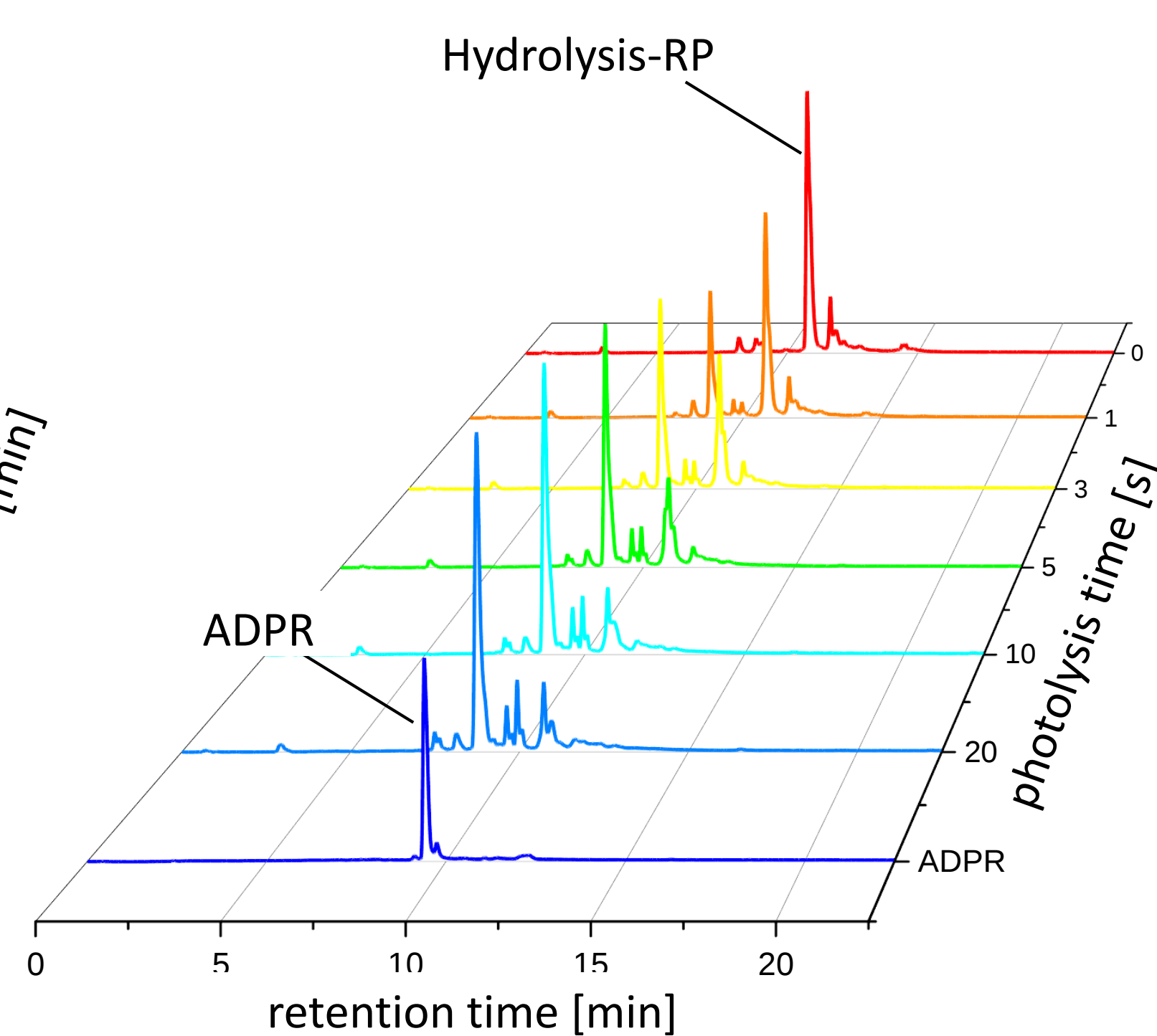


Hydrolysis and Photolysis Studies of C₇-AB-MeNV-ADPR

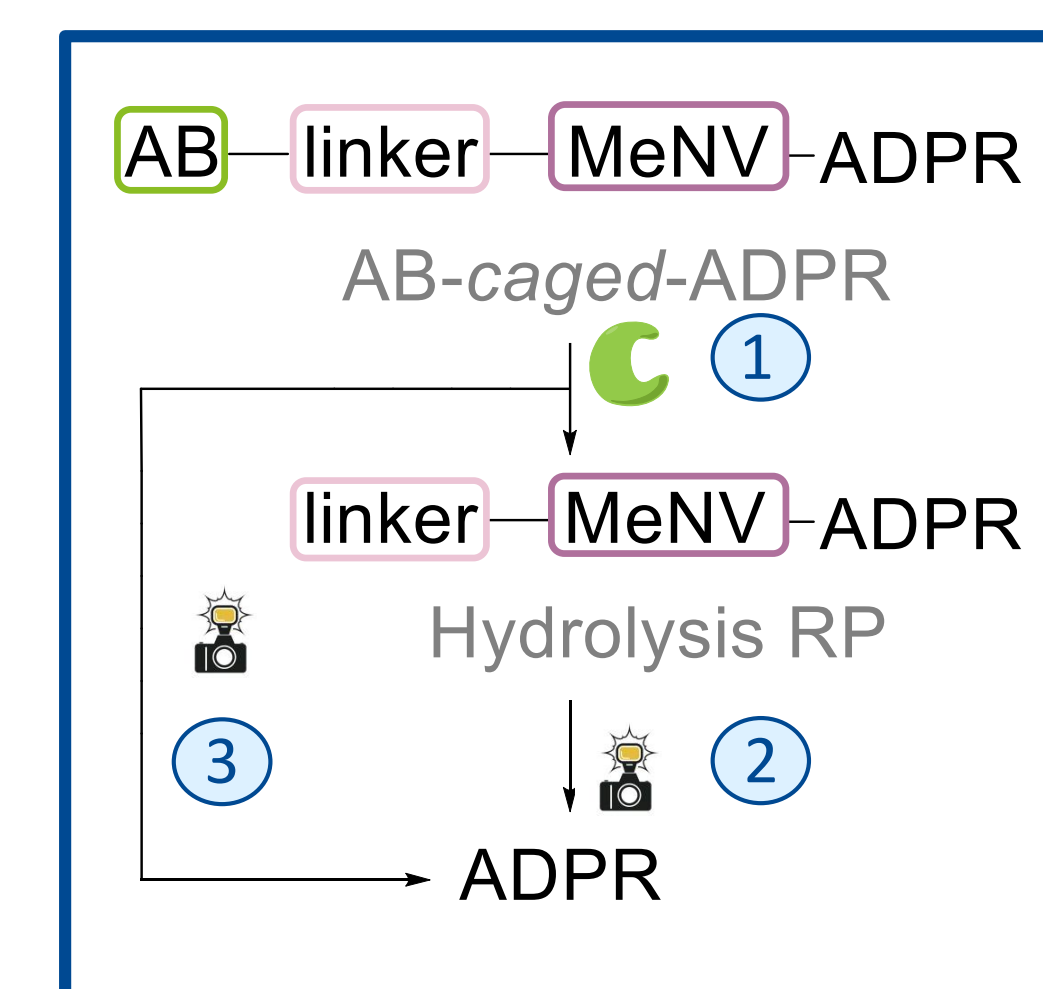
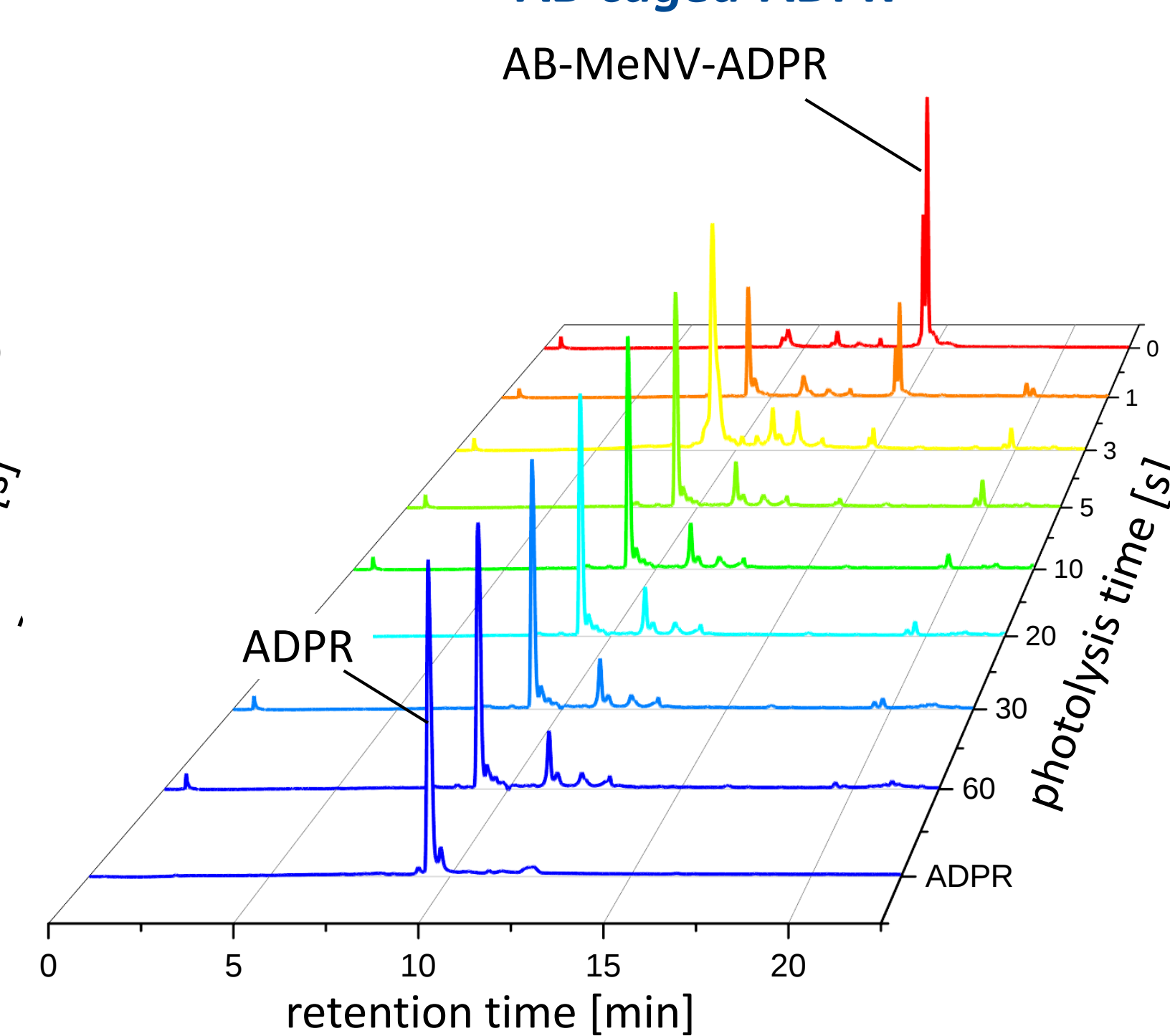
1 Enzymatic hydrolysis



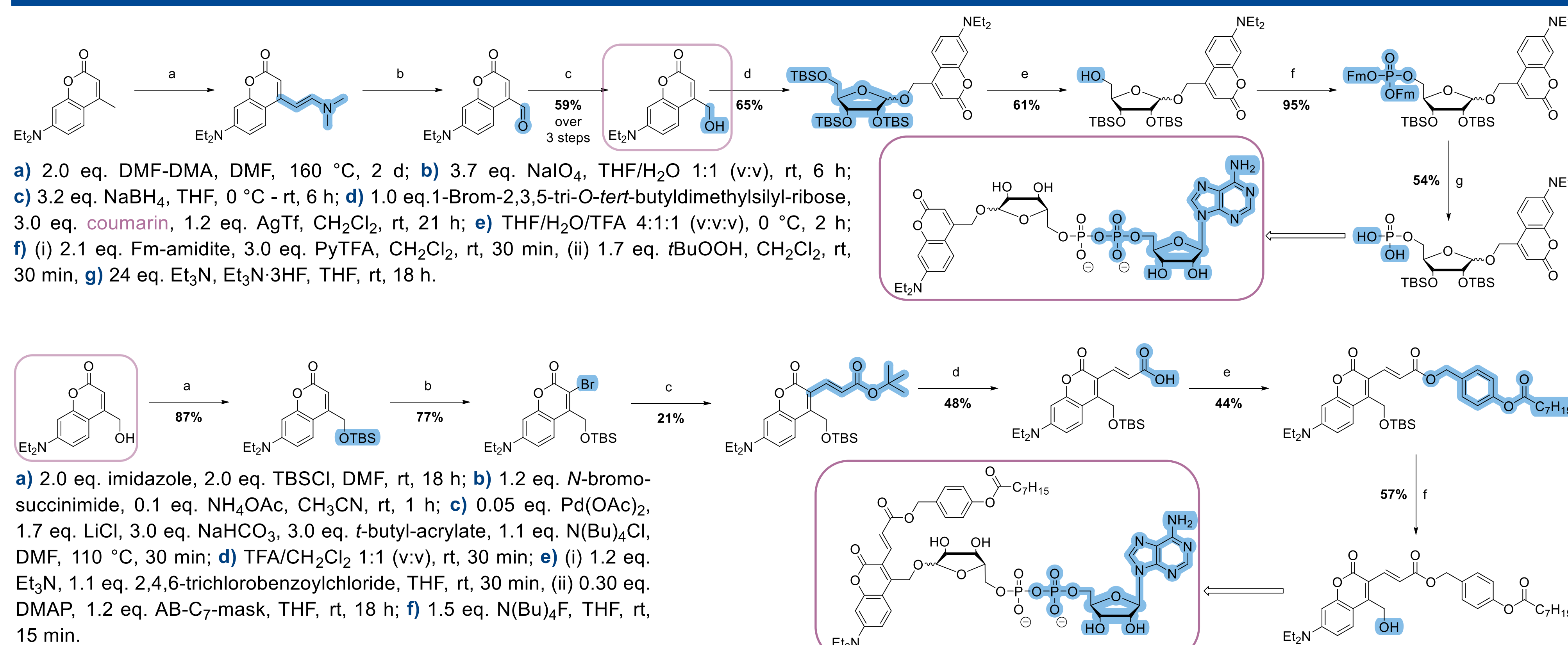
2 Photolytical release of ADPR from the hydrolysis reaction product (RP) ①



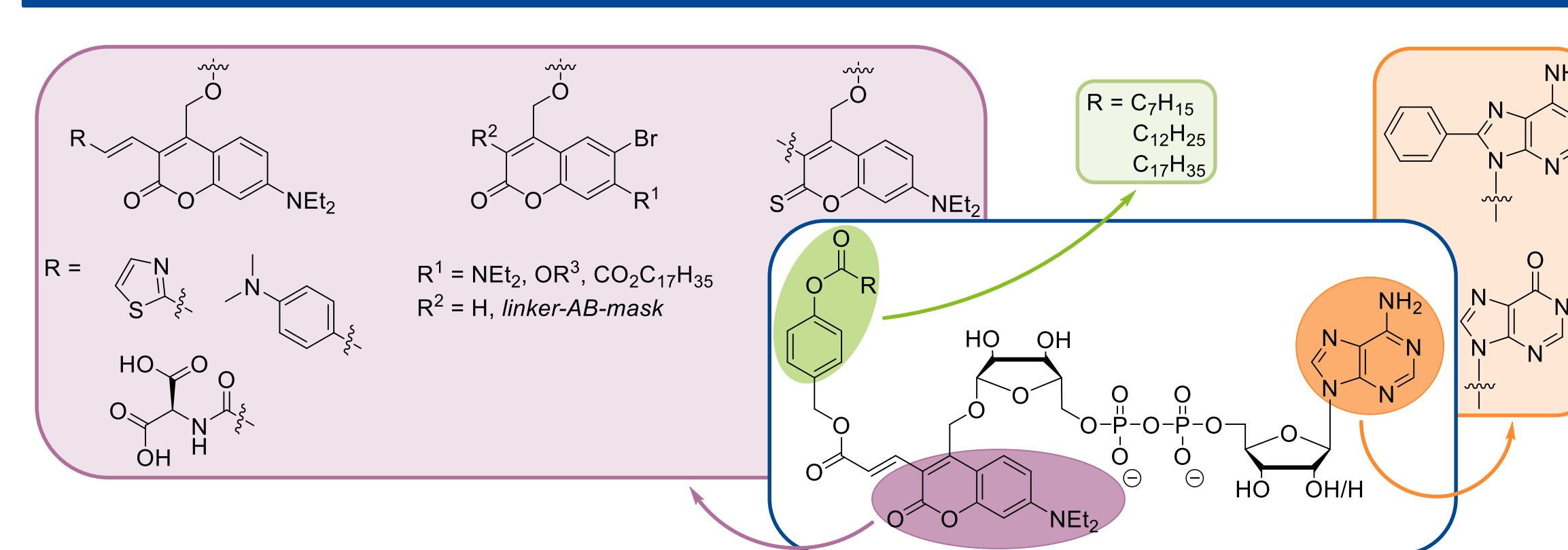
3 Photolytical release of ADPR from the AB-caged-ADPR



(AB-)Coumarin-ADPR



Outlook



Acknowledgement

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References

- T. Schneider, Dissertation, Universität Hamburg 2023. | T. E. Storr et al., *Tetrahedron* 2008, 64, 6125-6137. | M. Yoshikawa, T. Kato, T. Takenishi, *Bull. Chem. Soc. Jpn.* 1969, 42, 3505-3508. | T. Weinrich et al., *Eur. J. Org. Chem.* 2017, 3, 491-496. | G. E. Hilbert, T. B. Johnson, *J. Am. Chem. Soc.* 1930, 52, 4489-94. | K. Mori, M. Takigawa, M. Matsui, *Synthesis*, 1973, 12, 790-791. | J. P. Olson, et al., *J. Am. Chem. Soc.* 2013, 135, (16), 5954-5957.