TOWARDS THE TOTAL SYNTHESIS OF EUPHOSALICIN AND PEPLUANIN A – ROUTE TO A HIGHLY OXYGENATED CYCLOPENTANE KEY INTERMEDIATE

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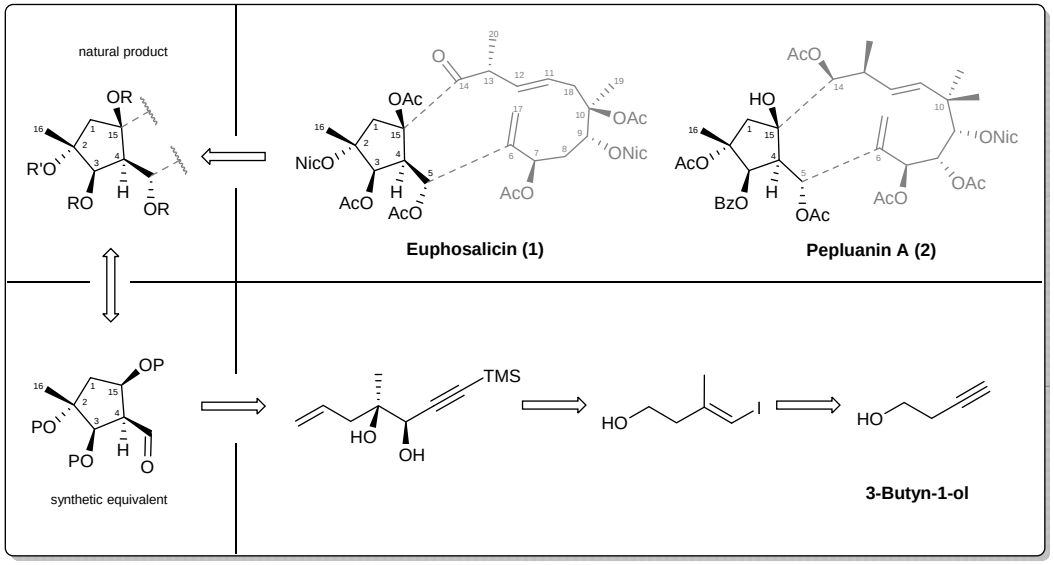
Over the last decades, a number of secondary metabolites of the *Euphorbiaceae* family have been isolated from active extracts and tested for their biological activities. These constituents include several jatrophane type diterpenes[1], which were found to be potent multidrug resistance (MDR) reversing agent. This outstanding biological activity of said natural products was, therefore, subject of numerous scientific investigations in the past years.

The compounds Euphosalicin **(1)** and Pepluanin A **(2)** were found to express exceedingly high levels of MDR-reversing activities, outperforming conventional modulators by greater efficiencies and significantly decreased cell-toxicity.[2] Their unique structural features of highly oxygenated five-membered and macrocyclic ring scaffolds reveal exceptionally interesting and challenging targets.



Within this project the synthesis of a highly functionalized cyclopentane key intermediate *en route* to Euphosalicin **(1)** and Pepluanin A **(2)** is investigated, introducing the *trans*-diol *via* Sharpless dihydroxylation and subsequent ring-closing enyne metathesis as key steps.

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[1] Shi, Q-W.; Su X.-H.; Kiyota, H.; *Chemical reviews* **2008**, *108*, 4295-4327

[2] Corea, G.; Fattorusso, E.; Lanuzotti, V.; Motti, R.; Simon, P.-N.; Dumontet, C.; Di Pietro, A.; *Journal of medicinal chemistry* **2004**, *47*, 988-992