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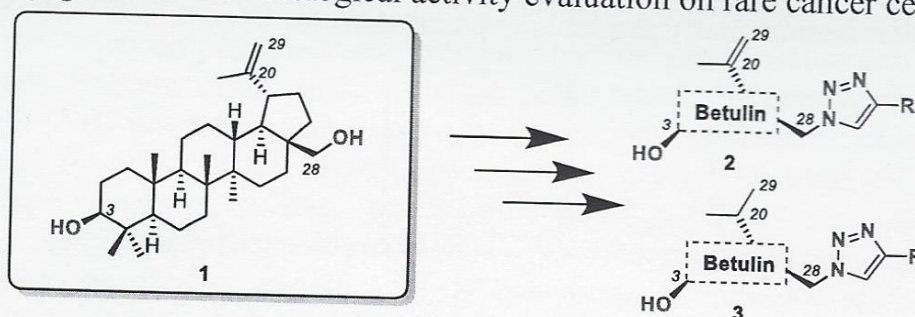
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Synthesis of novel lupane-1,2,3-triazole conjugates and their cytotoxicity evaluation

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Betulin (**1**) is a naturally occurring pentacyclic triterpene, most commonly found in the birch bark. Research shows that betulin possess wide spectrum of biological activity – anti-inflammatory, antibacterial and anticancer.¹ To improve the latter, structural modifications with new biological activity are being made.² This work is devoted for the synthesis of lupane-1,2,3-triazole conjugates for their biological activity evaluation on rare cancer cell lines.



Scheme 1. Overall derivatization scheme to obtain lupane-1,2,3-triazole conjugates.

The synthesis was initiated by selective primary alcohol oxidation. Further, aldehyde was converted to corresponding oxime, that was selectively reduced either to products with or without the C(20)-C(29) double bond. Next, by diazotransfer reaction corresponding azides were obtained and the latter were used in CuAAC reactions to obtain different sets of lupane-1,2,3-triazole conjugates.

Novel lupane-triazole conjugates were tested on rare cancer cell lines and observed biological activity will be reported.

Supervisor: Dr. chem. M. Turks.

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References

1. Xiao, S.; Tian, Z.; Wang, Y.; Si, L.; Zhou, D. *Med. Res. Rev.* **2018**, *38*, 951.
2. Khlebnicova, T. S.; Piven, Y. A.; Baranovsky, A. V.; Lakhvich, F. A.; Shishkina, S. V.; Zicāne, D.; Tetere, Z.; Rāviņa, I.; Kumpiņš, V.; Rijkure, I.; Mieriņa, I.; Peipiņš, U.; Turks, M. *Steroids*. **2017**, *117*, 77.