Accepted Manuscript

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PII: S0223-5234(18)30197-1

DOI: 10.1016/j.ejmech.2018.02.060

Reference: EJMECH 10237

To appear in: *European Journal of Medicinal Chemistry*

Received Date: 6 December 2017

Revised Date: 16 February 2018

Accepted Date: 18 February 2018

Please cite this article as: J. Wiemann, L. Heller, René. Csuk, An access to a library of novel triterpene derivatives with a promising pharmacological potential by Ugi and Passerini multicomponent reactions, *European Journal of Medicinal Chemistry* (2018), doi: 10.1016/j.ejmech.2018.02.060.

An access to a library of novel triterpene derivatives with a promising pharmacological potential by Ugi and Passerini multicomponent reactions

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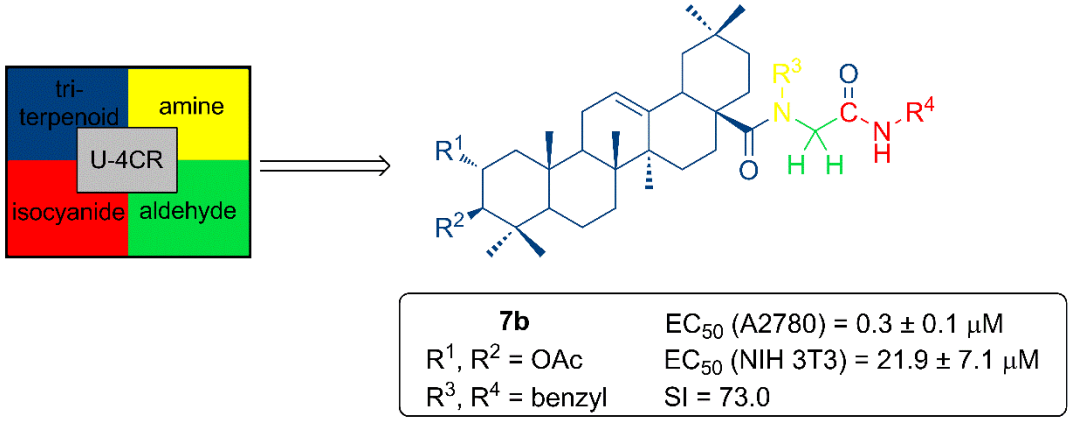
Graphical abstract



Abstract

The promising combination of natural product leads and their derivatization by isocyanide-based multicomponent reactions (IMCRs) has gained interest in accessing diversity-oriented libraries with auspicious pharmacological potential. Therefore, a set of 34 Ugi and 3 Passerini products was successfully synthesized starting from naturally occurring triterpenoids, i.e. oleanolic acid (**OA**) and maslinic acid (**MA**), followed by a biological evaluation of the novel α-acylamino carboxamides and the α-acyloxy carboxamides in colorimetric SRB assays to determine their cytotoxic potential. Especially, the **MA**-Ugi products **6a**, **6b** and **7b** showed a remarkable cytotoxicity for A2780 ovarian carcinoma cells in a low µM range. Compounds **6a** and **7b** induced programmed cell death in part through the apoptosis pathway.

1. Introduction

Natural products are quite often an inspiration for the development of new drugs [1]. As a result in the last 30 years about 50% of the approved small molecule drugs were natural based or natural inspired [2]. The significance of terpenes, particularly of triterpenes, for developing new drugs, however, was limited although they are an important class of natural products. They have been investigated intensely concerning their inherent biological activity. Their