

Accepted Manuscript

Synthesis of novel dipeptide sulfonamide conjugates with effective carbonic anhydrase I, II, IX, and XII inhibitory properties

Nesrin Buğday, F. Zehra Küçükbay, Hasan Küçükbay, Silvia Bua, Gianluca Bartolucci, Janis Leitans, Andris Kazaks, Kaspars Tars, Claudiu T. Supuran

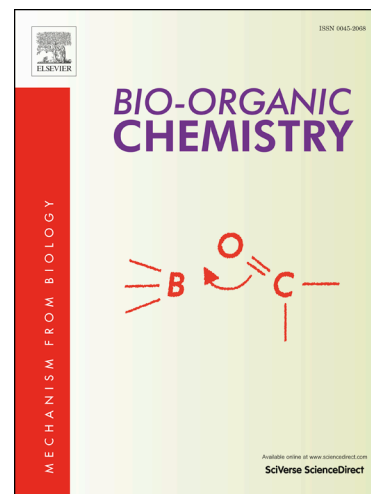
PII: S0045-2068(18)30774-0
DOI: <https://doi.org/10.1016/j.bioorg.2018.08.032>
Reference: YBIOO 2489

To appear in: *Bioorganic Chemistry*

Received Date: 27 July 2018
Revised Date: 14 August 2018
Accepted Date: 26 August 2018

Please cite this article as: N. Buğday, F. Zehra Küçükbay, H. Küçükbay, S. Bua, G. Bartolucci, J. Leitans, A. Kazaks, K. Tars, C.T. Supuran, Synthesis of novel dipeptide sulfonamide conjugates with effective carbonic anhydrase I, II, IX, and XII inhibitory properties, *Bioorganic Chemistry* (2018), doi: <https://doi.org/10.1016/j.bioorg.2018.08.032>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Synthesis of novel dipeptide sulfonamide conjugates with effective carbonic anhydrase I, II, IX, and XII inhibitory properties†

Nesrin Buğday,^a F. Zehra Küçükbay^b, Hasan Küçükbay*^a, Silvia Bua^c, Gianluca Bartolucci,^c
Janis Leitans,^d Andris Kazaks,^d Kaspars Tars,^d Claudiu T. Supuran^{c*}

^aDepartment of Chemistry, Faculty of Arts and Sciences, İnönü University, 44280, Malatya-Turkey.

^bDepartment of Basic Pharmaceutical Sciences, Faculty of Pharmacy, İnönü University, 44280, Malatya, Turkey

^cDipartimento Neurofarba, Sezione Di Scienze Farmaceutiche E Nutraceutiche e Laboratorio Di Chimica Bioinorganica, Università Degli Studi Di Firenze, Sesto Fiorentino, Florence, Italy.

^dLatvian Biomedical Research and Study Center, Ratsupites 1, Riga, Latvia.

Abstract. Twenty-four novel sulfonamide derivatives incorporating dipeptide tails were synthesized by facile acylation reactions of homosulfanilamide through benzotriazole or dicyclohexyl carbodiimide (DCC) mediated coupling reactions. The carbonic anhydrase (CA, EC 4.2.1.1) inhibitory activity of the new compounds was assessed against four human (h) isoforms, hCA I, hCA II, hCA IX and hCA XII. Most of the synthesized compounds showed good *in vitro* carbonic anhydrase inhibitory properties, with inhibition constants in the low nanomolar range. Particularly, the new dipeptide-sulfonamide conjugates incorporating Ala, Phe and Met in the dipeptide sequence, showed the most effective inhibitory activity against to CA IX and XII.

Keywords: carbonic anhydrase; inhibitor; homosulfanilamide; dipeptide; conjugate

* Corresponding authors. E-mail: hasan.kucukbay@inonu.edu.tr; Fax: + 90 422 3410037; Tel: + 90 422 3773881 (HK); E-mail: claudiu.supuran@unifi.it (CTS).

†This work is part of PhD thesis experiments of N. Buğday.

Download English Version:

<https://daneshyari.com/en/article/11006173>

Download Persian Version:

<https://daneshyari.com/article/11006173>

[Daneshyari.com](https://daneshyari.com)