

Article **Enhanced and Selective Antiproliferative Activity** of Methotrexate-Functionalized-Nanocapsules to Human Breast Cancer Cells (MCF-7)

Catiúscia P. de Oliveira ¹, Sabrina L. Büttenbender ², Willian A. Prado ², Aline Beckenkamp ¹, Ana C. Asbahr ³, Andréia Buffon ¹, Silvia S. Guterres ^{1,3} and Adriana R. Pohlmann ^{1,2,3,*}

- ¹ Programa de Pós-Graduação em Ciências Farmacêuticas, Faculdade de Farmácia, Universidade Federal do Rio Grande do Sul, Porto Alegre 90610-000, RS, Brazil; catipadilha@yahoo.com.br (C.P.d.O.); alinee-b@hotmail.com (A.B.); andreia.buffon@ufrgs.br (A.B.); silvia.guterres@ufrgs.br (S.S.G.)
- ² Programa de Pós-Graduação em Química, Departamento de Química Orgânica, Instituto de Química, Universidade Federal do Rio Grande do Sul, Porto Alegre 91501-970, RS, Brazil; sbuttenbender@gmail.com (S.L.B.); will_ap20@hotmail.com (W.A.P.)
- ³ Programa de Pós-Graduação em Nanotecnologia Farmacêutica, Universidade Federal do Rio Grande do Sul, Porto Alegre 90610-000, RS, Brazil; acasbahr@hotmail.com (A.C.A.); silvia.guterres@ufrgs.br (S.S.G.)
- * Correspondence: adriana.pohlmann@ufrgs.br; Tel.: +55-51-3308-7237

Received: 03 November 2017; Accepted: 28 December 2017; Published: 4 January 2018



(a1)













(a2)

(b2)



(b3)

Nanomaterials 2017, 7, x FOR PEER REVIEW



Figure S1. Confocal laser photomicrographies of MCF-7 cells (bar = 28830 @m): column 1 corresponds to images recorded using differential interface contrast, column 2 corresponds to images recorded by using red dye fluorescence channel and laser excitation at 559 nm, and column 3 corresponds to the merged images of columns 1 and 2; (a) f-LNC⁺, (b) f-Phe-MLNC-Zn-MTX(OEt)₂, (c) f-MTX(OEt)₂-MLNC-Zn and (d) f-MTX-MLNC-Zn-MTX.



Figure S2. Confocal laser photomicrographies of MCF-7 cells after 24 h of incubation with **ff**-MTX-MLNC-Zn-MTX: (**a**) image obtain using differential interface contrast; (**b**) image obtain after excitation at 405 nm using blue fluorescence channel; (**c**) image obtained after excitation at 559 nm using red fluorescence channel; and (**d**) merged image using 3 channels (grey: cells, blue: emission from 5AHBO-C8 and red: emission from PCL-RhoB).



© 2017 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/).