Data in Brief 15 (2017) 111–126

Contents lists available at ScienceDirect

Data in Brief

journal homepage: www.elsevier.com/locate/dib

Data Article

Data of PCL-b-P(MMA-DMAEMA)$_2$ characterization and related assays

Camila Franco [a], Michelli Barcelos Antonow [b], Aline Beckenkamp [a], Andréia Buffon [a], Taise Ceolin [a], Marli Luiza Tebaldi [c,*], Gustavo Pozza Silveira [c], Silvia Stanisçuaski Guterres [a,b], Adriana Raffin Pohlmann [a,b,c,**]

[a] *Programa de Pós-Graduação em Ciências Farmacêuticas, Faculdade de Farmácia, Universidade Federal do Rio Grande do Sul, Av. Ipiranga, 2752, Porto Alegre 90610-000, RS, Brazil*
[b] *Programa de Pós-Graduação em Nanotecnologia Farmacêutica, Faculdade de Farmácia, Universidade Federal do Rio Grande do Sul, Av. Ipiranga, 2752. Porto Alegre, 90610-000, RS, Brazil.*
[c] *Departamento de Química Orgânica, Instituto de Química, Universidade Federal do Rio Grande do Sul, Av. Bento Gonçalves, 9500, Porto Alegre 91501-970, RS, Brazil*

ARTICLE INFO

Article history:
Received 20 August 2017
Accepted 6 September 2017
Available online 19 September 2017

Keywords:
Methacrylic copolymer
Polycaprolactone
Nanocapsules
pH-sensitive
Cell viability

ABSTRACT

The data presented here are related to the research paper entitled "PCL-*b*-P(MMA-*co*-DMAEMA)$_2$ new triblock copolymer for novel pH-sensitive nanocapsules intended for drug delivery to tumors" by Franco et al. [1]. Characterization data of PCL-diol, macroinitiator Br-PCL-Br, homopolymers (PMMA and PDMAEMA) and copolymers (batch 1 and batch 2) analyzed by FTIR, SEC and NMR, as well as, characterization of PCL-NS formulation by laser diffraction and DLS analysis, initial nanocapsule formulations and 1**C**-NC and 2**C**-NC formulations, including hydrodynamic diameter at different pH media, and DMSO cytotoxicity.

DOI of original article: http://dx.doi.org/10.1016/j.reactfunctpolym.2017.08.010
* Correspondence to: Universidade Federal de Itajubá -Campus Itabira, Rua Irmã Ivone Drumond, 200, Itabira – MG, 35903-087, MG, Brazil.
** Correspondence to: Universidade Federal do Rio Grande do Sul. PBOX 15003, Porto Alegre 91501-970, RS, Brazil.

http://dx.doi.org/10.1016/j.dib.2017.09.010

Specifications Table

Subject Area	*Chemistry, Biology, Pharmacy*
More specific subject area	*Copolymer synthesis and pH-sensitive nanocapsules*
Type of data	*Tables and figures*
How data was acquired	*FTIR spectrometer (Varian 640 FT-IR, USA), SEC by GPCMax tripledetector (Viscotek, Marvel Instruments Ltd, England, UK, columns of Styragel 10^4, 10^5, and 10^6Å), ^{1}H NMR (300 MHz) and ^{13}C NMR (75 MH) by INOVA-300 (Varian, USA), laser diffraction (Malvern Mastersizer® 2000, Malvern Instruments, UK), dynamic light scattering (DLS, Malvern Zetasizer instrument - NanoZS, Malvern Instruments, UK) and cytotoxicity in MCF-7 cells (ATCC®-HTB-22™ Rockville, MD, λ of 570 and 630 nm - SpectraMax M2, Molecular Devices)*
Data format	*Raw, analyzed*
Experimental factors	*Synthesis and products isolation by filtration and purification by impurities dissolution. Nanocapsules were analyzed as produced, without pre-treatment*
Experimental features	*Chemical characterization and identification of modifications induced by synthesis procedures or by formulation of materials*
Data source location	*Commercial reagent: PCL, MMA and DMAEMA*
Data accessibility	*Data is provided with this article*

Value of data

- Characterization spectra of the materials were compared with data from other works when developing a similar delivery system or copolymer synthesis.
- SEC and NMR data provided information on the efficiency of the copolymer synthesis and were useful for their identification.
- Nanocapsules parameters and it response to different pH media is innovative for scientific community since the copolymer maintains its integrity and expands upon acid pH.
- The bromide end-group of the copolymer permit application as active targeting system after covalent binding with ligands.

1. Data

The data presented in Section 1.1 is the ^{1}H NMR analysis of the homopolymers PMMA and PDMAEMA (Fig. 1). Section 1.2 involves the profiles by laser diffraction of PCL-NS and its parameters (Fig. 2, Table 1). The data presented in Section 1.3 includes the synthesis of the macroinitiator and the characterization by FTIR and SEC analysis of the PCL-diol and Br-PCL-Br (Fig. 3), ^{1}H NMR (Fig. 4) and ^{13}C NMR (Fig. 5). Section 1.4 brings data referent to the copolymers (batch 1 and batch 2) with FTIR, SEC (Fig. 6), ^{1}H NMR (Fig. 7) and ^{13}C NMR (Fig. 8). The data contained in Section 1.5 is related to the characterization of nanocapsules formulations, as size distribution profiles of initial nanocapsule formulations (Fig. 9) and 1C-NC and 2C-NC formulations (Fig. 10), including its parameters (Table 2) and the DLS profile (Fig. 11) and it behavior in different pH (Fig. 12). Section 1.6 presented the DMSO cytotoxicity data (Fig. 13).

1.1. ^{1}H NMR spectra of homopolymers PMMA and PDMAEMA