

## Supplementary Information

### Phagocytosis Modulated by a Pt<sup>II</sup> Complex with Triphenylphosphine and 5-Heptyl-1,3,4-oxadiazole-2-(3H)-thione in a Microemulsion System

**Bruna A. Rodrigues,<sup>a</sup> Angelina M. de Almeida,<sup>b</sup> Mauro V. de Almeida,<sup>b</sup>  
Jackson Antônio L. C. Resende,<sup>a</sup> Wendell Guerra,<sup>c</sup> Eduardo L. França,<sup>d</sup>  
Aron Carlos de M. Cotrim<sup>d</sup> and Wesley A. Souza<sup>\*,a</sup>**

<sup>a</sup>*Instituto Ciências Exatas e da Terra, Universidade Federal de Mato Grosso,  
79698-00 Pontal do Araguaia-MT, Brazil*

<sup>b</sup>*Departamento de Química, Universidade Federal de Juiz de Fora, Campus Martelos,  
36036-900 Juiz de Fora-MG, Brazil*

<sup>c</sup>*Instituto de Química, Universidade Federal de Uberlândia, Campus Santa Mônica,  
38400-902 Uberlândia-MG, Brazil.*

<sup>d</sup>*Instituto Ciências Biológicas e da Saúde, Universidade Federal de Mato Grosso,  
78605-091 Barra do Garças-MT, Brazil*

\*e-mail: wesley.souza@ufmt.br

Bruna Alves Rodrigues <https://orcid.org/0009-0001-7729-4233>

Angelina Maria de Almeida <https://orcid.org/0009-0008-4772-2517>

Mauro Vieira de Almeida <https://orcid.org/0000-0003-1112-0801>

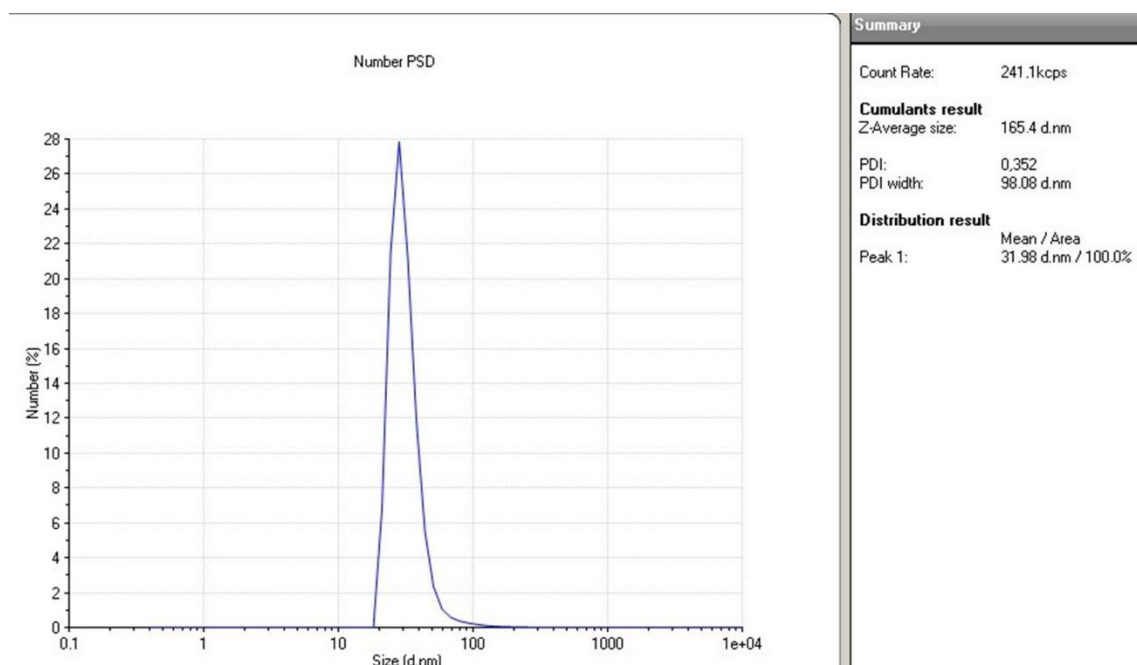
Jackson Antonio Lamounier Carmargos Resende <https://orcid.org/0000-0002-5366-4156>

Wendell Guerra <https://orcid.org/0000-0001-6979-8557>

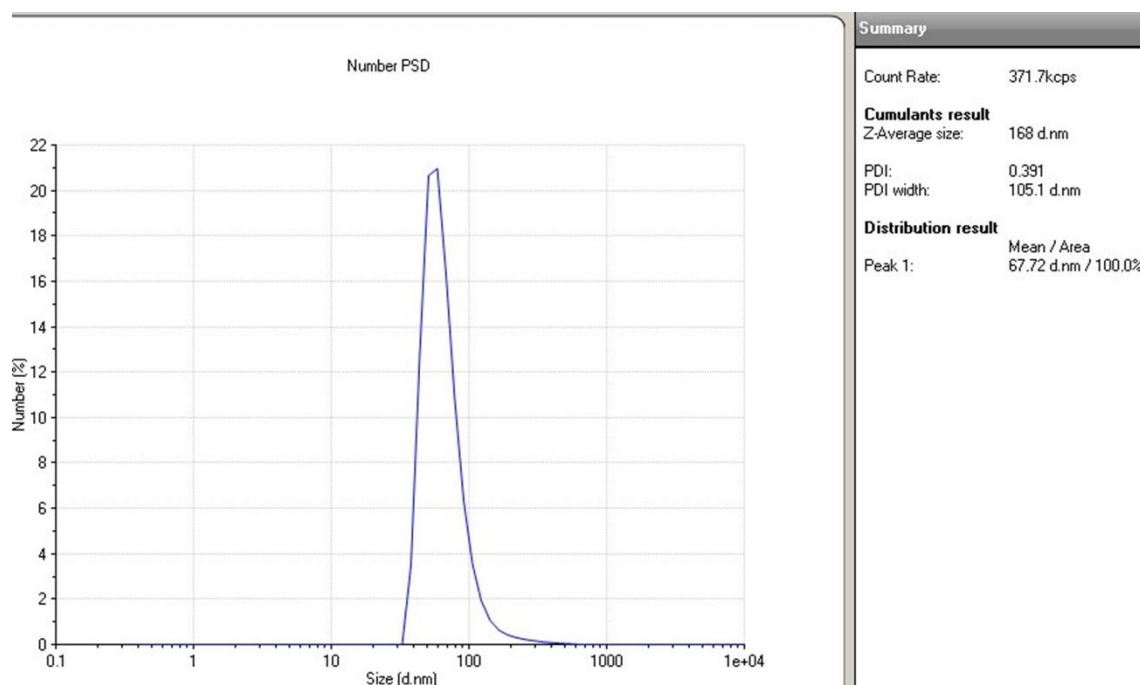
Eduardo Luzia França <https://orcid.org/0000-0002-1854-5397>

Aron Carlos de Melo Cotrim <https://orcid.org/0000-0003-4083-4950>

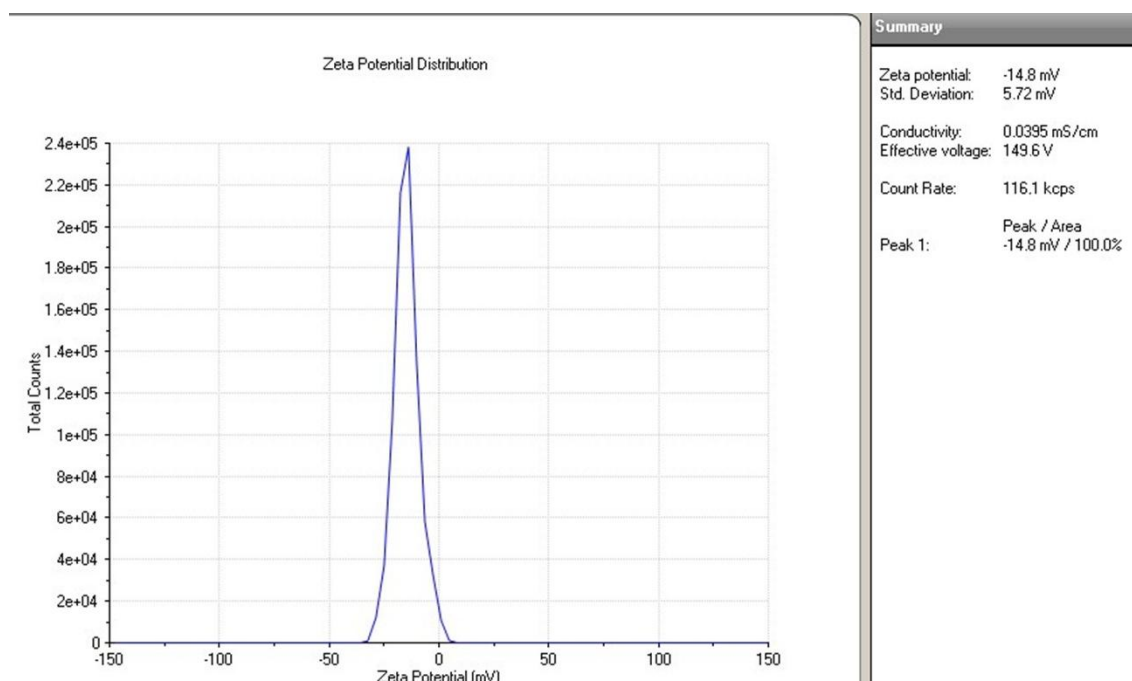
Wesley Almeida Souza <https://orcid.org/0000-0002-4451-8755>



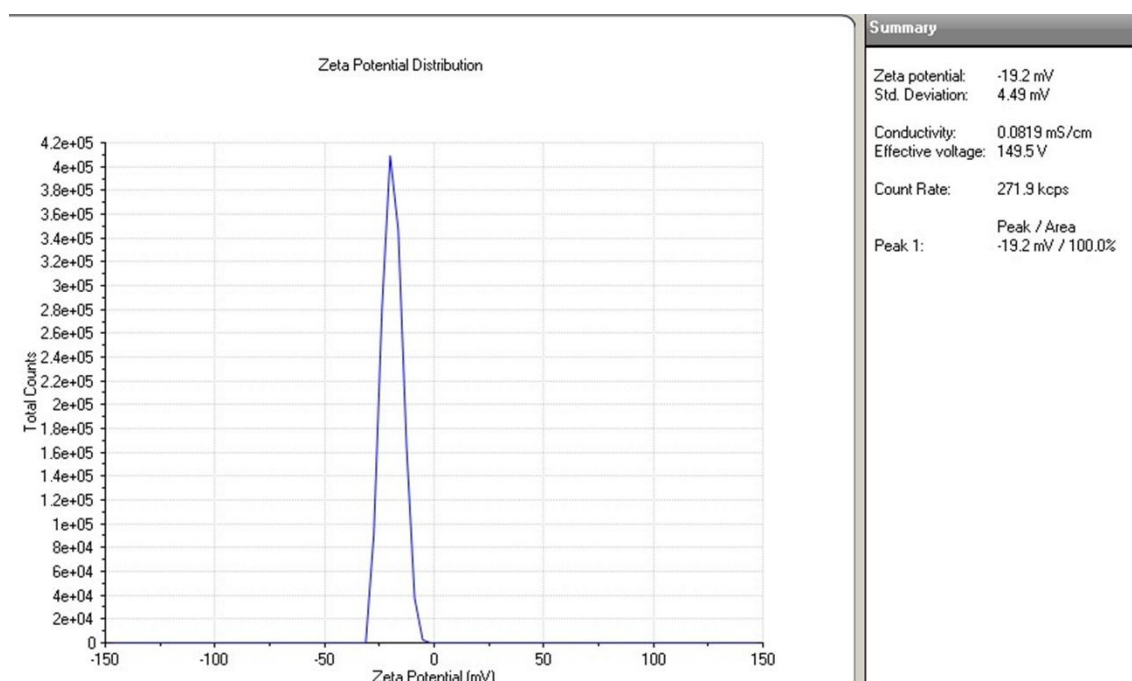
**Figure S1.** Particle size and polydispersity index for the control microemulsion sample, without *trans*-[Pt(L)<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub>] complex; L = 5-heptyl-1,3,4-oxadiazole-2-(3*H*)-thione associated.



**Figure S2.** Particle size and polydispersity index for the microemulsion sample, with *trans*-[Pt(L)<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub>] complex; (L = 5-heptyl-1,3,4-oxadiazole-2-(3*H*)-thione) associated.



**Figure S3.** Zeta potential profile for the control microemulsion sample without *trans*-[Pt(L)<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub>] complex; (L = 5-heptyl-1,3,4-oxadiazole-2-(3*H*)-thione) associated, reflecting the colloidal stability of the blank formulation.



**Figure S4.** Zeta potential profile for the microemulsion sample containing the *trans*-[Pt(L)<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub>] complex; (L = 5-heptyl-1,3,4-oxadiazole-2-(3*H*)-thione), indicating the impact of the association, whereas maintaining stability.



**Microemulsion (ME)**



**ME/Pt(II) complex**

**Figure S5.** Preparation steps of the microemulsion system (SP/TW/BT 3.5:5.5:1.0, surfactant mixture) individually and in combination with the associated *trans*-[Pt(L)<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub>] complex, where L = 5-heptyl-1,3,4-oxadiazole-2-(3*H*)-thione, visually showing its physical characteristics.



***trans*-[Pt(L)<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub>] complex powder**

**Figure S6.** Physical appearance of the platinum(II) complex powder. Shows the solid *trans*-[Pt(L)<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub>] complex (L = 5-heptyl-1,3,4-oxadiazole-2-(3*H*)-thione) used for association into the microemulsion system.

**Table S1.** Cell viability test for peripheral blood mononuclear cells (PBMCs) exposed to microemulsion and the microemulsion with *trans*- [Pt(L)<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub>] complex associated. It presents the percentages of viability (± SD) for the control, only the microemulsion and the microemulsion loaded with the platinum complex, quantifying the cytotoxic effects of the formulation components

|                             | Cell viability / % |
|-----------------------------|--------------------|
| Control group               | 98.80 ± 0.45       |
| ME                          | 96.80 ± 2.17       |
| ME/Pt <sup>II</sup> complex | 97.40 ± 1.34       |

Analyze significant statistics when *p*-value is less than 0.01 (*p* < 0.01); ME: microemulsion.

**Table S2.** Phagocytosis index for peripheral blood mononuclear cells (PBMCs) is treated with microemulsion and platinum(II) complex associated into microemulsion. Summarizes the quantitative phagocytosis results (mean  $\pm$  SD) comparing untreated cells, treated with EM alone, and treated with EM containing *trans*-[Pt(L)<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub>]; L = 5-heptyl-1,3,4-oxadiazole-2-thione

|                             | Phagocytosis index / % |
|-----------------------------|------------------------|
| Control group               | 27.63 $\pm$ 6.12       |
| ME                          | 24.67 $\pm$ 3.79       |
| ME/Pt <sup>II</sup> complex | 39.25 $\pm$ 2.95       |

Analyze significant statistics when *p*-value is less than 0.01 (*p* < 0.01). ME: microemulsion.

**Table S3.** Surfactant mixture composition and calculated hydrophilic-lipophilic balance (HLB) values for the microemulsion system. Details the percentages of SP, TW and BT surfactants in the microemulsion formulation and the resulting HLB values, calculated for each mixture

| Surfactant mixture | SP / % | TW / % | BT / % | HLB <sub>r</sub> |
|--------------------|--------|--------|--------|------------------|
| SP/TW/BT           | 35     | 55     | 10     | 10.8             |

HLB<sub>r</sub>: HLB resulting from the mixture of surfactants. SP: Span 80; TW: Tween 80; BT: 1-butanol.

