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Abstracts

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12.008 **Proving Ranelate Modified Gold Nanoparticles Safety Through Diapedesis Integrity.** Carvalho DR[1], Franciscato DS[2], Toma HE[1], Rodrigues SF[1] [1]ICB-USP, Vascular Nanopharmacology Lab, Dept of Pharmacology, [2]IQ-USP, Supramolecular Chemistry and Nanotechnology Lab

Introduction: Current progression in nanotechnology has led to many benefits, including applications in the health sector. Merging the organic and synthetic world, nanomedicine has demonstrated huge potential to overcome a variety of existing limitations, as smaller sizes grant molecules increased mobility and targeting. Gold nanoparticles have been extensively explored lately with good results in experimental models of diseases. As drawback, their instability, resulting in aggregation and loss of efficacy. To improve this feature, ranelate modified gold nanoparticles (AuNP@Ran) were synthetized by professor Toma's group, owing 12 nanometer size and −31 ± 2 mV zeta potential, and showing increased stability and safety in a macrophage cell culture lineage. Diapedesis is an important physiological process that takes place in the microcirculation and is crucial for body´s defense against pathogens. Thus, the impact of new compounds thought to be used *in vivo* must be tested on diapedesis. This study aimed to evaluate the effect of AuNP@Ran intravenously injected, *in vivo*, on diapedesis. **Methods:** For this, we injected two doses of AuNP@Ran: a lower of 0.79 mg/kg Au/4.1 mg/kg Ran and a higher of 1.19 mg/kg Au/6.15 mg/kg Ran. Cremaster muscle of C57Bl/6 male mice (CEUA nº 2697230223) was observed for 50 minutes through intravital microscopy. Furthermore, we performed hematological analyses. **Results:** We observed (mean +/- error) AuNP@Ran lower dose injection did not alter leukocyte rolling (112.2 +/- 9.9 AuNP@Ran vs. 96 +/- 17.2 distilled water vehicle control solution vs. 78.5+/- 5.5 saline control solution; N = 9, 7, 8 respectively), adhesion (103.1 +/- 75.2 AuNP@Ran vs. 186.9 +/- 77.5 distilled water vs. 58.2 +/- 28.5 saline solution; N = 8, 7, 7 respectively) or migration (0.37 +/- 0.26 AuNP@Ran vs. 0 +/- 0 distilled water vs. 1.2 +/- 0.65 saline solution; N = 8, 8, 6 respectively) 50 min after injection. By testing the higher dose, once again no alterations were seen in rolling (83.3 +/- 7.3 AuNP@Ran vs. 131 +/- 3.5 distilled water vehicle control solution vs. 55.7 +/- 4.3 saline control solution; N = 3, 3, 3 respectively), adhesion (0 +/- 0 AuNP@Ran vs. 123.8 +/- 5.7 distilled water vs. 117.6 +/- 5.3 saline solution; N = 3, 3, 3 respectively) or migration (0 +/- 0 AuNP@Ran vs. 0.33 +/- 0.33 distilled water vs. 1 +/- 0.58 saline solution; N = 3, 3, 3 respectively) 50 min after injection. Similar results were observed 5, 20 and 35 minutes after injection of both doses. No changes were observed in the hematological analysis compared to control groups as well. **Conclusion:** Thus, AuNP@Ran does not alter diapedesis or hematological parameters in mice. **Financial Support:** FAPESP #2023/05115-2, #2023/10035-8. **Key-words:** Leukocyte; mice; microcirculation; metallic nanoparticles.

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