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PMNs as "Trojan horse" vehicles for Brucella abortus persistence in murine bone marrow

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Bencounter Brucella after invasion, however, Brucella resist their killing action and induce premature cell death of these leukocytes. It has been described that *B. abortus* persist in bone marrow at chronic stages of infection. Nevertheless, the role of PMNs in bone marrow persistence has not been studied. Here we show that *B. abortus* organisms are able to persist in murine bone marrow even at the "declining stages of chronic infection". *B. abortus* were observed inside a PMN/monocyte cell type at very low rates. Additionally, we demonstrate that murine bone marrow PMNs phagocyte antibody-opsonized *B. abortus* and die quickly after infection. These dying infected PMNs show increased adhesion and are readily taken up by RAW 264.7 macrophages. When *ex vivo* macrophage infections were performed, *B. abortus* were more infective and replicated at higher rates when macrophages were infected through PMNs; but only after 24 hours of infection, when *Brucella* has already reached their replication niche inside the cell. Our results support the notion that infected bone marrow PMN might behave as vectors for *Brucella* persistence in bone marrow in a non-logistic way.

Biography

María Cristina Gutiérrez-Jiménez is a Master's student of the University of Costa Rica. She is developing a research project on different Immunology aspects, regarding the infectious disease called brucellosis. Her work's main objective is to study the role of polymorphonuclear neutrophils as "Trojan Horse" vehicles during brucellosis, using a bone marrow murine model and the chronicity and persistence of the disease. She has acquired expertise in ELISA, flow cytometry, bacterial infections, cell culture, cell differentiation, cell infection through cells and fluorescence microscopy. She has co-authored a publication regarding the role of neutrophils during brucellosis.

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