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The P2X7R activation and its correlation with the inflammatory and nociceptive signaling: A promising target for the treatment of painful diseases

Rômulo José Soares Bezerra
Oswaldo Cruz Institute – FIOCRUZ, Brazil

The search for new medicines with less side effects and more efficacy to treat the pain states and inflammatory diseases continues to be a challenge difficult to solve. In this context, the search of new molecules with antagonistic action on the P2X7receptor (P2X7R), which is a purinergic receptor that is physiologically activated by ATP released from apoptotic or necrotic cells during an inflammatory process, emerge as a promising therapy. Since its activation promotes the release of pro-inflammatory and pro-nociceptive cytokines, i.e. IL-1 β and other inflammatory mediators as NO and ROS. Our group has been focusing in the context of the High Throughput Screening of Natural Products to find a possible new analgesic and anti-inflammatory compound with antagonistic profile on the P2X7R. Actually, we found three compounds with such *in vitro* and *in vivo* activities.

Biography

Rômulo José Soares Bezerra is graduated in Pharmacy from the University Estacio de Sá – Rio de Janeiro - Brazil (2004), Master in cell and molecular biology by FIOCRUZ (2008) and PhD in cell and molecular biology by FIOCRUZ (2012). He is the invited member of the American Chemical Society (ACS), participating as a reviewer of the journal "Journal of Biomolecular". He has experience in the biochemistry and pharmacology area in the following topics: *Leishmania amazonensis*, nitric oxide, arginase, *anti-Leishmania* experimental chemotherapy, and biochemistry of trypanosomatids. Actually, his research is focusing in the context of High Throughput Screening of natural products to find an active molecule, which could be useful in the future to treat some diseases related to the purinergic receptors.

romulo@ioc.fiocruz.br

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