Effects of TLQP-21 in a model of ARDS

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TLQP-21 is a neuropeptide expressed in the brain that is involved in the control of energy homeostasis. In preliminary experiments we have observed that TLQP-21 can modulate macrophage function. In Acute Respiratory Distress Syndrome (ARDS) macrophage seems to play a critical role, contributing to lung remodeling.
The aim of this work was to explore the therapeutic role of a short analog of TLQP-21 (JMV5656) in an experimental model of ARDS.
C57/BL6 mice received an instillation of 0.1 M HCl, 2.5 ml/kg into the right bronchus. They were treated with TLQP-21 0.6 mg/kg ip or vehicle control, 2 days before and on the same day of HCl challenge. Respiratory system compliance, blood gas analysis and differential cell counts in a selective bronchoalveolar lavage (BAL) were determined 24 h after HCl. In a parallel experiment mice were observed for 14 days to assess epithelial damage and lung fibrosis.
The treatment with TLQP-21 showed a significant decrease in the number of total cells in BALF, due to a lower recruitment of neutrophils at 24 hour after challenge with HCl, compared to the vehicle group, with no differences in macrophage number , even if this did not translate in a functional improvement in lung compliance and oxygenation. At day 14 the TLQP-21 group showed an improvement in lung compliance and a decrease collagen deposition in lung tissue.
TLQP-21 can decrease inflammatory response at an early phase in a mouse model of HCl-induced ARDS, which may modulate lung remodeling at a late phase, preventing a fibrotic evolution. These results suggest a potential role for TLQP-21 in ARDS therapy and call further research.