

论文

孤啡肽及其片段的合成、痛觉调节作用和对免疫功能的影响

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摘要:

目的: 研究孤啡肽(NC)与其4个片段(NC(1-15)NH<sub>2</sub>, NC(1-13)NH<sub>2</sub>, NC(1-11)NH<sub>2</sub>, NC(1-5)NH<sub>2</sub>) 在痛觉调节和免疫活性上的变化, 探讨NC的构效关系。方法: 固相多肽合成法合成NC及其片段; 甩尾法测定它们对小鼠的痛敏作用和对吗啡镇痛作用的拮抗; T细胞玫瑰花结形成百分率和红细胞免疫粘附能力评测对免疫功能的影响。结果: 虽然NC及其片段均有痛敏作用并可拮抗吗啡的镇痛作用, 但NC(1-11)NH<sub>2</sub>和NC(1-5)NH<sub>2</sub>比母体活性约降低100倍, 而NC(1-13)NH<sub>2</sub>和NC(1-15)NH<sub>2</sub>与母体有相同的活性。NC及片段(0.3~3 nmol.kg<sup>-1</sup>)对T细胞免疫功能均有促进作用; NC(1-11)NH<sub>2</sub>(0.3 nmol.kg<sup>-1</sup>)对红细胞的免疫粘附能力有促进作用; NC(1-5)NH<sub>2</sub>(0.3~30 nmol.kg<sup>-1</sup>)不影响红细胞的免疫功能。结论: C端在NC的构效关系中有重要的作用。

关键词: 孤啡肽 固相多肽合成 痛敏作用 免疫调节

SYNTHESIS, PAIN MODULATION AND IMMUNOACTIVITY OF NOCICEPTIN AND ITS FRAGMENTS

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Abstract:

AIM: To analyse the structure-activity relationship of nociceptin (NC) by the changes of pain modulation and the sequence of its four fragments(NC(1-15)NH<sub>2</sub>, NC(1-13)NH<sub>2</sub>, NC(1-11)NH<sub>2</sub>, and NC(1-5)NH<sub>2</sub>), and to evaluate the immuno-activity of NC and its fragments. METHODS: Peptides were synthesized by solid phase peptide synthesis. The hyperalgesia and antagonism to analgesia induced by morphin were evaluated with tail flick method. Percentage of rosette forming cell and the red cell immuno activity were used to determine the effect on immuno system. RESULTS: NC and its fragments showed hyporelgesia activity and antagonized morphine induced analgesia, but the activities of NC(1-11)NH<sub>2</sub> and NC(1-5)NH<sub>2</sub> were 100 times lower than the activity of NC. NC(1-13)NH<sub>2</sub> and NC(1-15)NH<sub>2</sub> shared the same activity with NC. The percentage of rosette formed by activated T cell could be enhanced by NC and its fragments. NC(1-11)NH<sub>2</sub> was shown to enhance the red cell immuno activity only at the dose of 0.3 nmol.kg<sup>-1</sup>. NC(1-5)NH<sub>2</sub> showed no effect on RCIA. CONCLUSION: The entire sequence of NC may be not required for full hyperalgesic activity because NC(1-13)NH<sub>2</sub> shares the same activity with NC. NC(1-11)NH<sub>2</sub> and NC(1-5)NH<sub>2</sub> have very low activity so the C terminal plays important role in the structure-activity relationship of NC.

Keywords: solid phase peptide synthesis pain modulation immuno activity nociceptin

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