Title: **Synthesis and study of antibiotic peptides**
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Date: June 2019
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In the recent years, the effectiveness of some antibiotics is progressively decreasing due to the emerge of multidrug resistance bacteria while the development of new antibiotics is slow and complex procedure. Thus, it is one of the biggest public health problems because they can cause some disease which are difficult, and sometimes impossible, to treat. In general, this resistance is caused by irreversible mutations in bacterial genes and can be prevented by minimising the misuse of antibiotics.

KR-12 is the smallest antimicrobial peptide of human cationic LL-37 peptide. Thus, shorter peptide possessed the same antimicrobial and anti-inflammatory activities than the biggest one but without the associated mammalian cell toxicity. The production cost of KR-12 is much lower than LL-37 and it is also faster to obtain. It plays an essential role in protecting humans against infectious diseases and it has wound healing, immune modulating and anticancer effects.

The aim of this work is to synthesize this peptide by solid phase peptide synthesis using Fmoc/tBu protection strategy. Secondly, it has been designed and synthetized a KR-12 analog in order to improve its activity by accoupling a fatty acid group. Finally, these peptides have been characterized by using RP-HPLC and ESI mass spectroscopy. They have been obtained in moderated yield and high purity.

Furthermore, the microbiological activity of both peptides has been evaluated by determining their minimum inhibitory concentration (MIC) and, also, has been studied their toxicity by hemolytic assay.

Keywords: antibiotic peptides, KR-12 peptide, solid phase, microbiological activity, hemolysis.