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ABSTRACT

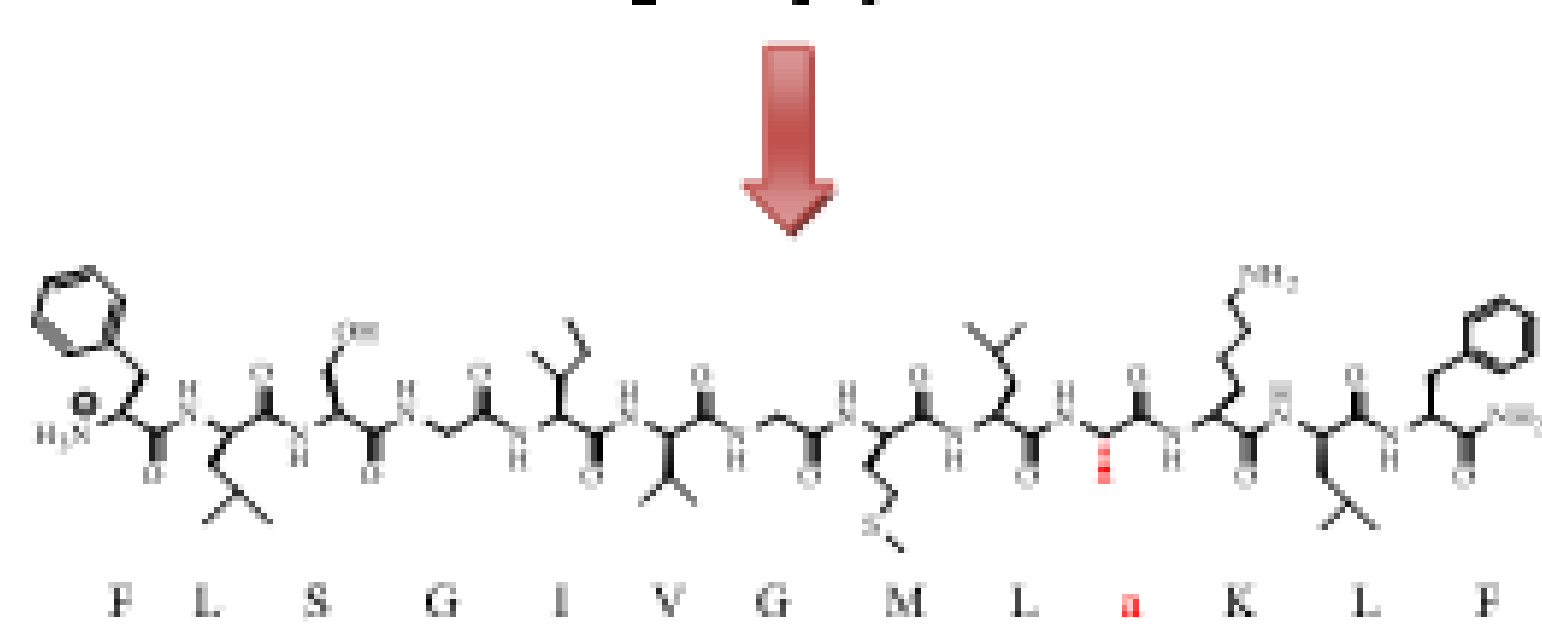
Temporin SHa, isolated from the skin of Sahara frog *Pelophylax saharicus*, was identified as a potent inhibitor of Gram-positive and Gram-negative bacteria, yeasts, fungi, and protozoa, as well as anti-parasitic activity against promastigote and the intracellular stage (amastigote) of *Leishmania infantum*. Our group had previously synthesized potent anti-cancer linear analogs of temporin SHa. These analogs manifested antiproliferative action against cancerous as well normal cell lines. We developed the several branched analogs of previously synthesized potent analogs of temporin SHa. Herein, we report the synthesis, characterization and anticancer along with antimicrobial activity of dendrimers of temporin SHa, which include dimer [G10a]₂-SHa, trimer [G10a]₃-SHa and conjugate of dimer with the lipophilic polymer molecule JEFF-[G10a]₂-SHa for the very first time. While the structural features of peptide dendrimers such as size, morphology, zeta potential, as well as antimicrobial and anticancer efficacy were also evaluated

INTRODUCTION

Dendrimers of temporin analog [G10a]-SHa were designed and synthesized in the form of di- and trimeric forms with or with conjugation with novel Jeffamine trimeric polymer. Among dendrimer analogs, [G10a]₃-SHa was identified as the best dendrimer based on its activities against cancer cells and bacteria

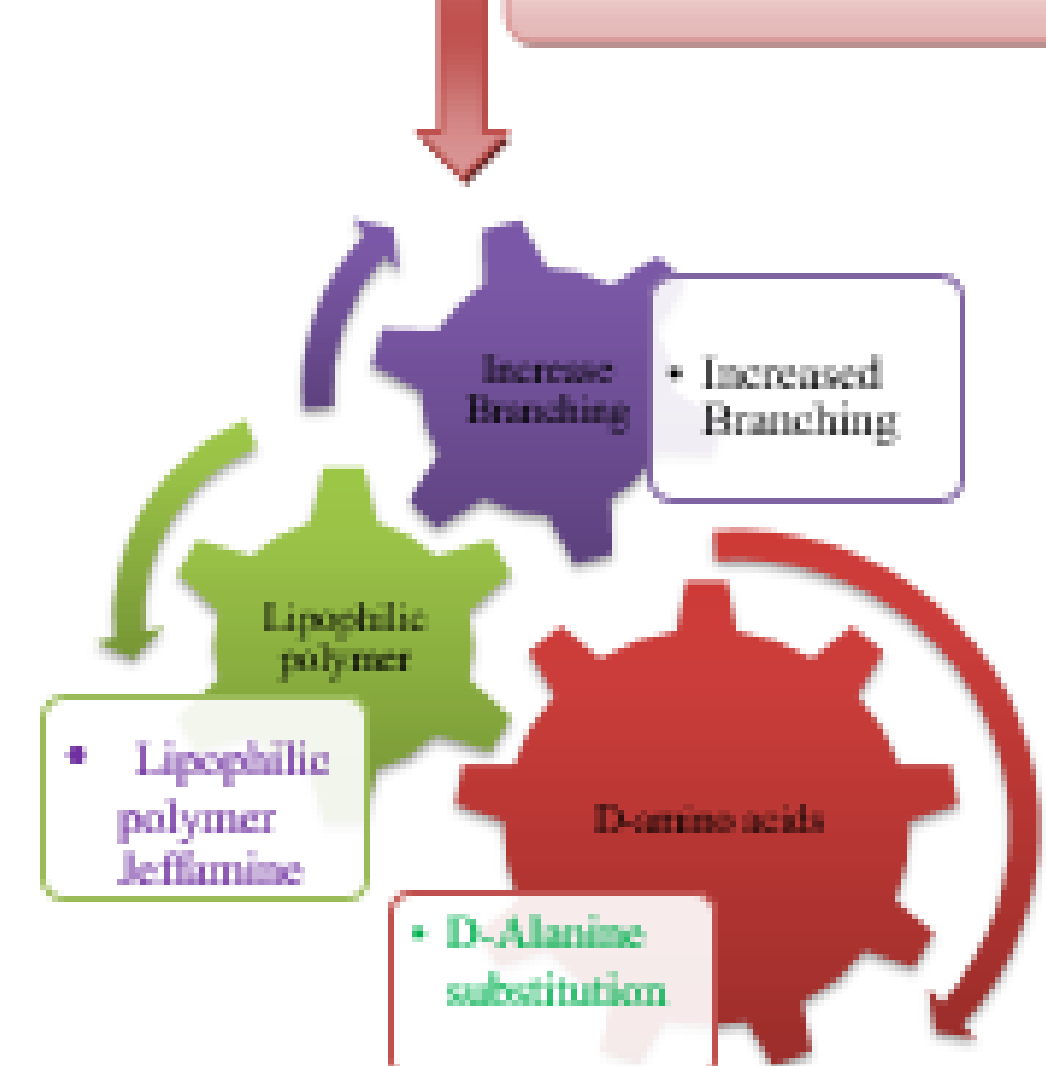
AIMS AND OBJECTIVES OF CURRENT STUDY

Sahara frog *Pelophylax saharicus*



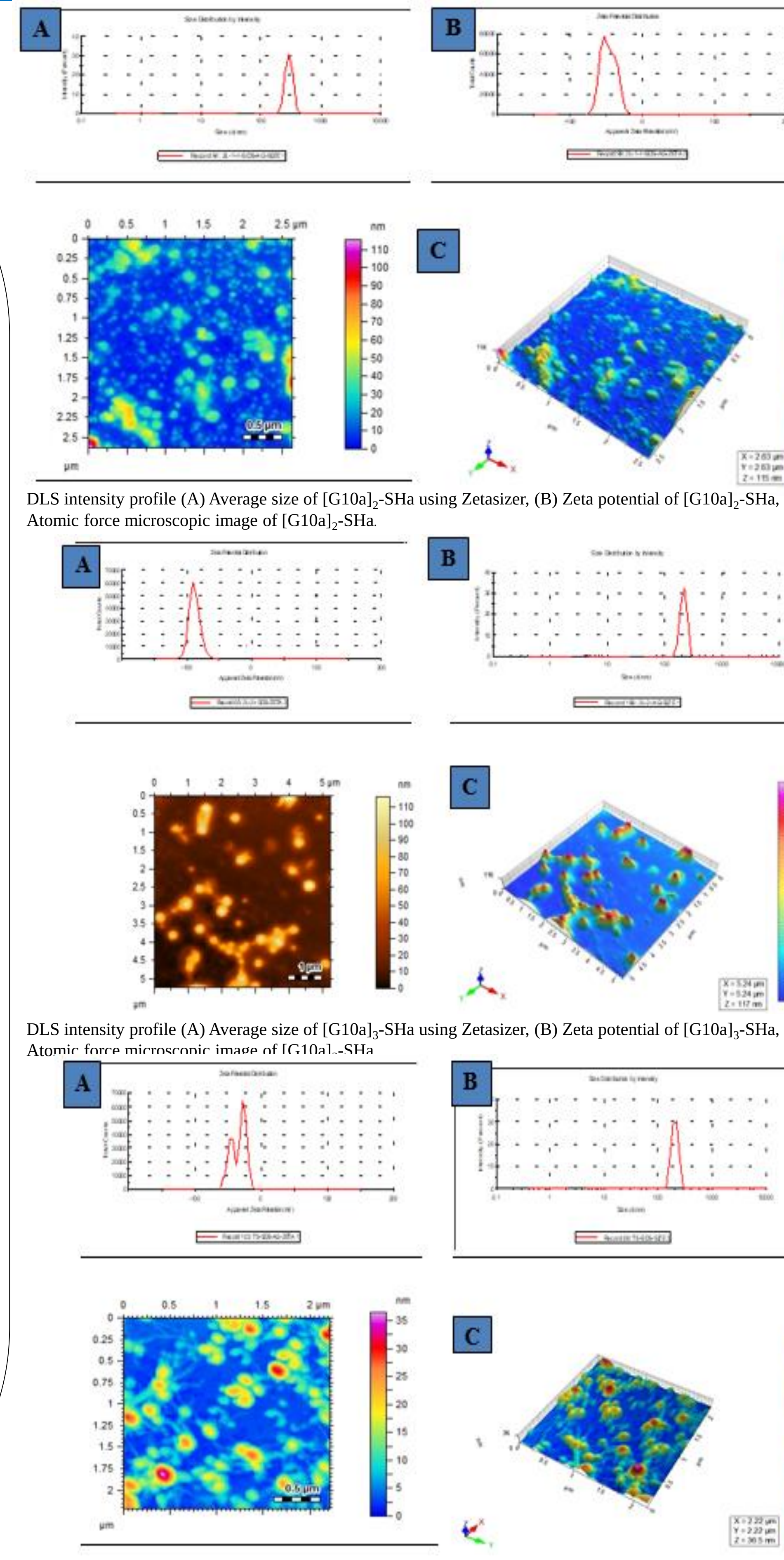
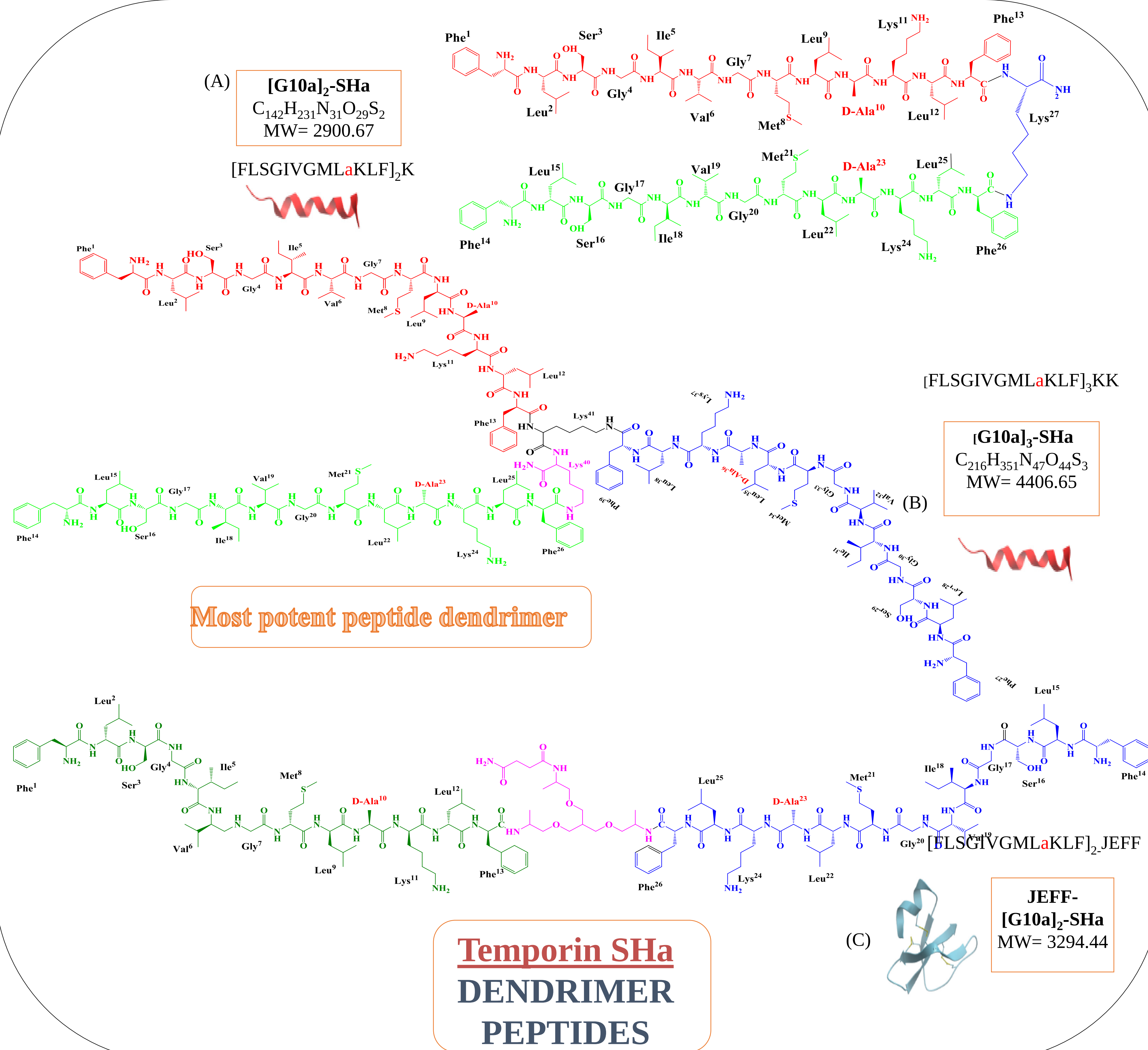
Temporin SHa analog [G10a]-SHa An antibacterial and anticancer peptide

Modification in [G10a]-SHa



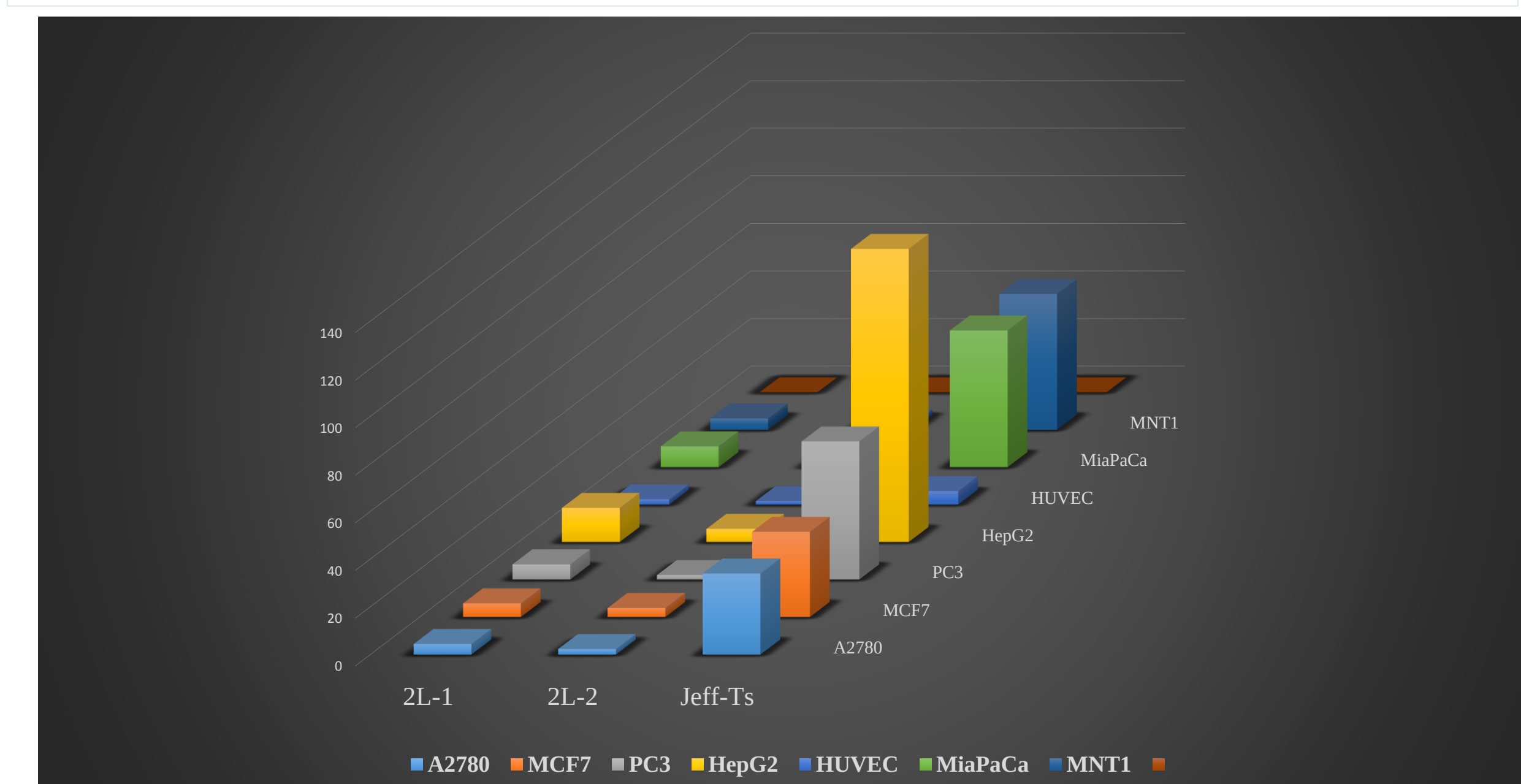
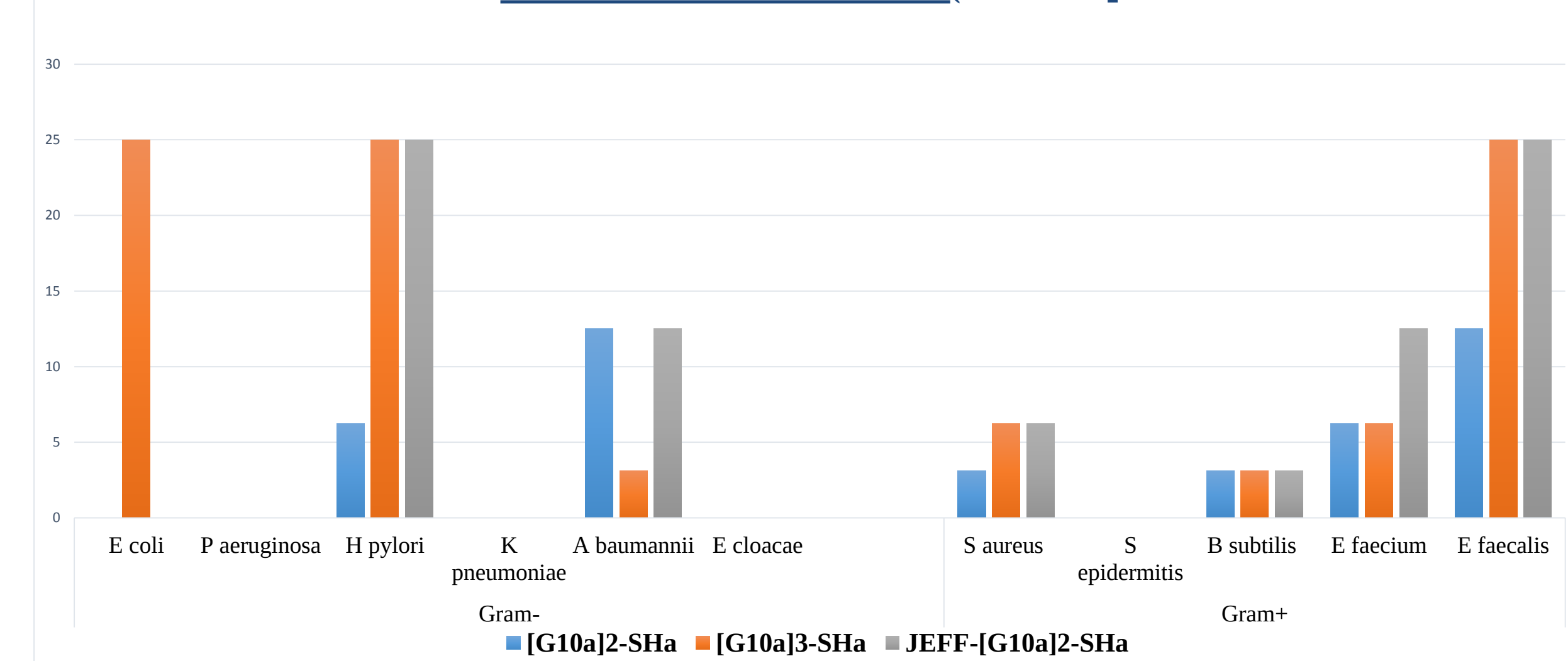
CURRENT WORK

AFM, SIZE-ZETA, AND ZETA POTENTIAL OF PEPTIDE DENDRIMERS



ACTIVITY RESULTS OF PEPTIDE DENDRIMERS

ANTIMICROBIAL RESULTS (MIC in uM)



REFERENCE

- Abbassi, F.; Galanth, C.; Amiche, M.; Saito, K.; Piesse, C.; Zargarian, L.; Hani, K.; Nicolas, P.; Lequin, O.; Ladram, A. *Biochemistry* **2008**, *47*, 10513-10525.
- Shaheen, F., M. Nadeem-ul-Haque, et al. (2018). "Synthesis of breast cancer targeting conjugate of temporin-SHa analog and its effect on pro-and anti-apoptotic protein expression in MCF-7 cells." *Peptides* **106**: 68-82.

ACKNOWLEDGEMENT

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