Sociedad Argentina de Microbiología General

XIX CONGRESO DE LA SOCIEDAD ARGENTINA DE MICROBIOLOGÍA GENERAL

22 al 25 de octubre del 2024
Centro cultural y Pabellón Argentina de la Universidad Nacional de Córdoba, Córdoba, ARGENTINA.

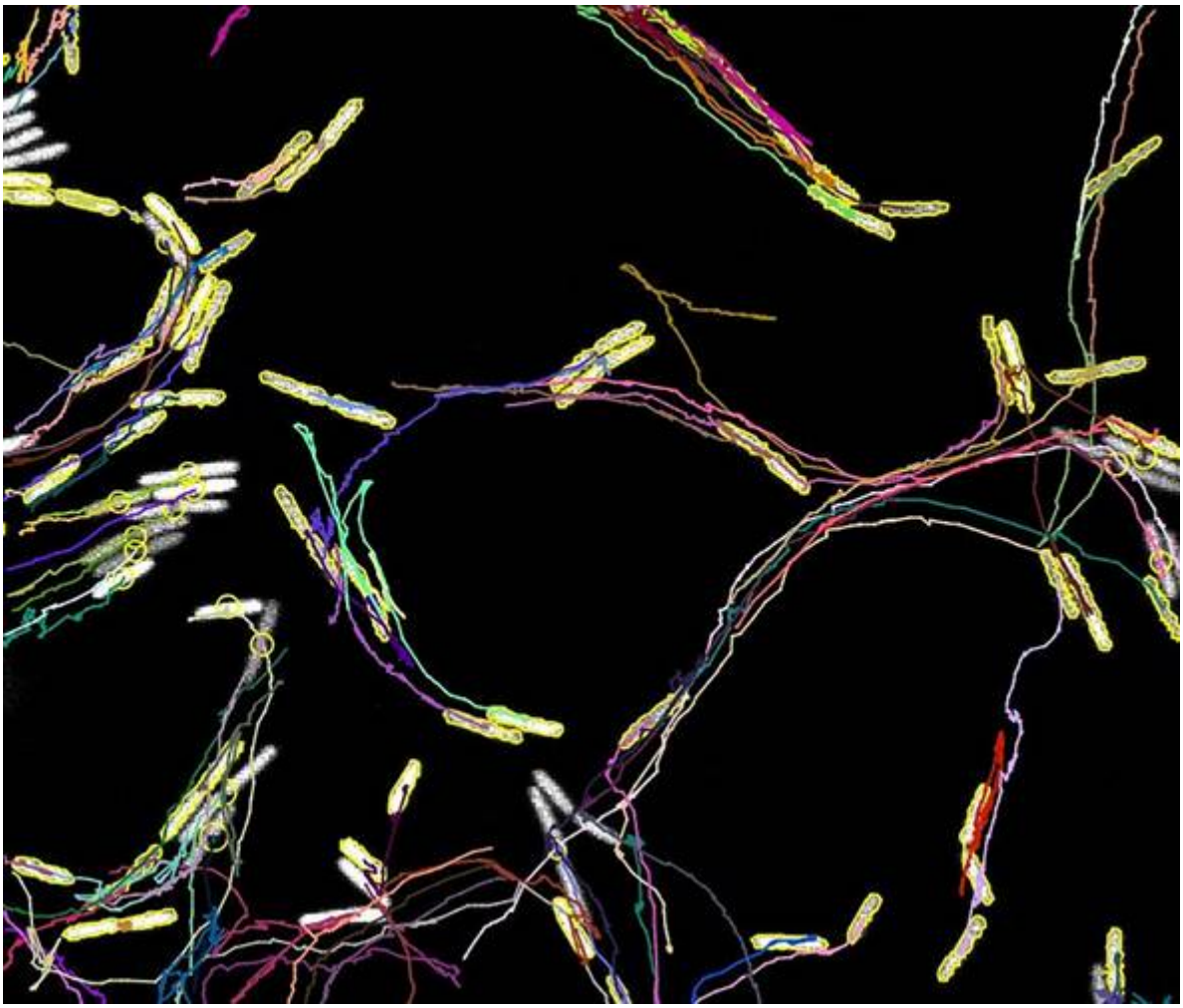

Foto: Se hace camino al andar. Celeste Dea. 1er puesto. Concurso fotográfico SAMIGE 20 años.

7 - Biotecnología y Bioprocesos

ETHANOLIC EXTRACT OF THE ANTARCTIC ISOLATE *Sphingomonas* sp. UV9 AS A POTENTIAL PRO-HEALING AGENT

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The process of skin healing is crucial for physical, aesthetic, and psychological well-being. Although there are several treatments to promote healing, their effectiveness is often limited, highlighting the ongoing need for new solutions. Currently, some Antarctic biomolecules with cosmetic applications for skin care are reported. However, there is little exploration of the use of Antarctic bacteria in promoting wound closure. In this study, we evaluated the potential of an ethanolic extract from Antarctic bacteria *Sphingomonas* sp. UV9 using both *in vitro* and *in vivo* healing models. In vitro assays in the HaCaT model revealed that the ethanolic extract of *Sphingomonas* sp. UV9 (ExUV9) exhibited dose-dependent pro-healing activity and stimulated cell proliferation and migration processes. Furthermore, it was proven that exposure to ExUV9 at the doses evaluated does not reduce cell viability, does not increase the frequency of micronucleus generation, and significantly reduces ?H2Ax labeling compared to basal levels. Additionally, the ABTS assay showed that ExUV9 has antioxidant capacity. The properties of ExUV9 on the healing and skin regeneration process were also assessed using a murine excisional wound model. This *in vivo* assay suggested an enhanced wound healing process after 8 days of treatment with ExUV9. Studies on the growth kinetics of the microorganism revealed that the bioactive component of ExUV9 is produced from early stages, with kinetics similar to the production of primary metabolites in bacteria. ExUV9 promotes wound closure without inducing cytotoxicity or genotoxicity in the HaCaT model, making it a promising candidate for use as a therapeutic healing agent.

Palabras clave: Antartic bacteria - Sphingomonas sp. - wound healing - HaCaT - murine excisional wound model