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.

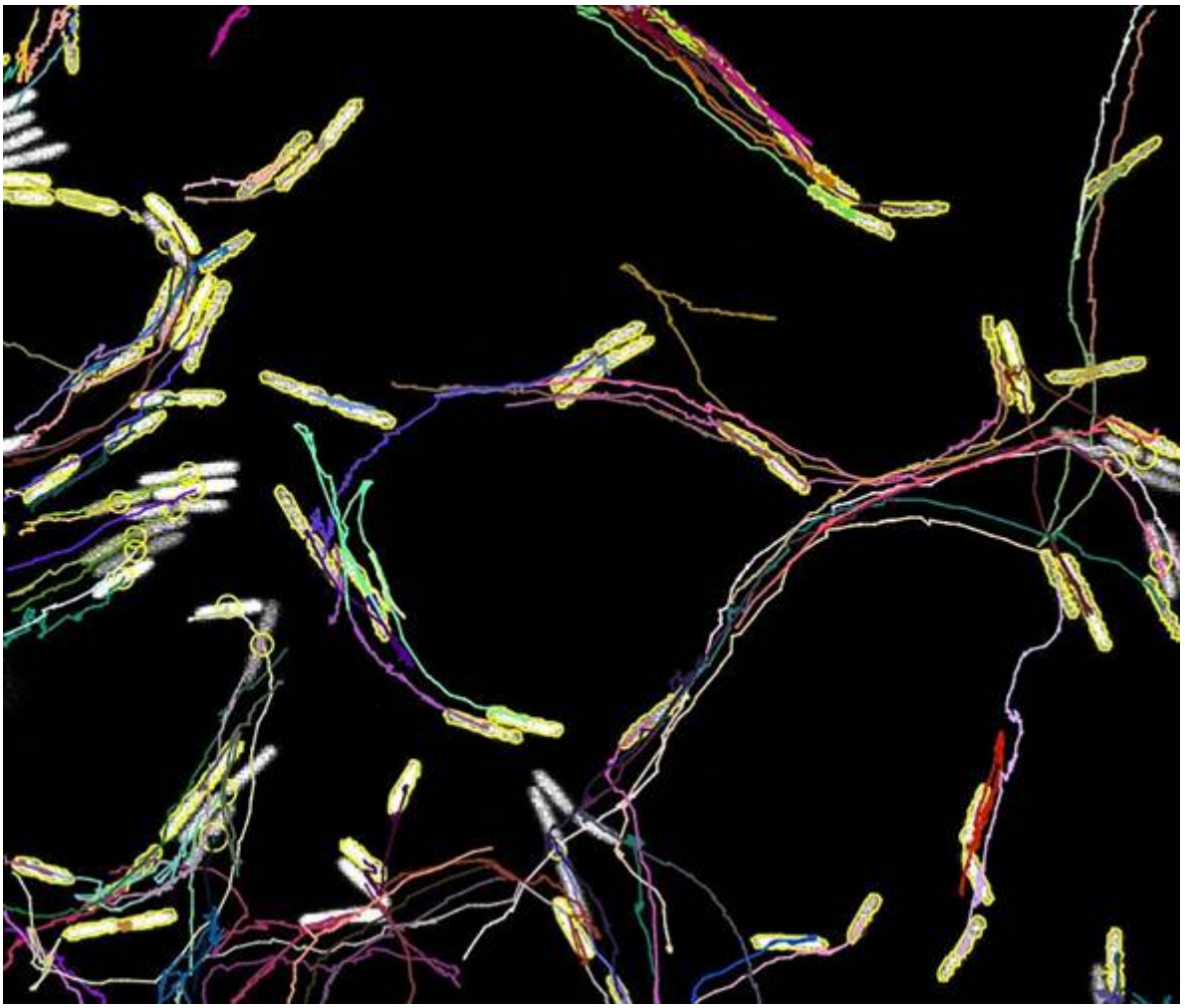

Foto: Se hace camino al andar. Celeste Dea. 1er puesto. Concurso fotográfico SAMIGE 20 años.

234 - invitados

ENGINEERING GUT BACTERIA FOR BIOSENSOR AND BIOTHERAPEUTIC DEVELOPMENT

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The gut microbiome is a dense microbial community with a significant impact on host health. Despite its complexity, attempts have been made to engineer its composition through probiotics or to engineer gut microbes as biosensors or biotherapeutics. This talk will show some examples of engineered gut microbes for microbiome-based therapeutics and diagnosis, using synthetic biology tools. Microbially-produced short chain fatty acids propionate and butyrate, when reduced, are indicative of inflammatory diseases and microbiome dysbiosis. We will show how gene circuits with NOT gates and naturally occurring promoters can be used to sense their absence, and even more, release a biotherapeutic molecule. Furthermore, synthetic biology can be applied to sense other molecules found in the gut environment and used in cross-feeding interactions. Finally, metabolic modeling could be useful in designing synthetic microbial consortia, which could be engineered to produce neurotransmitters such as GABA. Such consortia when tested in vivo could show a psychobiotic effect in a neurodegeneration model.

Palabras clave: palabras_clave