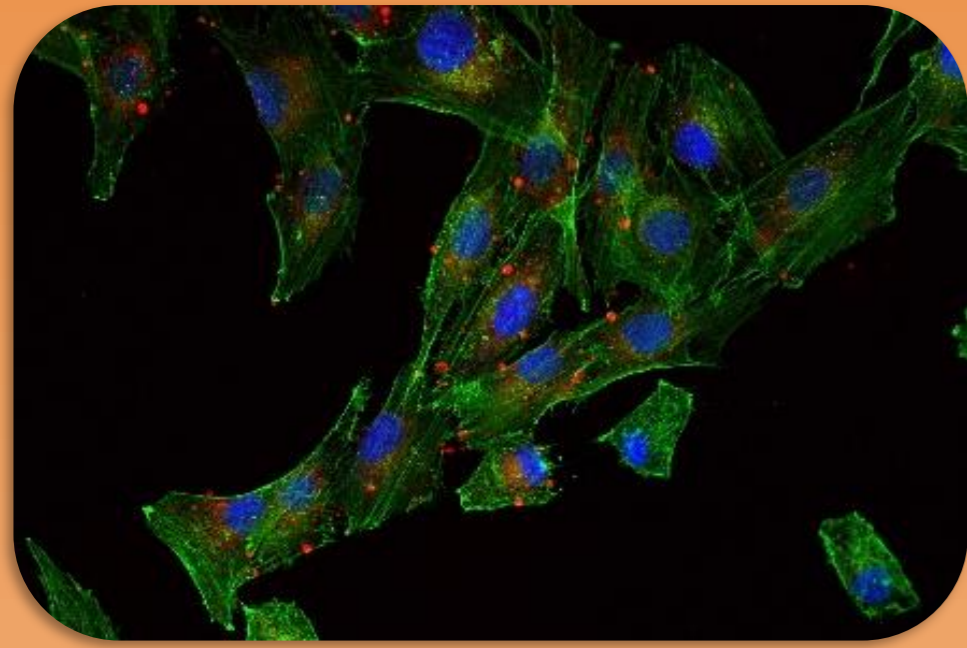




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MicroBio team

Microbiology of milk and egg
sectors

Keywords

Staphylococcus aureus
Extracellular vesicles (EVs)
Small RNAs
Host-pathogen interactions

Funding



Collaborators



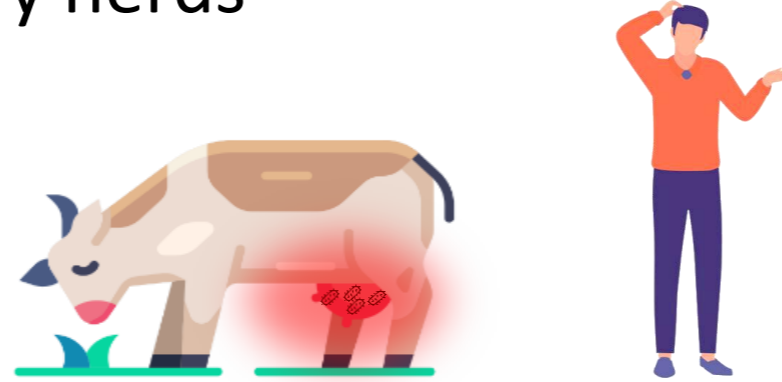
Bacterial RNAs & Medicine



Role of small RNAs transported by extracellular vesicles from *Staphylococcus aureus* in interactions with host cells

Socio-economic context

- *Staphylococcus aureus* is a pathogenic bacterium responsible for nosocomial diseases
- This pathogen has likewise a significant impact on the veterinary medicine and food fields. For instance, it is responsible for mastitis in dairy herds



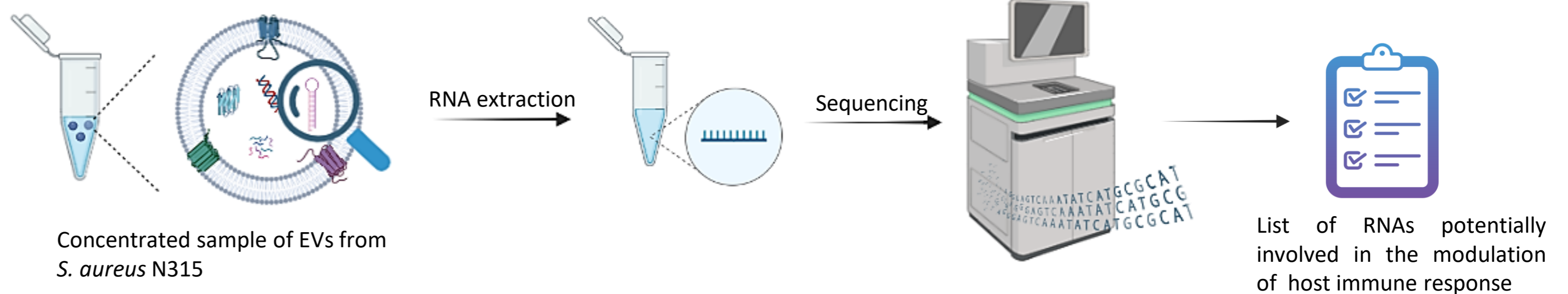
- The emergence of multi-resistant strains is a worldwide concern
- Studies about the virulence of *S. aureus* is therefore an important subject in many research projects around the world

Research question

What RNAs transported by extracellular vesicles produced by *Staphylococcus aureus* are able to modulate the host response and in which pathway?

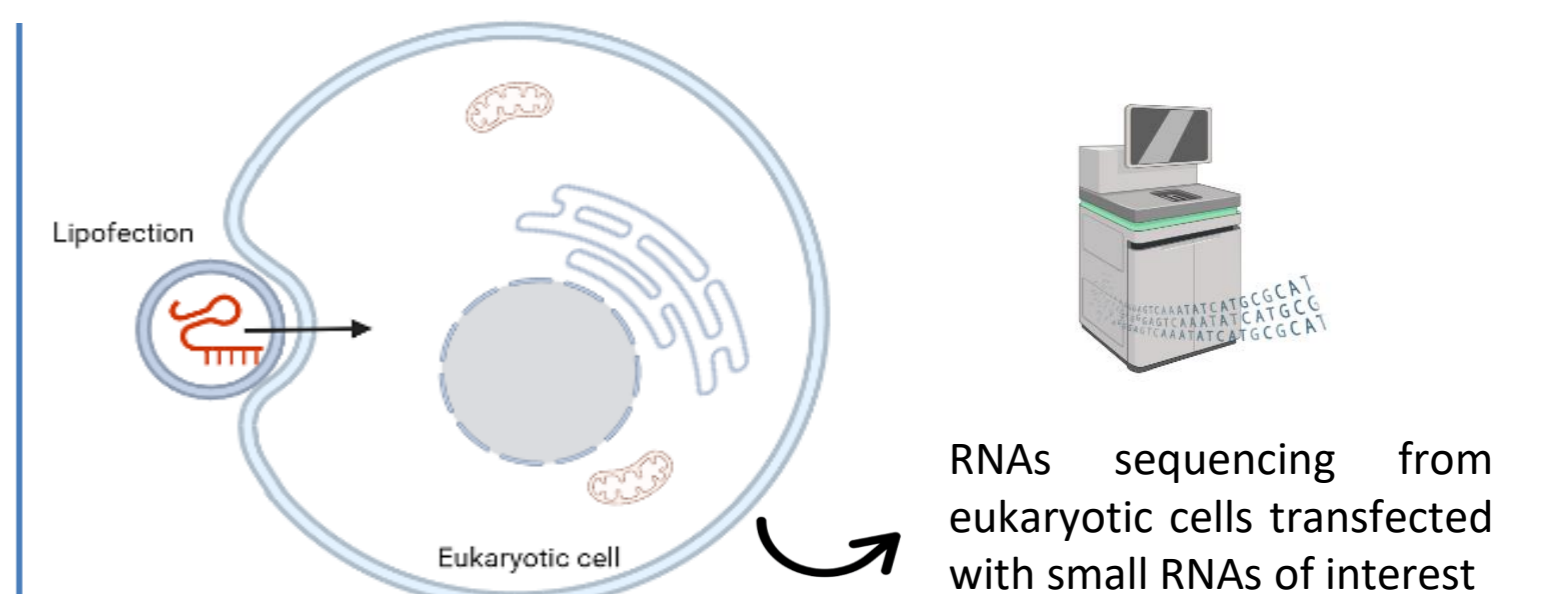
Expected results

- Characterize the RNAs content of *S. aureus* EVs under conditions mimicking infections and demonstrate the ability of EVs to transfer their content into host cells



- Highlight the function of these vesicle-transferred RNAs in the host interactions

In silico approaches to identify the direct targets of specific sRNAs



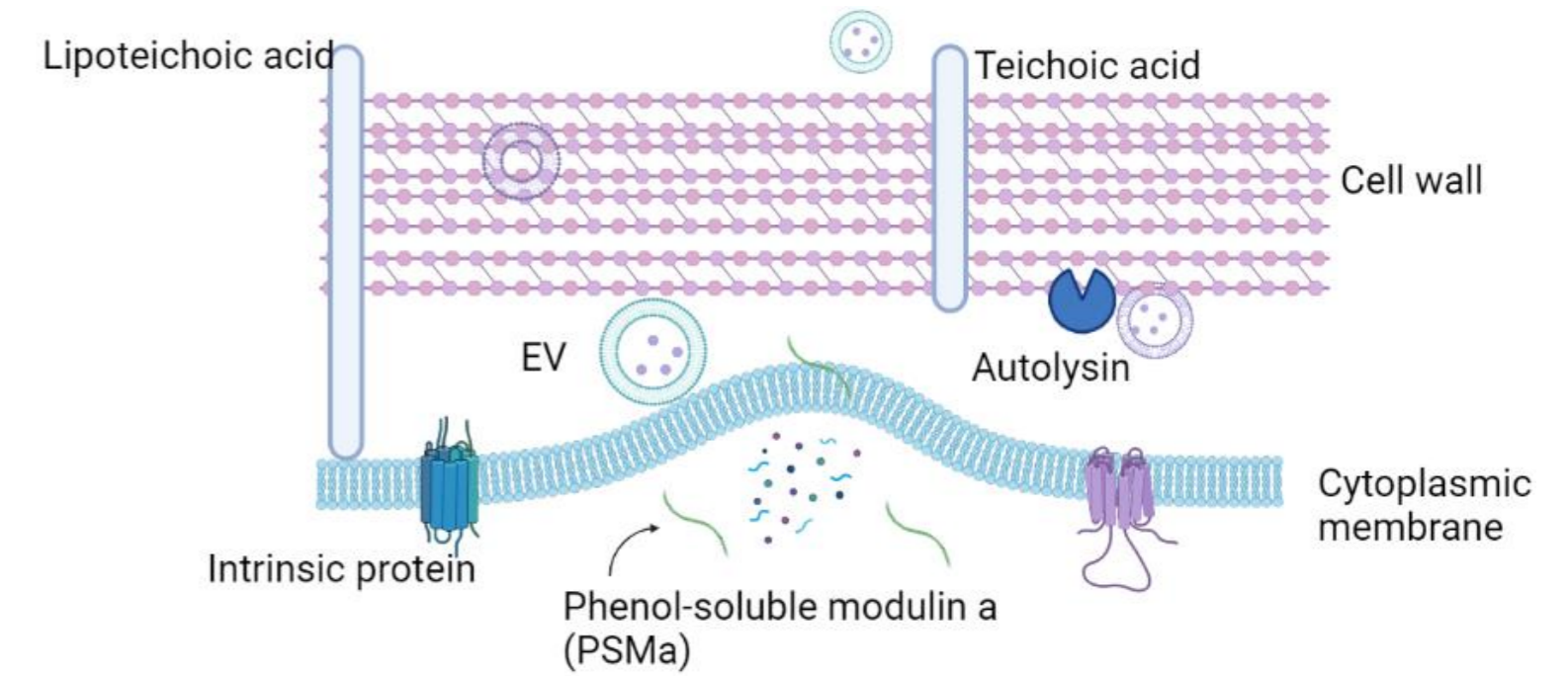
- Determine the contribution of these EVs and their RNAs content to the *S. aureus* infection

Perspectives

- Provide new insights on host-pathogen interactions mediated by EVs from Gram-positive bacteria
- Provide new alternatives for the treatment and prevention of *S. aureus* infections based on our work on regulatory RNAs transported by EVs

Scientific context

- In the past years, there has been growing interest for extracellular vesicles (EVs) of bacteria due to their roles in infection and pathogenesis
- Extracellular vesicles are lipid bilayer spherical nano-sized particles (20-300 nm) which carry various molecules (proteins, lipids, DNA, RNA...) originating from the parent cells
- Data regarding the presence of a RNA cargo in EVs released by the pathogen *S. aureus* are still scarce



Extracellular vesicle (EV) secretion's mechanism by *S. aureus*

