



UNIVERSIDADE DE ÉVORA
ESCOLA DE CIÊNCIAS E TECNOLOGIA
DEPARTAMENTO DE MEDICINA VETERINÁRIA

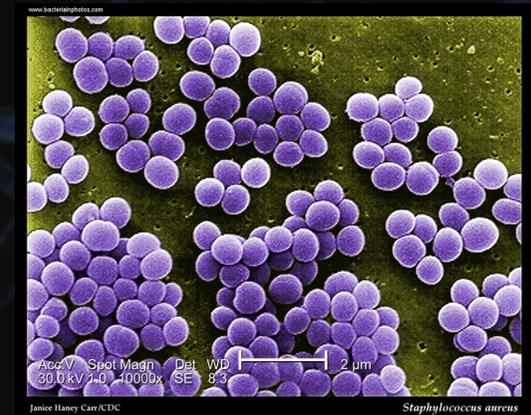
Staphylococci that carry the *nuc* gene

Nara Andrade, Cristina Queiroga and Marta Laranjo

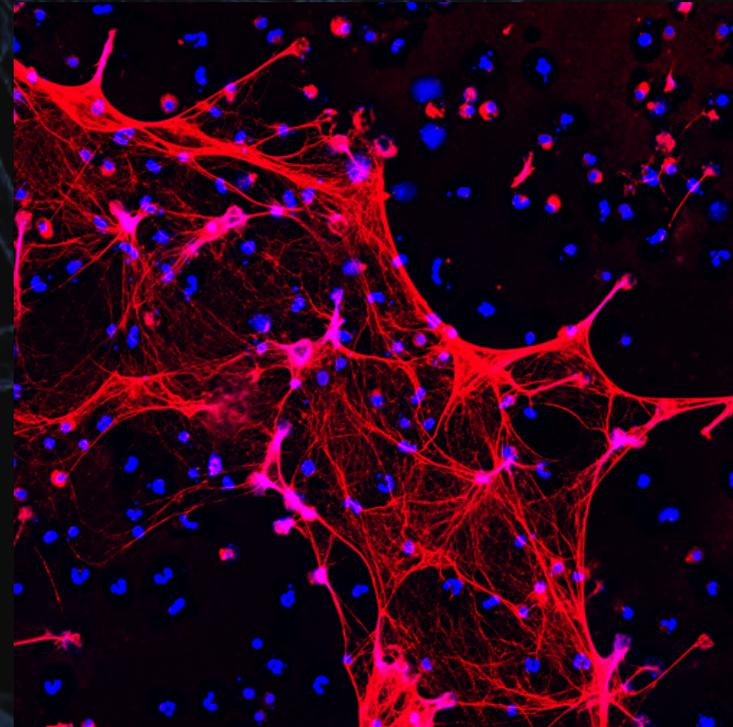
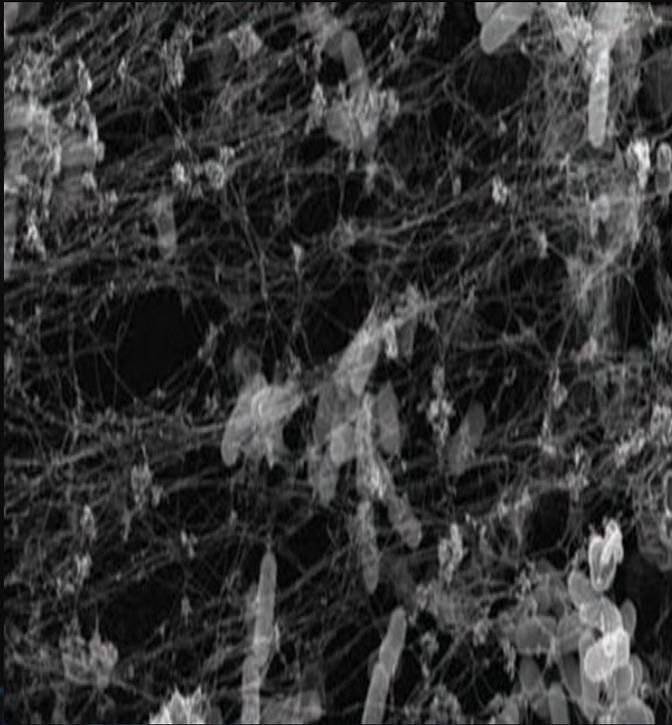
- Inflammation of the mammary gland – MASTITIS – is a serious problem, because it is responsible for the decrease in milk yield and quality



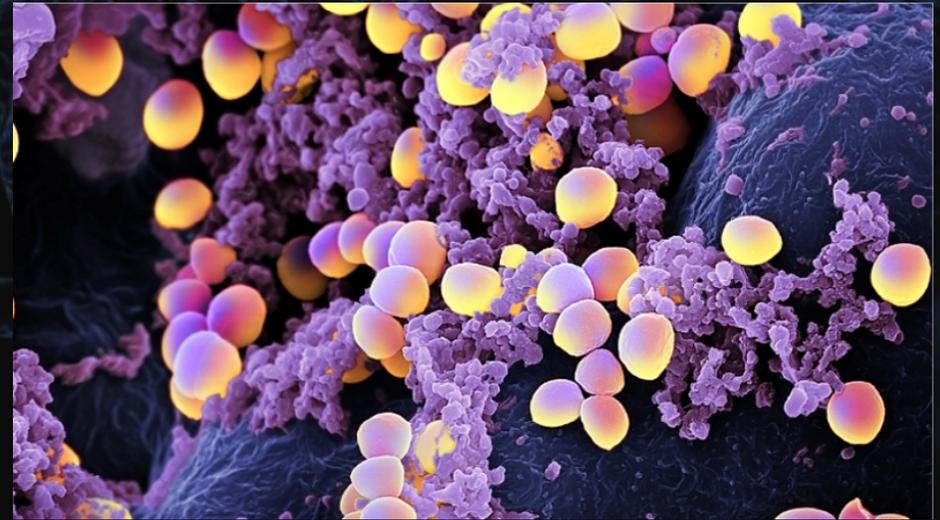
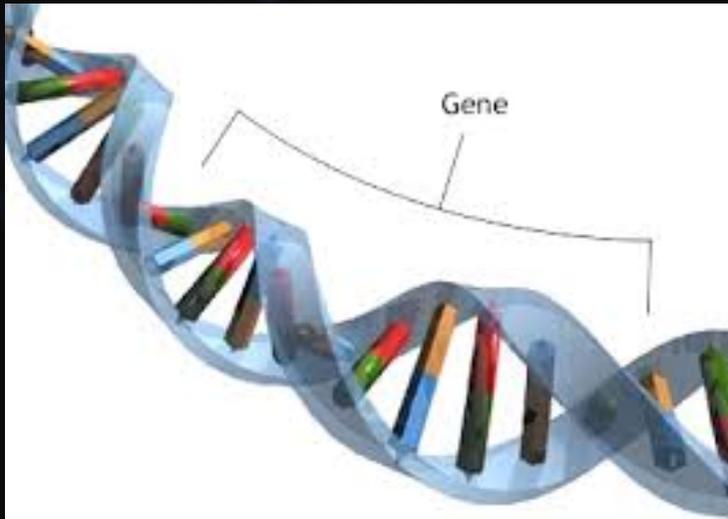
- Bacteria of the species *Staphylococcus aureus*, causing intramammary infections in small ruminants, are often isolated from milk samples and frequently resistant to antimicrobials



- The thermostable nuclease encoded by the *nuc* gene is a virulence factor, as it promotes evasion of neutrophil extracellular traps (NETs), which are networks of DNA strands with antimicrobial proteins



- The *nuc* gene is present in most *S. aureus* isolates, however some isolates not carrying this gene have been described. Moreover, the *nuc* gene has also been detected in other *Staphylococcus* species, notably in *S. intermedius*, *S. hyicus* and *S. simulans*



Aim

To assess the presence of the *nuc* gene in staphylococci isolated from goat and sheep milk samples



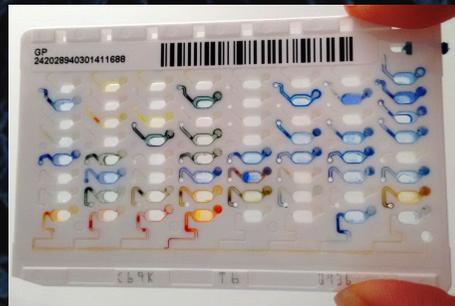
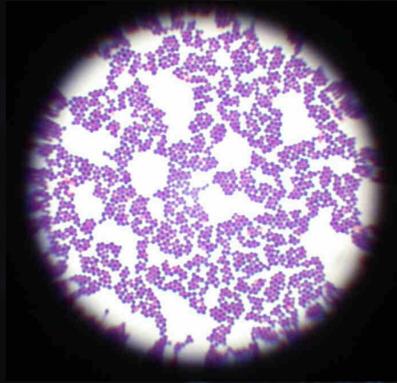
Material and methods



- 368 milk samples
- 187 animals
- 6 flocks
- Alentejo - Portugal

Material and methods

- 91 *Staphylococcus* isolates
- identified by classical biochemical methods and through the VITEK2



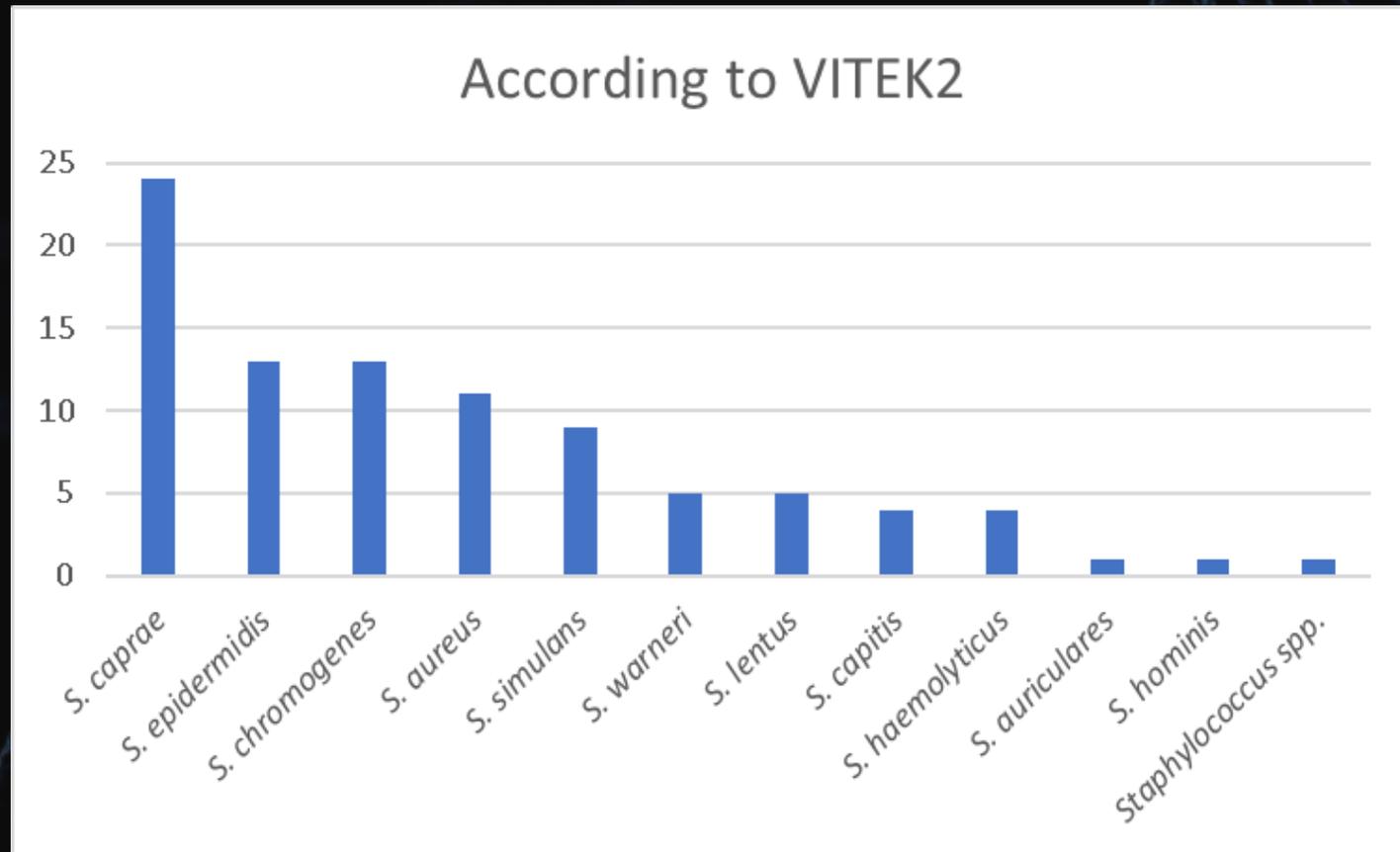
- Assessment of the *nuc* gene by PCR
- *S. aureus* ATCC 25923 was used as positive control

Thermocycler (PTC1148C, MJ Mini Bio-Rad)



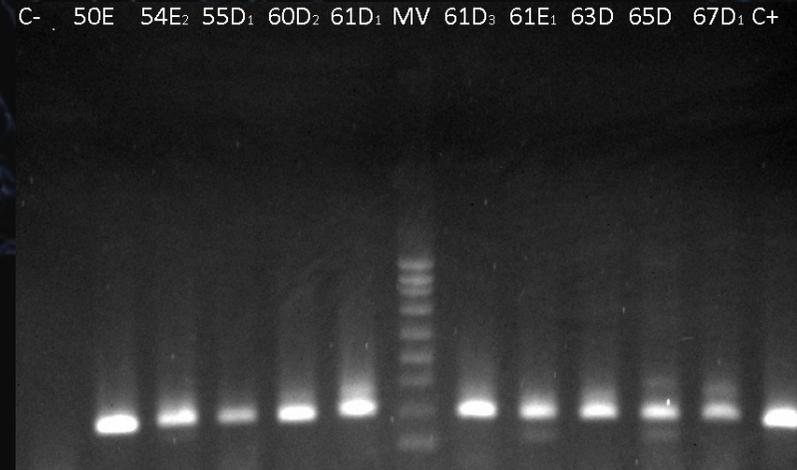
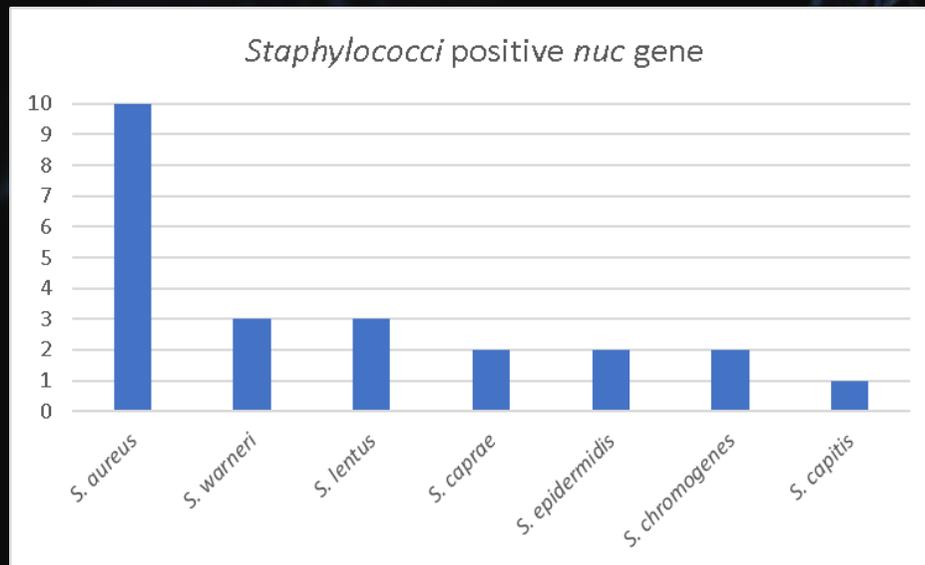
Gel Doc (Bio-Rad, USA) and software "Image Lab"

- Staphylococci species identified by VITEK2



Results

- 23 out of 91 isolates (25.3%) carry the *nuc* gene
- *nuc* gene was detected in 7 different *Staphylococcus* species
- *nuc* gene was not detected in 1 *S. aureus* isolate



Our results suggest that:

- the presence/absence of the *nuc* gene is not a reliable method for the identification of *S. aureus* isolated from small ruminant milk samples
- this virulence factor may be involved in small ruminant mastitis pathophysiology



Thank you!

