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## Background

*Staphylococcus capitis* is usually a susceptible and low virulent commensal species. Nevertheless, linezolid-resistant *S. capitis* isolates have been involved in sporadic cases in several countries.

In this study we investigated epidemiological, clinical, microbiological and genetic characteristics of linezolid-resistant *S. capitis* isolates from French ICUs, and we compared these strains to linezolid-resistant isolates from other European countries.

## Material and Methods

All the LZD resistant *S. capitis* isolates available in the French National Reference Center for Staphylococci (NRCS) collection were included in this study. Moreover, the Staphylococcal Research Laboratories (SRL) of all the European countries were asked to send linezolid-resistant *S. capitis* isolates from their collection to the French NRCS.

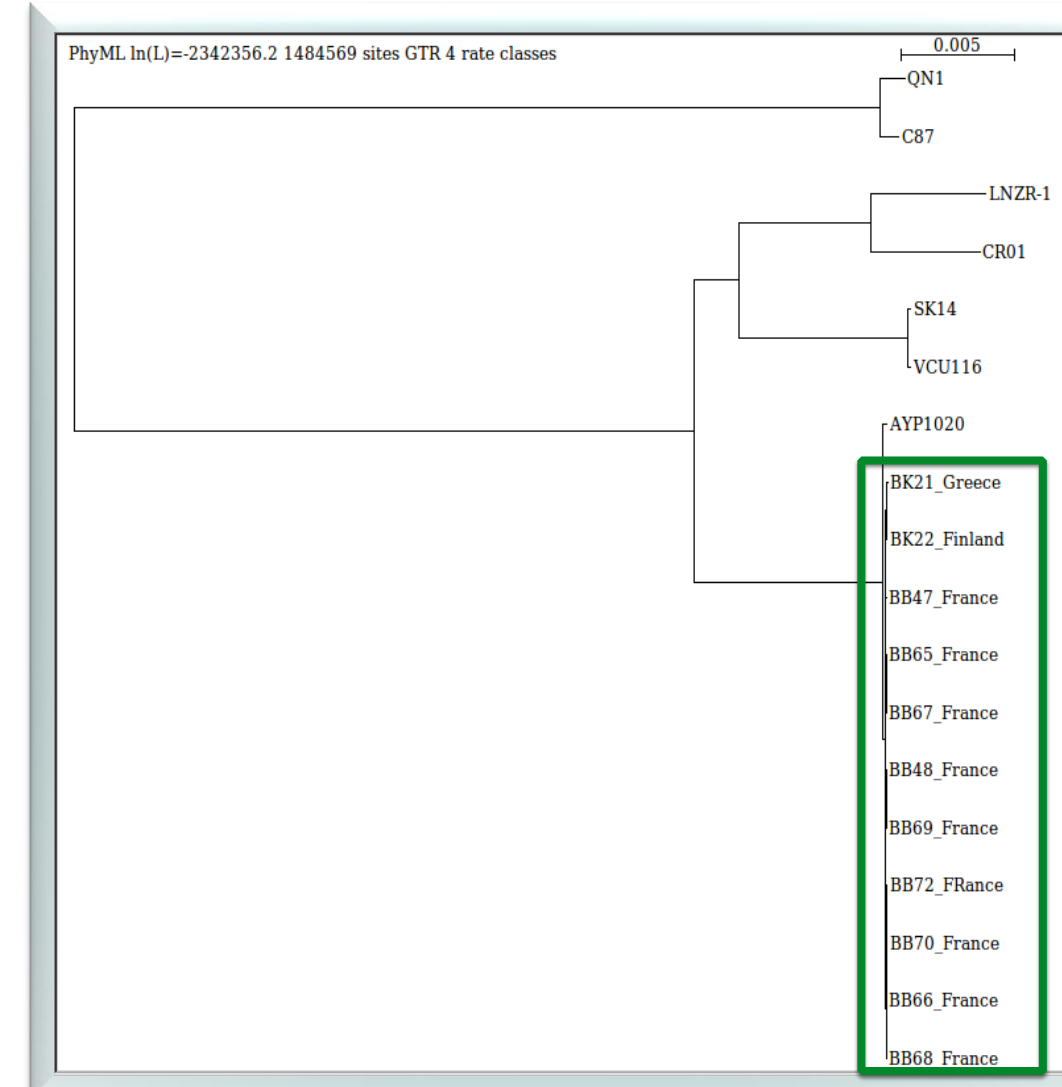
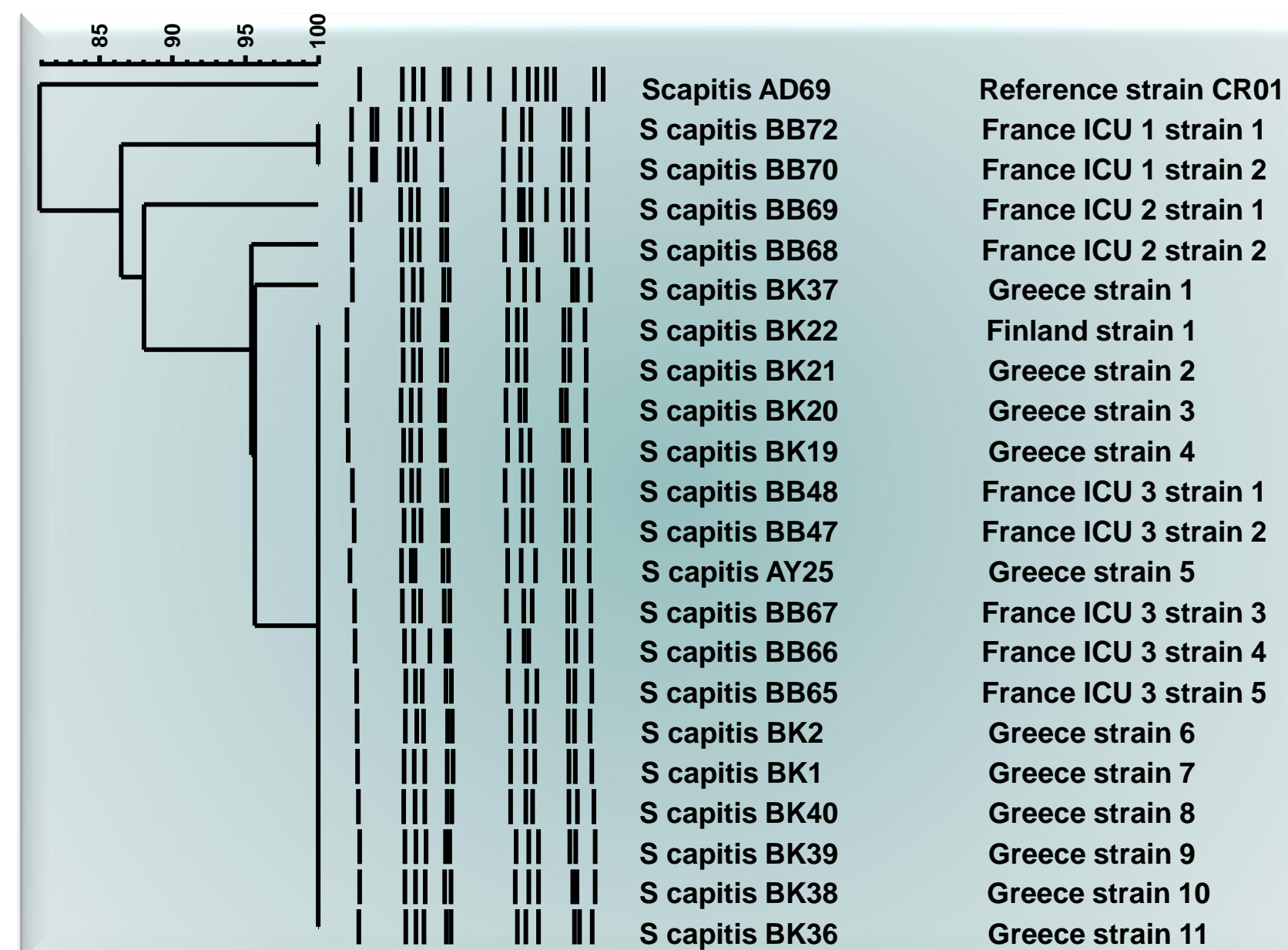
For each French isolate, clinical data were retrospectively collected and antimicrobial susceptibility test were performed using the standard agar diffusion method and Etest (for daptomycin, LZD, teicoplanin, vancomycin).

In French and European isolates, the presence of *cf*r gene and mutations in the 23S rRNA were investigated by specific PCR. Genetic relationship between all isolates was investigated by PFGE and by whole genome sequences (WGS) comparison.

## Results

Twenty one isolates were included in this study, from France (n=9), Greece (n=11) and Finland (n=1). Isolates were all resistant to methicillin and aminoglycosides. The *cf*r gene was absent in all isolates. A G2576T mutation of the 23S rRNA was found in all isolates. All the isolates belonged to a same clone, defined by their PFGE profiles, whatever was their ICU/country origin.

Analysis of the WGS of 18 *S. capitis* isolates, including the 9 French linezolid-resistant *S. capitis* strains, one from Greece (selected because it was the first received in the French NRCS), the Finish isolate and the 7 publicly available *S. capitis* genomes, showed that the 11 linezolid-resistant *S. capitis* strains of our study clustered in a single clade.



## Conclusion

Emergence and wide inter-hospital diffusion of this linezolid-resistant CONS clone in several European countries is worrisome and even more unexpected because *S. capitis* is usually a low-virulent species. The possible unrecognized larger distribution of this clone as well as the mechanisms of resistance acquisition in this clone require further studies.