IZSTO

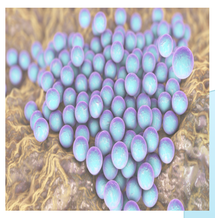
Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta

WHOLE GENOME SEQUENCING TYPING TO BUILD OPEN ACCESS *STAPHYLOCOCCUS AUREUS* DATABASE

Laboratorio Nazionale di Riferimento per gli Stafilococchi coagulasi positivi, incluso *Staphylococcus aureus*

Romano A.[1], Boteva C.[1], Bellio A.[1], Zuccon F.[1], Martucci F.[1], Adriano D.[1], Maurella C.[2], Bergagna S.[3], Chiesa F.[4], Gallina S.[1], Bianchi M.D.[1] and L. Decastelli[1]

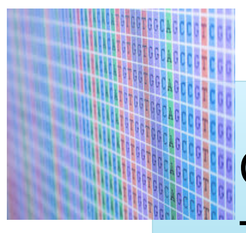
[1] Istituto Zooprofilattico Sperimentale del Piemonte Liguria e Valle d'Aosta, S.C. Controllo Alimenti
[2] Istituto Zooprofilattico Sperimentale del Piemonte Liguria e Valle d'Aosta, BEAR- Biostatistica, Epidemiologia e Analisi del Rischio
[3] Istituto Zooprofilattico Sperimentale del Piemonte Liguria e Valle d'Aosta, S.C. Sierologia
[4] Unversità degli Studi di Torino Dipartimento di Scienze Veterinarie



S. aureus model for WGS characterization

- ubiquitous bacteria
- responsible for widespread food borne disease
- direct impact also on animal health

- Biotyping
- mPCR for genes encoding SE
- SpaTyping
- PFGE



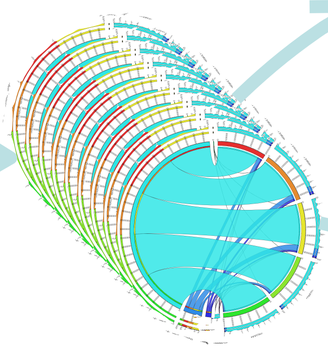
Combining traditional methods with Next Generation Sequencing (NGS)
To perform typing and constitute an open access database for *S. aureus*

MATERIAL & METHODS

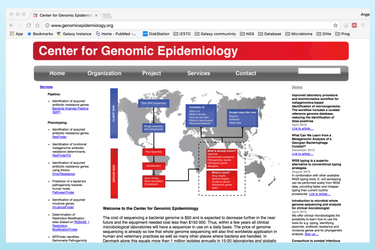
Strains included:
- 40 encoding SE isolated from food matrices in Piedmont region
- 80 isolated during food borne outbreaks
- 40 isolated from bovine mastitis
- 60 isolated from oropharyngeal swabs to healthy human volunteers

Galaxy
usegalaxy.org

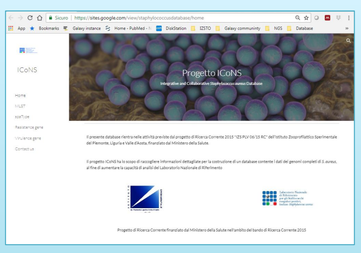
FastQC
Trimmomatic
Unicycler



spaTyper 1.0
MLST 1.8
ResFinder 3.0
CSI Phylogeny 1.2

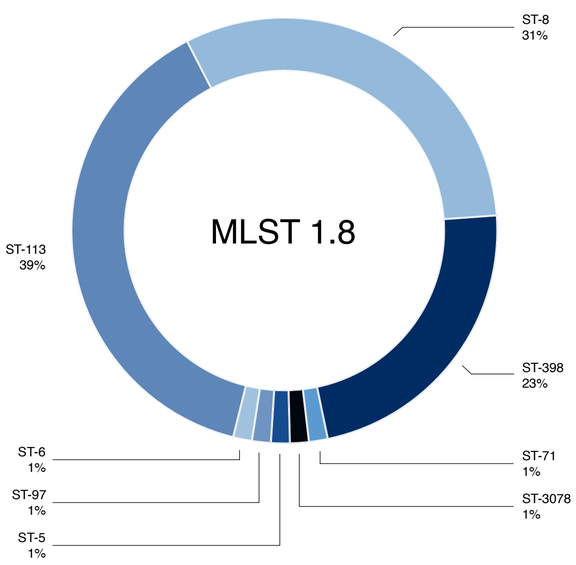


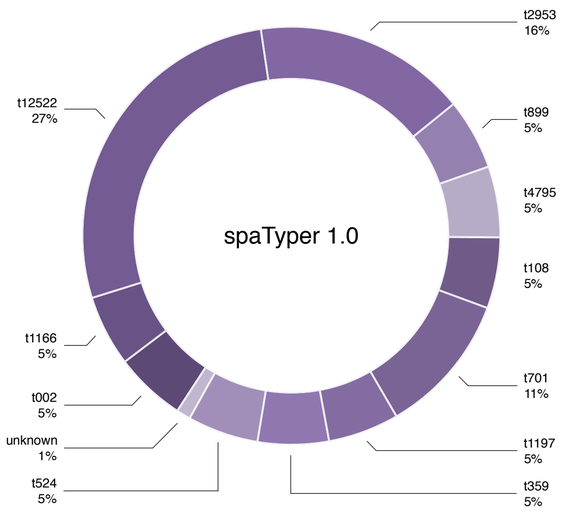
https://cge.cbs.dtu.dk/

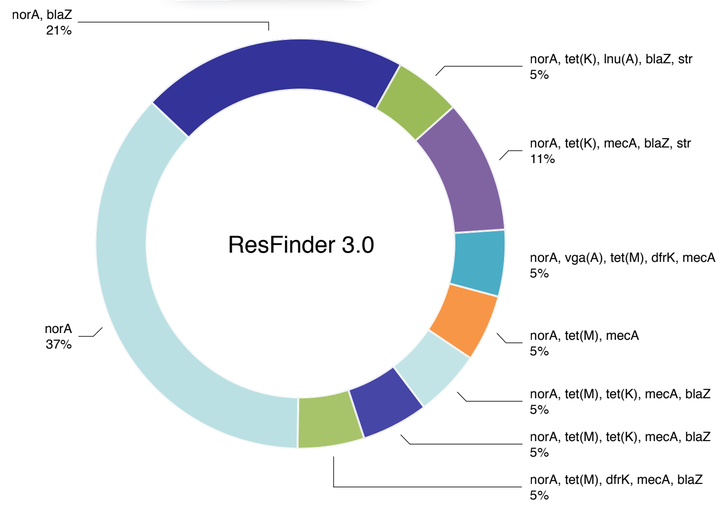


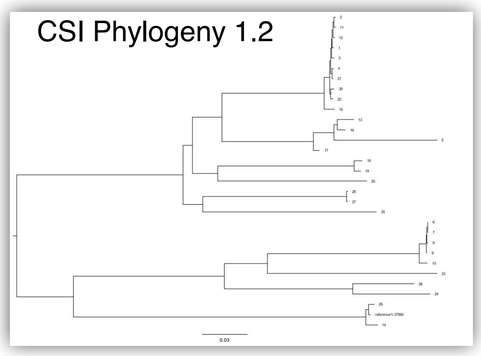
https://sites.google.com/view/staphylococcusdatabase/

RESULTS & CONCLUSIONS









Whole Genome Sequencing: - large and accurate amount of data
- allow a deeper characterization

Open access database to provide useful information related to diagnostic and surveillance purpose

Convegno 2018
Torino 20-22 giugno

Il presente lavoro è stato finanziato dal Ministero della Salute, Progetto di Ricerca Corrente cod. IZS PLV 06/15 RC.

Ministero della Salute