



MRSA – methicillin resistant *Staphylococcus aureus*

Antibiotic resistance

Staphylococci

- / gram-positive or facultative anaerobic organisms
- / may produce multiple exotoxins
- / carried in the anterior nares and skin of 20–30% healthy adults

Staphylococcus aureus

- / approx 10% of *S. aureus* isolates in USA are susceptible to penicillin
- / many strains resistant to penicillin remain susceptible to methicillin

MRSA

- / strains resistant to methicillin and to β -lactams, including cephalosporins and carbapenems
- / may be susceptible to the newest class of MRSA-active cephalosporins (ceftaroline)
- / carried by 2 per 100 people
- / health-care associated and community associated infections

All data supported by



Centers for Disease
Control and Prevention

Diagnostics

- / **Culture + sensitivity test**
 - easy cultivation on commonly used media
 - time consuming
- / **Molecular diagnostics**
 - rapid detection and control of dissemination
 - identification of carriers

Disease association

- / **direct tissue invasion** – most common mechanism
 - skin and soft-tissue infections
 - surgical site infections
 - pneumonia, endocarditis, osteomyelitis, septic arthritis
- / **exotoxin production**
 - toxic shock syndrome
 - staphylococcal scalded skin syndrome
 - staphylococcal food poisoning

GeneProof MRSA PCR Kit



The MRSA detection is based on the amplification of three specific loci (the *nuc* gene, the SCCmec/orfX junction region and the resistance genes *mecA/mecC*) and the measurement of the fluorescence increase. The presence of the *nuc* gene is indicated by the TEX fluorophore fluorescence growth, of the SCCmec/orfX junction by the FAM fluorophore and of the *mecA/mecC* genes by the Cy5 fluorophore fluorescence growth. An Internal Standard (IS) is either included in the ready to use Mastermix, controlling the possible inhibition of the PCR (ISIN version) or needs to be added to the sample, controlling also the DNA extraction process quality (ISEX version). IS positive amplification is detected in the HEX fluorophore fluorescence channel. The “hot start” technology minimizes non-specific reactions, assuring maximum sensitivity and Uracil-DNA-glycosylase (UDG) eliminates possible contaminations of the PCR by amplification products.

technical specification

| | |
|-------------------------------|---|
| Technology | real-time PCR |
| Type of Analysis | qualitative |
| Target Sequence | <i>nuc</i> gene, SCCmec/orfX junction, resistance gene <i>mecA/mecC</i> |
| Specificity | methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) |
| Sensitivity (LoD) | reaches up to 2.81 ge/ml with the probability of 95% (on NCTC strain 13142) |
| Extraction/Inhibition Control | PCR inhibition control (ISIN version) PCR inhibition and DNA extraction efficiency control (ISEX version) |
| Validated Specimen | aspirate, sputum, swab, urine |
| Storage | -20 ± 5 °C |
| Validated Extraction Methods | croBEE NA16 Nucleic Acid Extraction System GeneProof PathogenFree DNA Isolation Kit |
| Validated Instruments | croBEE Real-Time PCR System Applied Biosystems 7500 Real-Time PCR System AriaMx Real-Time PCR System CFX96™/ Dx Real-Time PCR Detection System LineGene 9600 / 9600 Plus Rotor-Gene 3000 / Q |
| Required Detection Channels | FAM, HEX, Cy5, TEX |
| Quality Control | In accordance with ISO 13485 , each lot of GeneProof PCR Kit is tested against predetermined specifications to ensure consistent product quality. |
| External Quality Assessment | Regularly tested by QCMD and Instand e.V. External Quality Assessment Panels – results at www.geneproof.com |
| Certification | CE IVD for <i>in vitro</i> Diagnostic Use |

order

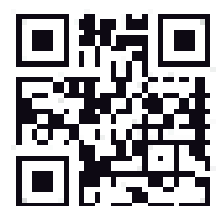
| Product name | Technology | Cat. No. | | |
|------------------------|---------------|---------------|---------------|---------------|
| | | 25 reactions | 50 reactions | 100 reactions |
| GeneProof MRSA PCR Kit | real-time PCR | MRSA/ISIN/025 | MRSA/ISIN/050 | MRSA/ISIN/100 |
| GeneProof MRSA PCR Kit | real-time PCR | MRSA/ISEX/025 | MRSA/ISEX/050 | MRSA/ISEX/100 |



Vom Sehen
zum Erkennen.

medac GmbH
Diagnostika

Theaterstraße 6
22880 Wedel
Telefon: +49 (0)4103 8006-8024
Fax: +49 (0)4103 8006-359
E-mail: diagnostika@medac.de
www.medac-diagnostika.de



Informationen
aus erster Hand