

A six-member SNP assay on the iPlex MassARRAY platform provides a rapid and affordable alternative for typing major African Staphylococcus aureus types

Justin Nyasinga*^{1,2}, Cecilia Kyany'a³, Raphael Okoth³, Valerie Oundo³, Daniel Matano³, Simon Wacira³, Willie Sang⁴, Susan Musembi¹ and Lillian Musila

¹. **Kenyatta University, Nairobi, Kenya;** ² **Technical University of Kenya, Nairobi, Kenya;**
³ **United States Army Medical Research Directorate – Africa, Nairobi, Kenya;** ⁴ **Kenya Medical Research Institute, Nairobi, Kenya.**

Abstract

Purpose. Data on the clonal distribution of Staphylococcus aureus in Africa are scanty, partly due to the high costs and long turnaround times imposed by conventional genotyping methods such as spa and multilocus sequence typing (MLST), which means there is a need for alternative typing approaches. This study evaluated the discriminatory power, cost of and time required for genotyping Kenyan staphylococcal isolates using iPlex MassARRAY compared to conventional methods. **Methodology.** Fifty-four clinical S. aureus isolates from three counties were characterized using iPlex MassARRAY, spa and MLST typing methods. Ten single-nucleotide polymorphisms (SNPs) from the S. aureus MLST loci were assessed by MassARRAY. **Results.** The MassARRAY assay identified 14 unique SNP genotypes, while spa typing and MLST revealed 22 spa types and 21 sequence types (STs) that displayed unique regional distribution. spa type t355 (ST152) was the dominant type overall while t037/t2029 (ST 241) dominated among the methicillin-resistant S. aureus (MRSA) isolates. MassARRAY showed 83 % and 82 % accuracy against spa typing and MLST, respectively, in isolate classification. Moreover, MassARRAY identified all MRSA strains and a novel spa type. MassARRAY had a reduced turnaround time

Access Microbiology pp. 1-8 (2019)

See <https://www.microbiologyresearch.org/docserver/fulltext/acmi/1/3/acmi000018.pdf?expires=1564664577&id=id&acname=guest&checksum=6359348FC4448FB541D566540A816197> more at: