

## Molecular Epidemiology of *Staphylococcus aureus* Carriage ACME-arcA Gene in Healthy Carrier

Ehsanollah Ghaznavi-RAD\*<sup>1</sup>; Mohsen Rezazadeh<sup>1</sup>; Alireza Amouzandeh<sup>1</sup>; Alireza Japoni-Nejad<sup>1</sup>; Hamid Kazemian<sup>2</sup>; Mahsa Tabib-Nejad<sup>1</sup>; Nasimeh Fard-Mousavi<sup>1</sup>; Hamid Bornasi<sup>1</sup>; Mahtab Bonyadi<sup>1</sup>; Nona Taheri<sup>1</sup>; Majid Akbari<sup>1</sup>

1- Department of Medical Microbiology, Faculty of Medicine, Arak University of Medical Sciences, Arak, Iran

2- Students Research Committee, Faculty of Medicine, Arak University of Medical Sciences, Arak, Iran

mohsen.rezazadehh@yahoo.com

**Background & Objectives:** *Staphylococcus aureus* continues to be an important human pathogen in both healthcare and community settings. The arc gene cluster within the arginine catabolic mobile element ACME may have function as a virulence or strain survival factor. This study aimed to determine molecular epidemiology and prevalence of the ACME-associated arcA gene among *S.aureus* isolated from healthy student of Arak University of Medical Sciences.

**Methods:** From the 568 nasal swap specimens, 82 *S.aureus* isolated by *S. aureus*-specific isolation procedures. Isolates that carriage ACME-arcA gene were identified by PCR, as well as PCR for determination of single-locus spa sequence typing was carried out, then data were analysed using Ridom StaphType software.

**Results:** Among 82 *S.aureus* isolates, 11 (13.4%) were positive for arcA gene. Strain with spa type t660 was the only Methicillin-resistant *Staphylococcus aureus* (MRSA) and spa type t1149, t074, t790, t002, t021, t084, t4892, t3204, t701 (two isolates) were known as Methicillin-susceptible *Staphylococcus aureus* (MSSA).

**Conclusion:** The detection of ACME-arcA in diverse *S.aureus* types highlights the mobility of the elements encoding ACME-arcA genes. The diversity of strain types among ACME-arcA-encoding *S.aureus* is a cause for public-health concern and demands continued surveillance and close monitoring.

**Keywords:** *Staphylococcus aureus*; Arginine; ACME; ArcA Gene; Ridom StaphType Software