The core of SeLux’s technology is a novel assay for bacterial surface. Zavante Therapeutics, Inc.: Scientific Advisor, Consulting fee; Shionogi: Consultant, Consulting fee; Tetraphase: Consultant, Consulting fee; CutisPharma: Consultant, Consulting fee; Allergan: Consultant and Speaker’s Bureau, Consulting fee; Astellas: Consultant, Consulting fee; Paratek: Consultant, Consulting fee; Jeong-Han Bang, MD, PhD; Nam Joong Kim, MD, PhD,; Taek Soo Kim, MD, PhD; Sang Hoon Song, MD, PhD,; Jungil Choi, PhD,; Sangkwan Han, PhD,; Dong Young Kim, PhD,; Sunghoon Kwon, PhD,; Chang Young Kang, MD,; Kyoung Ho Song, MD, PhD,; Preeong Gyun Cho, MD,; Ji Hwan Bang, MD,; Eu Suk Kim, MD, PhD,; Sang Won Park, MD, PhD,; Hoon Bin Kim, MD, PhD,; Nam Joong Kim, MD, PhD,; Myoung-Don Oh, MD, PhD,; and Wan Beom Park, MD, PhD,; Department of Internal Medicine, Seoul National University College of Medicine, Seoul, Korea, Republic of (South),; 1Department of Laboratory Medicine, Seoul National University College of Medicine, Seoul, Korea, Republic of (South),; 1Seoul National University College of Medicine, Seoul, Korea, Republic of (South),; 2Department of Internal Medicine, Seoul National University Bundang Hospital, Seongnam, Korea, Republic of (South),; 3QuantaMatrix Inc., Seoul, Korea, Republic of (South),; 4Seoul National University College of Medicine, Seoul, Korea, Republic of (South),; 5University, Detroit, Michigan,; 6Charlestown, Massachusetts,; 7Michigan State University, East Lansing, Michigan,; 8Department of Internal Medicine, Seoul National University Bundang Hospital, Seongnam, Korea, Republic of (South),; 9Seoul National University College of Medicine, Seoul, Korea, Republic of (South),; 10QuantaMatrix Inc.: Board Member, equity interest. 11QuantaMatrix Inc.: Consultant, Consulting fee; Shionogi: Consultant, Consulting fee; Tetraphase: Consultant, Consulting fee; CutisPharma: Consultant, Consulting fee; Allergan: Consultant and Speaker’s Bureau, Consulting fee; Astellas: Consultant, Consulting fee; Paratek: Consultant, Consulting fee; Jinit Deeds, PhD,; Nam Joong Kim, MD, PhD,; Taek Soo Kim, MD, PhD,; Sang Hoon Song, MD, PhD,; Jungil Choi, PhD,; Sangkwan Han, PhD,; Dong Young Kim, PhD,; Sunghoon Kwon, PhD,; Chang Young Kang, MD,; Kyoung Ho Song, MD, PhD,; Preeong Gyun Cho, MD,; Ji Hwan Bang, MD,; Eu Suk Kim, MD, PhD,; Sang Won Park, MD, PhD,; Hoon Bin Kim, MD, PhD,; Nam Joong Kim, MD, PhD,; Myoung-Don Oh, MD, PhD,; and Wan Beom Park, MD, PhD,; Department of Internal Medicine, Seoul National University College of Medicine, Seoul, Korea, Republic of (South),; 1Department of Laboratory Medicine, Seoul National University College of Medicine, Seoul, Korea, Republic of (South),; 2Department of Internal Medicine, Seoul National University Bundang Hospital, Seongnam, Korea, Republic of (South),; 3QuantaMatrix Inc., Seoul, Korea, Republic of (South),; 4Seoul National University College of Medicine, Seoul, Korea, Republic of (South),; 5University, Detroit, Michigan,; 6Charlestown, Massachusetts,; 7Michigan State University, East Lansing, Michigan,; 8Department of Internal Medicine, Seoul National University Bundang Hospital, Seongnam, Korea, Republic of (South),; 9Seoul National University College of Medicine, Seoul, Korea, Republic of (South),; 10QuantaMatrix Inc.: Board Member, equity interest.

**Session:** 232. Diagnostics: Resistance Testing

**Saturday, October 6, 2018: 12:30 PM**

**Background.** Timely and effective antibiotics treatment is crucial in early period of bacteremia. Antibiotic susceptibility testing (AST) is essential for choosing an optimal antibiotics treatment, but conventional AST requires 2 days from confirmation of blood culture positivity. Direct rapid antibiotic susceptibility testing (dRAST) based on microfluidic agarose capillary chip technology determines antibiotic susceptibility by time lapse imaging in 6 hours. We evaluated the performance of dRAST to improve selection of adequate antibiotic in clinical practice settings.

**Methods.** Two hundred eighty-three patients with positive blood culture (BC) bottles were included for analysis. BC bottles from these patients were processed by current microbiology analyzer: Microscan for Gram positive strains and VITEK2 for Gram-negative bacteria. At the same time, AST was performed using dRAST. The susceptibility results were reported to infectious diseases specialists who determine optimal antibiotics based on AST results. We compared the time differences and accuracy of dRAST with those of conventional method.

**Results.** Of 283 patients, 117 (41.5%) patients were infected with Gram positive bacteria, 163 (57.4%) patients were infected with Gram negative bacteria and 3 (1.1%) patients were infected with Gram-negative and negative bacteria. The total turnaround time for conventional method and dRAST from blood culture collection was 78.3 ± 27.0 and 55.9 ± 18.9 hours, respectively. Seventy-seven of 95 (81.1%) patients who received ineffective or suboptimal antibiotic treatment after confirming the results of Gram stain and 81 of 86 (94.2%) patients who received unnecessary broad-spectrum antibiotic treatment could have received adjusted optimal treatment based on dRAST.

**Conclusion.** The use of dRAST system would accelerate earlier effective antibiotic administration and reduce the antibiotic selective pressure in patients with bacteremia.

**Disclosures.** J. Choi, QuantaMatrix Inc.: Employee, equity interest. S. Han, QuantaMatrix Inc.: Employee, equity interest. D. Y. Kim, QuantaMatrix Inc.: Board Member, equity interest. S. Kwon, QuantaMatrix Inc.: Board Member, equity interest.

**207. The Hypothetical Impact of Accelerate Pheno on Time to Appropriate Therapy (TTAT) and Time to Optimal Therapy (TTOT) in an Institution with an Established Antimicrobial Stewardship Program and Rapid Genotypic Organism/ Resistance Marker Identification**

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**Session:** 232. Diagnostics: Resistance Testing

**Saturday, October 6, 2018: 12:30 PM**

**Background.** Rapid organism identification (ID) and antimicrobial susceptibility testing (AST) can improve time to adequate therapy (TTAT) and optimal (TTOT). The Accelerate Pheno” system (ACC) can provide ID and AST results within 7 hours. The objective of this study was to assess the hypothetical impact of ACC on TTAT and TTOT in a hospital with an established antimicrobial stewardship program and rapid genotypic organism and resistance marker ID.

**Methods.** Patients with positive blood cultures, at the Detroit Medical Center, from March 29, 2016–June 14, 2016, were retrospectively reviewed. ACC was run on unique blood cultures as part of the laboratory validation of the system. ACC results were not made available to clinicians. These results were utilized to determine the hypothetical TTAT and TTOT that would have had real-time. This assessment was performed based on how clinicians modified antimicrobial therapy with regards to antibiotic choice and timing, once ID or AST were known. The assumption was that the same decisions that were made at the time of traditional AST would have been made when ACC information would have been available. In addition, the impact of ACC on total antimicrobial usage was assessed.

**Results.** The analysis included 148 patients. The median actual TTAT was 2.2 hours [Interquartile range (IQR) 1.5–2.5 hours]. If ACC results had been available, TTAT could have been improved in 11 patients (7%), with a median potential decrease in the TTAT of 2.3 hours [IQR, 0.8–2.0]. The median actual TTOT was 40.7 hours [IQR, 21.3–74.1]. If ACC results were available, improved TTOT could have been achieved in 79 patients (46%), with a median potential decrease in TTOT of 24.0 hours [IQR 15.3–34.9]. The TTOT would have been achieved by earlier de-escalation in 53/59 (88%) patients. ACC implementation could have led to decreases in antibiotic usage for cephalosporin (17% reduction of actual use), ciprofloxacin/tobramycin (8%), and vancomycin (5%).

**Conclusion.** Given the aggressive nature of empiric therapy and the availability of other rapid diagnostic tests at our center, ACC would have had a minimal impact TTAT. However, largely due to the ability to more rapidly de-escalate, ACC could have led to a more rapid TTOT in 40% of patients, and significantly reduced the use of broad-spectrum antimicrobials.

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