**Table E4.4: Comparative ARG prediction analysis of developed method BacARscan with existing methods Resfams and RGI-CARD in various strains of ESKAPE pathogens at various E-value thresholds (1e-6 to 1e-100)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Organism Name** | **Strain**  **Designation** | **Total Protein Count** | **Number of Predicted ARGs** | | |
| **BacARscan** | **Resfams** | **CARD** |
| *A. baumannii* | 6200 | 3708 | 81 | 74 | 20 |
| LAC-4 | 3485 | 82 | 73 | 21 |
| ORAB01 | 3638 | 88 | 79 | 32 |
| D36 | 3764 | 83 | 77 | 21 |
| AR\_0056 | 3786 | 86 | 76 | 29 |
| *K. pneumoniae* | Kpn555 | 5429 | 99 | 74 | 22 |
| KP69 | 5661 | 99 | 78 | 27 |
| KPN1H1 | 5575 | 100 | 78 | 34 |
| MS6671 | 5714 | 97 | 79 | 30 |
| CAV1193 | 5658 | 102 | 80 | 29 |
| *S. aureus* | Mu50 | 2844 | 65 | 62 | 16 |
| N315 | 2739 | 65 | 62 | 11 |
| ST398 | 2723 | 62 | 59 | 14 |
| TCH1516 | 2900 | 66 | 58 | 14 |
| USA300\_FPR3757 | 2916 | 63 | 55 | 14 |
| *P. aeruginosa* | PB354 | 6027 | 101 | 87 | 59 |
| E6130952 | 6496 | 99 | 85 | 56 |
| CR1 | 5533 | 97 | 87 | 36 |
| K34-7 | 6480 | 106 | 91 | 63 |
| PA7790 | 6580 | 100 | 85 | 59 |
| *E. faecium* | DO | 3114 | 70 | 62 | 14 |
| E0139 | 2383 | 62 | 57 | 13 |
| E4227 | 2345 | 64 | 57 | 10 |
| E6043 | 2845 | 63 | 58 | 5 |
| T110 | 2539 | 64 | 59 | 3 |
| *Enterobacter* spp. | 638 | 4358 | 90 | 73 | 13 |
| FY-07 | 4741 | 86 | 75 | 15 |
| CRENT-193 | 4909 | 107 | 85 | 40 |
| ECNIH7 | 5082 | 98 | 80 | 34 |
| N18-03635 | 4333 | 92 | 77 | 21 |
| **Total** | **30** | **128305** | **2537** | **2182** | **775** |

**The number of ARGs predicted by BacARscan, Resfams and RGI-CARD**. The E-value threshold: 1e-6 was used for BacARscan, and Resfams while in the case of RGI-CARD perfect and strict cut-offs were used for selection of the hits respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Organism Name** | **Strain**  **Designation** | **Total Protein Count** | **Number of Predicted ARGs** | | |
| **BacARscan** | **Resfams** | **CARD** |
| *A. baumannii* | 6200 | 3708 | 68 | 71 | 20 |
| LAC-4 | 3485 | 66 | 69 | 21 |
| ORAB01 | 3638 | 72 | 77 | 32 |
| D36 | 3764 | 68 | 73 | 21 |
| AR\_0056 | 3786 | 71 | 74 | 29 |
| *K. pneumoniae* | Kpn555 | 5429 | 87 | 72 | 22 |
| KP69 | 5661 | 91 | 77 | 27 |
| KPN1H1 | 5575 | 90 | 77 | 34 |
| MS6671 | 5714 | 87 | 78 | 30 |
| CAV1193 | 5658 | 92 | 79 | 29 |
| *S. aureus* | Mu50 | 2844 | 54 | 59 | 16 |
| N315 | 2739 | 54 | 59 | 11 |
| ST398 | 2723 | 49 | 57 | 14 |
| TCH1516 | 2900 | 52 | 56 | 14 |
| USA300\_FPR3757 | 2916 | 49 | 53 | 14 |
| *P. aeruginosa* | PB354 | 6027 | 85 | 82 | 59 |
| E6130952 | 6496 | 87 | 81 | 56 |
| CR1 | 5533 | 82 | 82 | 36 |
| K34-7 | 6480 | 93 | 87 | 63 |
| PA7790 | 6580 | 84 | 81 | 59 |
| *E. faecium* | DO | 3114 | 56 | 56 | 14 |
| E0139 | 2383 | 49 | 53 | 13 |
| E4227 | 2345 | 50 | 49 | 10 |
| E6043 | 2845 | 50 | 50 | 5 |
| T110 | 2539 | 49 | 52 | 3 |
| *Enterobacter* spp. | 638 | 4358 | 80 | 72 | 13 |
| FY-07 | 4741 | 77 | 73 | 15 |
| CRENT-193 | 4909 | 97 | 83 | 40 |
| ECNIH7 | 5082 | 89 | 80 | 34 |
| N18-03635 | 4333 | 82 | 76 | 21 |
| **Total** | **30** | **128305** | **2160** | **2088** | **775** |

**The number of ARGs predicted by BacARscan, Resfams and RGI-CARD**. The E-value threshold: 1e-10 was used for BacARscan, and Resfams while in the case of RGI-CARD perfect and strict cut-offs were used for selection of the hits respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Organism Name** | **Strain**  **Designation** | **Total Protein Count** | **Number of Predicted ARGs** | | |
| **BacARscan** | **Resfams** | **CARD** |
| *A. baumannii* | 6200 | 3708 | 55 | 62 | 20 |
| LAC-4 | 3485 | 52 | 60 | 21 |
| ORAB01 | 3638 | 58 | 67 | 32 |
| D36 | 3764 | 56 | 62 | 21 |
| AR\_0056 | 3786 | 59 | 64 | 29 |
| *K. pneumoniae* | Kpn555 | 5429 | 65 | 60 | 22 |
| KP69 | 5661 | 70 | 66 | 27 |
| KPN1H1 | 5575 | 69 | 67 | 34 |
| MS6671 | 5714 | 66 | 69 | 30 |
| CAV1193 | 5658 | 71 | 68 | 29 |
| *S. aureus* | Mu50 | 2844 | 41 | 45 | 16 |
| N315 | 2739 | 41 | 45 | 11 |
| ST398 | 2723 | 36 | 43 | 14 |
| TCH1516 | 2900 | 40 | 44 | 14 |
| USA300\_FPR3757 | 2916 | 36 | 40 | 14 |
| *P. aeruginosa* | PB354 | 6027 | 69 | 70 | 59 |
| E6130952 | 6496 | 71 | 68 | 56 |
| CR1 | 5533 | 61 | 66 | 36 |
| K34-7 | 6480 | 77 | 73 | 63 |
| PA7790 | 6580 | 67 | 68 | 59 |
| *E. faecium* | DO | 3114 | 41 | 45 | 14 |
| E0139 | 2383 | 39 | 42 | 13 |
| E4227 | 2345 | 38 | 40 | 10 |
| E6043 | 2845 | 37 | 41 | 5 |
| T110 | 2539 | 35 | 41 | 3 |
| *Enterobacter* spp. | 638 | 4358 | 62 | 63 | 13 |
| FY-07 | 4741 | 62 | 63 | 15 |
| CRENT-193 | 4909 | 83 | 74 | 40 |
| ECNIH7 | 5082 | 73 | 72 | 34 |
| N18-03635 | 4333 | 63 | 68 | 21 |
| **Total** | **30** | **128305** | **1693** | **1756** | **775** |

**The number of ARGs predicted by BacARscan, Resfams and RGI-CARD**. The E-value threshold: 1e-20 was used for BacARscan, and Resfams while in the case of RGI-CARD perfect and strict cut-offs were used for selection of the hits respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Organism Name** | **Strain**  **Designation** | **Total Protein Count** | **Number of Predicted ARGs** | | |
| **BacARscan** | **Resfams** | **CARD** |
| *A. baumannii* | 6200 | 3708 | 35 | 45 | 20 |
| LAC-4 | 3485 | 35 | 43 | 21 |
| ORAB01 | 3638 | 41 | 48 | 32 |
| D36 | 3764 | 37 | 45 | 21 |
| AR\_0056 | 3786 | 39 | 44 | 29 |
| *K. pneumoniae* | Kpn555 | 5429 | 47 | 41 | 22 |
| KP69 | 5661 | 53 | 48 | 27 |
| KPN1H1 | 5575 | 52 | 49 | 34 |
| MS6671 | 5714 | 49 | 49 | 30 |
| CAV1193 | 5658 | 56 | 49 | 29 |
| *S. aureus* | Mu50 | 2844 | 25 | 32 | 16 |
| N315 | 2739 | 25 | 34 | 11 |
| ST398 | 2723 | 24 | 32 | 14 |
| TCH1516 | 2900 | 27 | 32 | 14 |
| USA300\_FPR3757 | 2916 | 24 | 29 | 14 |
| *P. aeruginosa* | PB354 | 6027 | 53 | 55 | 59 |
| E6130952 | 6496 | 56 | 53 | 56 |
| CR1 | 5533 | 43 | 51 | 36 |
| K34-7 | 6480 | 61 | 57 | 63 |
| PA7790 | 6580 | 52 | 51 | 59 |
| *E. faecium* | DO | 3114 | 29 | 28 | 14 |
| E0139 | 2383 | 29 | 28 | 13 |
| E4227 | 2345 | 28 | 27 | 10 |
| E6043 | 2845 | 25 | 23 | 5 |
| T110 | 2539 | 22 | 22 | 3 |
| *Enterobacter* spp. | 638 | 4358 | 44 | 43 | 13 |
| FY-07 | 4741 | 42 | 43 | 15 |
| CRENT-193 | 4909 | 63 | 55 | 40 |
| ECNIH7 | 5082 | 58 | 52 | 34 |
| N18-03635 | 4333 | 47 | 47 | 21 |
| **Total** | **30** | **128305** | **1221** | **1255** | **775** |

**The number of ARGs predicted by BacARscan, Resfams and RGI-CARD**. The E-value threshold: 1e-50 was used for BacARscan, and Resfams while in the case of RGI-CARD perfect and strict cut-offs were used for selection of the hits respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Organism Name** | **Strain**  **Designation** | **Total Protein Count** | **Number of Predicted ARGs** | | |
| **BacARscan** | **Resfams** | **CARD** |
| *A. baumannii* | 6200 | 3708 | 22 | 31 | 20 |
| LAC-4 | 3485 | 22 | 29 | 21 |
| ORAB01 | 3638 | 30 | 36 | 32 |
| D36 | 3764 | 24 | 30 | 21 |
| AR\_0056 | 3786 | 27 | 33 | 29 |
| *K. pneumoniae* | Kpn555 | 5429 | 31 | 27 | 22 |
| KP69 | 5661 | 36 | 33 | 27 |
| KPN1H1 | 5575 | 35 | 32 | 34 |
| MS6671 | 5714 | 34 | 32 | 30 |
| CAV1193 | 5658 | 40 | 33 | 29 |
| *S. aureus* | Mu50 | 2844 | 14 | 20 | 16 |
| N315 | 2739 | 13 | 22 | 11 |
| ST398 | 2723 | 13 | 20 | 14 |
| TCH1516 | 2900 | 15 | 21 | 14 |
| USA300\_FPR3757 | 2916 | 12 | 18 | 14 |
| *P. aeruginosa* | PB354 | 6027 | 32 | 37 | 59 |
| E6130952 | 6496 | 34 | 36 | 56 |
| CR1 | 5533 | 29 | 33 | 36 |
| K34-7 | 6480 | 39 | 41 | 63 |
| PA7790 | 6580 | 33 | 38 | 59 |
| *E. faecium* | DO | 3114 | 18 | 17 | 14 |
| E0139 | 2383 | 19 | 20 | 13 |
| E4227 | 2345 | 18 | 18 | 10 |
| E6043 | 2845 | 14 | 14 | 5 |
| T110 | 2539 | 12 | 13 | 3 |
| *Enterobacter* spp. | 638 | 4358 | 29 | 29 | 13 |
| FY-07 | 4741 | 26 | 28 | 15 |
| CRENT-193 | 4909 | 45 | 42 | 40 |
| ECNIH7 | 5082 | 41 | 38 | 34 |
| N18-03635 | 4333 | 32 | 32 | 21 |
| **Total** | **30** | **128305** | **789** | **853** | **775** |

**The number of ARGs predicted by BacARscan, Resfams and RGI-CARD**. The E-value threshold: 1e-80 was used for BacARscan, and Resfams while in the case of RGI-CARD perfect and strict cut-offs were used for selection of the hits respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Organism Name** | **Strain**  **Designation** | **Total Protein Count** | **Number of Predicted ARGs** | | |
| **BacARscan** | **Resfams** | **CARD** |
| *A. baumannii* | 6200 | 3708 | 15 | 25 | 20 |
| LAC-4 | 3485 | 15 | 24 | 21 |
| ORAB01 | 3638 | 21 | 30 | 32 |
| D36 | 3764 | 17 | 25 | 21 |
| AR\_0056 | 3786 | 18 | 27 | 29 |
| *K. pneumoniae* | Kpn555 | 5429 | 28 | 24 | 22 |
| KP69 | 5661 | 34 | 29 | 27 |
| KPN1H1 | 5575 | 32 | 28 | 34 |
| MS6671 | 5714 | 30 | 29 | 30 |
| CAV1193 | 5658 | 34 | 30 | 29 |
| *S. aureus* | Mu50 | 2844 | 10 | 15 | 16 |
| N315 | 2739 | 9 | 16 | 11 |
| ST398 | 2723 | 11 | 16 | 14 |
| TCH1516 | 2900 | 13 | 15 | 14 |
| USA300\_FPR3757 | 2916 | 10 | 14 | 14 |
| *P. aeruginosa* | PB354 | 6027 | 21 | 27 | 59 |
| E6130952 | 6496 | 22 | 26 | 56 |
| CR1 | 5533 | 17 | 21 | 36 |
| K34-7 | 6480 | 28 | 28 | 63 |
| PA7790 | 6580 | 21 | 27 | 59 |
| *E. faecium* | DO | 3114 | 15 | 13 | 14 |
| E0139 | 2383 | 17 | 17 | 13 |
| E4227 | 2345 | 16 | 15 | 10 |
| E6043 | 2845 | 11 | 10 | 5 |
| T110 | 2539 | 10 | 8 | 3 |
| *Enterobacter* spp. | 638 | 4358 | 26 | 24 | 13 |
| FY-07 | 4741 | 24 | 25 | 15 |
| CRENT-193 | 4909 | 38 | 35 | 40 |
| ECNIH7 | 5082 | 34 | 31 | 34 |
| N18-03635 | 4333 | 27 | 26 | 21 |
| **Total** | **30** | **128305** | **624** | **680** | **775** |

**The number of ARGs predicted by BacARscan, Resfams and RGI-CARD**. The E-value threshold: 1e-100 was used for BacARscan, and Resfams while in the case of RGI-CARD perfect and strict cut-offs were used for selection of the hits respectively.