**Cluster data of systematically sampled and microscopically screened blood of cattle, Jebba, Kwara State Nigeria (June 2019).**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CLUSTER** | **COORDINATE** | **DISTANCE FROM RIVER NIGER (Km)** | **HERD SIZE** | **PROPORTION TO HERD SIZE (6%)** | **MICROSCOPY** | **SPECIE** |
| JA | 9°07'28.7"N 4°50'23.3"E | 2.270 | 350 | 21 | **-** | - |
| JB | 9°06'35.6"N 4°49'49.1"E | 3.840 | 233 | 14 | **-** | - |
| JC | 9°07'27.6"N 4°50'33.4"E | 2.500 | 267 | 16 | **-** | - |
| JD | 9°06'44.9"N 4°50'06.6"E | 3.710 | 200 | 12 | **-** | - |
| JE | 9°06'44.2"N 4°49'43.9"E | 3.310 | 271 | 16 | **-** | - |
| JF | 9°06'36.5"N 4°49'49.4"E | 3.730 | 150 | 09 | **-** | - |
| JG | 9°07'35.6"N 4°48'33.1"E | 0.995 | 117 | 07 | **-** | - |
| JH | 9°07'12.0"N 4°49'58.1"E | 1.880 | 183 | 11 | **+** | T. c |
| JI | 9°06'32.4"N 4°49'53.2"E | 4.120 | 167 | 10 | **-** | - |
| JJ | 9°06'44.9"N 4°49'17.7"E | 3.400 | 306 | 18 | **-** | - |
| JK | 9°06'34.9"N 4°49'45.1"E | 3.910 | 152 | 09 | **-** | - |
| JL | 9°06'51.8"N 4°49'39.1"E | 2.760 | 228 | 14 | **-** | - |
| JM | 9°07'39.4"N 4°50'02.8"E | 0.449 | 238 | 14 | **-** | - |
| JN | 9°07'35.4"N 4°49'34.2"E | 0.178 | 139 | 08 | **-** | - |
| JO | 9°07'42.0"N 4°48'51.3"E | 0.185 | 229 | 14 | **-** | - |
| JP | 9°07'34.0"N 4°48'41.6"E | 0.716 | 218 | 13 | **-** | - |
| JQ | 9°07'27.3"N 4°48'38.9"E | 1.100 | 176 | 11 | **-** | - |
| JR | 9°06'32.0"N 4°49'10.5"E | 4.280 | 157 | 09 | **-** | - |
| JS | 9°06'49.4"N 4°49'14.7"E | 3.190 | 257 | 15 | **-** | - |
| JT | 9°06'43.3"N 4°49'16.6"E | 3.380 | 237 | 14 | **-** | - |
| JU | 9°06'16.1"N 4°48'49.5"E | 5.370 | 171 | 10 | **-** | - |
| JV | 9°05'59.3"N 4°49'04.5"E | 6.210 | 212 | 13 | **-** | - |
| JW | 9°06'37.6"N 4°50'15.7"E | 4.270 | 123 | 07 | **-** | - |
| JX | 9°05'58.3"N 4°49'57.9"E | 6.020 | 091 | 06 | **-** | - |
| JY | 9°07'28.4"N 4°50'26.8"E | 1.290 | 162 | 10 | **-** | - |
| JZ | 9°07'56.5"N 4°50'39.5"E | 1.190 | 194 | 12 | **-** | - |
| JAA | 9°07'47.1"N 4°50'48.1"E | 1.960 | 172 | 10 | **+** | T. b |
| JAB | 9°07'45.5"N 4°51'02.4"E | 2.210 | 118 | 07 | **-** | - |
| JAC | 9°07'14.9"N 4°50'59.6"E | 4.090 | 129 | 08 | **-** | - |
| JAD | 9°07'18.6"N 4°51'23.2"E | 2.410 | 206 | 12 | **-** | - |
| JAE | 9°07'18.0"N 4°51'34.9"E | 3.860 | 215 | 13 | **-** | - |
| JAF | 9°07'32.5"N 4°52'21.2"E | 5.400 | 084 | 05 | **-** | - |
| JAG | 9°08'09.6"N 4°52'19.1"E | 2.920 | 092 | 06 | **+** | T. b |
| JAH | 9°08'15.1"N 4°52'36.6"E | 3.280 | 143 | 09 | **-** | - |
| JAI | 9°07'44.2"N 4°52'42.5"E | 5.570 | 125 | 08 | **-** | - |
| JAJ | 9°07'50.8"N 4°52'36.9"E | 5.210 | 108 | 07 | **-** | - |
| 36 |  |  | 6603 | 398 | 3 | 3 |

T. c: *Trypanosoma congolense* specie, T. b: *Trypanosoma brucei* specie, N: North, E: East

**Basic Local Alignment Search Tool (BLAST) result of ITS-1 DNA sequence of Trypanosomes isolated from cattle within Jebba, Kwara State (June 2019).**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S/No** | **Positive Sample** | **Approximate Band Size (bp)** | **BLAST % Similarity** | **E-Value** | **Genus/Specie Hit** | **Gene bank Accession No.** |
| 1 | JA19a | 560 | 99.27 | 2e-61 | *T.c.* kilifi | [AJ009144.1](https://www.ncbi.nlm.nih.gov/nucleotide/AJ009144.1?report=genbank&log$=nucltop&blast_rank=1&RID=WRUVKHJG014) |
| 2 | JA19b | 210 | 99.32 | 5e-67 | *T. vivax* | [KC196666.1](https://www.ncbi.nlm.nih.gov/nucleotide/KC196666.1?report=genbank&log$=nucltop&blast_rank=1&RID=WRXDHEKK014) |
| 3 | JH4 | 700 | 90.29 | 1e-66 | *T.c.* Savannah | [MN213749.1](https://www.ncbi.nlm.nih.gov/nucleotide/MN213749.1?report=genbank&log$=nucltop&blast_rank=1&RID=WRV5A9CG014) |
| 4 | JM8 | 700 | 93.29 | 1e-52 | *T. c.* Savannah | [LC492129.1](https://www.ncbi.nlm.nih.gov/nucleotide/LC492129.1?report=genbank&log$=nucltop&blast_rank=4&RID=4DFKDHSM014) |
| 5 | JO6 | 400 | 88.48 | 1e-74 | *T. theileri* | [MF142319.1](https://www.ncbi.nlm.nih.gov/nucleotide/MF142319.1?report=genbank&log$=nucltop&blast_rank=2&RID=WRU19GZJ014) |
| 6 | JO12 | 640 | 87.19 | 2e-55 | *T. c.* Savannah | [MN213749.1](https://www.ncbi.nlm.nih.gov/nucleotide/MN213749.1?report=genbank&log$=nucltop&blast_rank=1&RID=WRVW612H015) |
| 7 | JQ6 | 380 | 90.41 | 4e-116 | *T. simiae* | [AJ404608.1](https://www.ncbi.nlm.nih.gov/nucleotide/AJ404608.1?report=genbank&log$=nucltop&blast_rank=1&RID=WRUKH4N0014) |
| 8 | JT4 | 640 | 86.28 | 2e-75 | *T. c.* Savannah | [MN213749.1](https://www.ncbi.nlm.nih.gov/nucleotide/MN213749.1?report=genbank&log$=nucltop&blast_rank=1&RID=WRW425PT014) |
| 9 | JT11 | 430 | 97.63 | 0.0 | *T. evansi* | [MH247175.1](https://www.ncbi.nlm.nih.gov/nucleotide/MH247175.1?report=genbank&log$=nucltop&blast_rank=1&RID=WRUBZEXD015) |
| 10 | JY5 | 640 | 86.64 | 4e-77 | *T. c.* Savannah | [MN213749.1](https://www.ncbi.nlm.nih.gov/nucleotide/MN213749.1?report=genbank&log$=nucltop&blast_rank=1&RID=WRVW612H015) |
| 11 | JAA7 | 430 | 95.04 | 3e-117 | *T. brucei brucei* | [AL929603.2](https://www.ncbi.nlm.nih.gov/nucleotide/AL929603.2?report=genbank&log$=nucltop&blast_rank=3&RID=WRWMWAX0014) |
| 12 | JAD7 | 640 | 95.78 | 2e-166 | *T. c.* Forest | [AJ009145.1](https://www.ncbi.nlm.nih.gov/nucleotide/AJ009145.1?report=genbank&log$=nucltop&blast_rank=1&RID=WRXRS2F1014) |
| 13 | JAG2 | 430 | 89.75 | 1e-91 | *T. brucei brucei* | [AL929603.2](https://www.ncbi.nlm.nih.gov/nucleotide/AL929603.2?report=genbank&log$=nucltop&blast_rank=3&RID=WRX2V1BF014) |

E-values as recorded are not in reference to each other but with respect to BLAST hit as presented on the NCBI database. (Appendix I)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| JA |  | 21 | 37.9±1.24 | 1 | 4.8 |
| JB |  | 14 | 37.7±1.11 | 0 | 0 |
| JC |  | 16 | 36.1±1.59 | 0 | 0 |
| JD |  | 12 | 33.9±1.39 | 0 | 0 |
| JE |  | 16 | 34.5±1.30 | 0 | 0 |
| JF |  | 9 | 32.6±1.55 | 0 | 0 |
| JG |  | 7 | 33.7±2.01 | 0 | 0 |
| JH |  | 11 | 36.1±1.69 | 1 | 9.1 |
| JI |  | 10 | 39.6±1.28 | 0 | 0 |
| JJ |  | 18 | 34.8±2.00 | 0 | 0 |
| JK |  | 9 | 34.6±2.08 | 0 | 0 |
| JL |  | 14 | 36.3±1.22 | 0 | 0 |
| JM |  | 14 | 36.3±1.32 | 1 | 7.1 |
| JN |  | 8 | 36.8±1.49 | 0 | 0 |
| JO |  | 14 | 35.0±1.31 | 2 | 14.3 |
| JP |  | 13 | 35.5±1.04 | 0 | 0 |
| JQ |  | 11 | 34.7±1.76 | 1 | 9.1 |
| JR |  | 9 | 36.2±1.58 | 0 | 0 |
| JS |  | 15 | 35.1±1.35 | 0 | 0 |
| JT |  | 14 | 31.6±1.86 | 2 | 14.3 |
| JU |  | 10 | 33.1±1.22 | 0 | 0 |
| JV |  | 13 | 36.5±1.53 | 0 | 0 |
| JW |  | 7 | 34.4±2.09 | 0 | 0 |
| JX |  | 6 | 32.0±2.48 | 0 | 0 |
| JY |  | 10 | 34.2±1.32 | 1 | 10 |
| JZ |  | 12 | 35.7±1.00 | 0 | 0 |
| JAA |  | 10 | 35.7±2.13 | 1 | 10 |
| JAB |  | 7 | 28.9±0.99 | 0 | 0 |
| JAC |  | 8 | 33.1±2.19 | 0 | 0 |
| JAD |  | 12 | 33.2±2.16 | 1 | 8.3 |
| JAE |  | 13 | 37.2±1.43 | 0 | 0 |
| JAF |  | 5 | 30.4±1.63 | 0 | 0 |
| JAG |  | 6 | 32.5±1.78 | 1 | 16.7 |
| JAH |  | 9 | 33.9±1.74 | 0 | 0 |
| JAI |  | 8 | 33.4±1.51 | 0 | 0 |
| JAJ |  | 6 | 34.0±2.22  TOTAL 398 34.6±0.36 12 3.02 | 0 | 0 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cluster | No. of Animal  Sampled | Average PCV (%) | No. of animal  positive | Prevalence (%) |

**Table 4.3: Average PCV and number of trypanosome infection cases among cattle distributed within Jebba axis of River Niger, Kwara State (June 2019)**.

**Prevalence of different trypanosome species among cattle distributed within Jebba axis of River Niger, Kwara State (June 2019).**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **Type of Infection** | **PCV (Mean±SE)** | **No of Animal Infected** | **Specie Prevalence (%)** | **Overall Prevalence (%)** |
|  |  |  |  |  |  |
| Single infection |  | |  | | --- | |  | |  |  |  |
|  | *T. congolense* | |  | | --- | | 23.8±1.15 | | 6 | 50.00 | 91.67 |
|  | *T. brucei* | |  | | --- | | 30.3±0.92 | | 2 | 16.67 |  |
|  | *T. evansi* | 20.2±0.32 | 1 | 8.33 |  |
|  | *T. theileri* | 19.2±1.12 | 1 | 8.33 |  |
|  | *T. simiae* | 22.0±0.63 | 1 | 8.33 |  |
|  |  |  |  |  |  |
| Mixed infection |  |  |  |  |  |
|  | *T. congolense + T. vivax* | 24.2±0.23 | 1 | 8.33 | 8.33 |
|  |  |  |  |  |  |
| Total |  | 23.2±2.63 | 12 | 100.0 | 100.0 |

**Prevalence of *Trypansoma congolense* sub-species infection rates among cattle distributed within Jebba axis of River Niger, Kwara State (June 2019)**.

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of infection** | **PCV (MEAN±SE)** | **No of animal infected** | **Prevalence (%)** |
|  |  |  |  |
| *T. c.* Kilifi | 23.2±0.58 | 1 | 14.3 |
| *T. c.* Savannah | 22.6±0.26 | 5 | 71.4 |
| *T. c.* Forest | 24.4±0.37 | 1 | 14.3 |
| Total | 23.6±1.85 | 7 | 100.0 |

>JAA7

CAGTATGACTTTTACTTCTATATGCCGTTTGACATGGGTTCTAATATGTATGTGTGTATCTAAACTTATATTGTCCACATGGACATGGACATGGACTGGTACCCAATGGTATATATCCCACAACGTGTCGCGATGGATGACTTGGCTTCCTATTTCGTTGAAGAACGCAGCAAAGTGCGATAAGTGGTATCAATTGCAGAATCATTTCATTGATAATAGCCTGTAGGTACCTTTGAACGCAAACGGCGCATGGGAGAAGCTCTCTCGGAGCCATCCCCGTGCATGCCACATTTCTCAGTGTCGAATATAAAAACAAAACACACACCTATTTTTTGTGTTGTCTTGGTACTGCTTCCC

>JO12

CAGTAAAACACACCTGCGTACACACACAAGCACTCACCATATTTCCCCCACTGCACCTTCTTCCTCCAAACACACACTCTTCCTCCTCCTCTCTCCCAACACACGTGGGAAAGCGGAGAAAAGATGAGGATGAGGAGAAAAAAAGGGGAAAAAAAGGGCCCCGGGGCCCCCAAAAAAAGGCGGGGGGGGTAAAAAAAACCCTTCTCCCCCCCCCCCCCCCCTTTTTTTTCCTTTGGGGGGGGCACAAAATTAAAAACCCCCTCCACAAAAAAAAAAAAAAAAAACATGGGGGGCCCGTTTTTTGAAACCCGGGTTTTTCCAGGGGGTTTTTTAAAATTGGGGGGGGTAAAACAAAAACCCCCCCCCCCGGGGGGGTCCCCCAACCCCACCCCCCCCCCCCCGGGGGGGGGTGCGGGGGGAAATATTTTCCTTGAGGGGG

>JM8

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>JQ6

TATGACTTTTACTTGTGACTAAAATCGCTAGACCAAAGCAAAGCAGTCTAGCGACTTGAATTACCAAGCATGGGATAACAAAGCATCAGCCCCAGGGCCACCACCACCGTTTCGGCTTTGGATGGATGGATGGTTTTAGAAGTCCAGGGGAGATTATGGCGCCGCGTGCCGCGCCACACACCGTGTGCGTTTCGGCGTTCGCGCCGACGCGTGGTGCCAGGAATGCACGAGGGTAGTTCGGGGGAGAACTACTGGCGCGGTCAGAGGTCGAATTCTTAGACCGCGCCAAGACGAACTACAGCGAAGGCATTCCTTCAAGGATACCTTCCTACAATCAAGAACCAAGAAATTCCC

>JA19b

GAGTGACTGCAGCTGGATCATTTTCCGACCCTCTTCTCTTCTCTTCTCGTCGCGCCCGTCTCCCGGCCACCGGGGCGGGACAGCAAACCACGCAGCTGCCGCTCGACCGCGCCCCGCGCGCAGGTGGAGCACGGCCCACACAACGTGTCGCGATGGATGACTTGGCTTA

>JY5

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>JT4

CAGTAAAACACACATGCGTACACACACAAGCACTCACCATATTTCCCCCACTGCACCTTCTTCCTCCAAACACACACTCTTCCTCCTCCTCTCTCCCAACACACGTGGGAAAGCGGAGAAAAGATGAGGATGAGGAGAAAAAAAGGGGAAAAAAAGGGCCCCGGGGCCCCCAAAAAAAGGCGGGGGGGGTAAAAAAAACCCTTCTCCCCCCCCCCCCCCCCTTTTTTTTCCTTTGGGGGGGGCACAAAATTAAAAACCCCCTCCACAAAAAAAAAAAAAAAAAACATGGGGGGCCCGTTTTTTGAAACCCGGGTTTTTCCAGGGGGTTTTTTAAAATTGGGGGGGGTAAAACAAAAACCCCCCCCCCCGGGGGGGTCCCCCAACCCCACCCCCCCCCCCCCGGGGGGGGGTGCGGGGGGAAATATTTTCCG

>JA19a

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>JT11

CGGAGTGACTGCAGCTGGATCATTTTCTGATATCCATTATACAAAAAAGAGCATATTTATGTGCATGTATAAATTGCACAGTATGCAACCAAAAATATACATATATGTTTTACATGTATGTGTTTCTATATGCCGTTTGACATGGGAGATGAGGGATGCTATACATAGTTCTGTTATTTTCTATCATGTATGTGTGTTAGAGTGTCTGTGTTAATATACTTTTTAATGCATGCTCTACATAATATACAGTAGTAATAACACAGAGAATACGTATGGAATGCGTATCTCTCTATATATATTTATGTATATATGCTATGTGTATATCAACCTCGCATATTTTCTCCCTGTGGACCCCACCTCCCCCACCGCGTGTCGATGGATGACTTGTGTTTTATA

>JO6

GTCATCACAAGGTATAAATCATCAAACTGAGCCGATTACGTCCCTGCCATTTTTTCTCACCGCCCGTCGTTGTTTCCGATGATGGTGCAATACACGCGAACGGACCGTCGATCGAATCGGTTGACCGAAAGTTCACCGATCTTGCTTCATACAGGAAGCAAAAATCGTAACCCCCCCGCTGTAGGTGAACCTGCAGCTGGATCATTTTCCGATGACATAAAGAATCACACATATGTTTATATGTACCGCGTCGTGGAATACAATTTTTTTTCTATTTTTCCACCTTCATACAGATATTTTTTTTATTGCAATATGTCTGTTGGTGGGGGGTGGGGGTTTACCCCCACCCCGACCCCAAACAAAGGGGGGGGTGAAAAATAGCGGGGCCCGATTCGCCCCCTTTTTGATGCGTGCCCCACAAAAAATTTCCCACAAGGGCCCCCCAACATTGGCAGAAAGGGAATTGGTTTTATATATATATGTGGGGATCTGTCATGTGAGTATGTGAAGCTCTGCTTTTTTCACACTTTTCTCCGCGCGCGACAAAAATTTGCACGAGAGAGACTTGGTTTTTAT

>JH4

CAGTAAAACACACCTGCGTACACACACAAGCACTCACCATATTTCCCCCACTGCACCTTCTTCCTCCAAACACACACTCTTCCTCCTCCTCTCTCCCAACACACGTGGGAAAGCGGAGAAAAGATGAGGATGAGGAGAAAAAAAGGGGAAAAAAAGGGCCCCGGGGCCCCCAAAAAAAGGCGGGGGGGGTAAAAAAAACCCTTCTCCCCCCCCCCCCCCCCTTTTTTTTCCTTTGGGGGGGGCACAAAATTAAAAACCCCCTCCACAAAAAAAAAAAAAAAAAACATGGGGGGCCCGTTTTTTGAAACCCGGGTTTTTCCAGGGGGTTTTTTAAAATTGGGGGGGGTAAAACAAAAACCCCCCCCCCCGGGGGGGTCCCCCAACCCCACCCCCCCCCCCCCGGGGGGGGGTGCGGGGGGAAATATTT

>JAG2

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>JAD7

GTCATCACAAGGTATAAATCATCAAACCAGGAATGAAGGAGGGTAGTTCGGGGAGACGTACTTCTTAAGGGGTTTGTGCGGTTTAACGGGAATATCCTCAGCACGTTGTTTACATTTTTAGGTTACAGTCTCAGGGGGGAGTACGTTCGCAAGAGTGAAACTTAAAGAAATTGACGGAATGGCACCACAAGACGTGGAGCGTGCGGTTTAATTTGACTCAACACGGGGAACTTTACCAGATCCGGACAGGGTGAGGATTGACAGATTGAGTGTTCTTTCTCGATCCCCTGAATGGTGGTGCATGGCCGCTTTTGGTCGGTGGAGTGATTTGTTTGGTTGATTCCGTCAACGGACGAGATCCAAGCTGCCCAGTAGGGCCCGTGATTGTCCACACAGGACAGCCTACCGTCGTGGGCACGGTGTGTCACGCGAAAGCTTTGAGGTTACAGTCTCAGGGGGGAGTACGTTCGCAAGAGTGAAACTTAAAGAAATTGACGGAATGGCACCACAGGTGCGTCAGAGGTGAAATTCTTAGACCGCACCAAGACGAACTACAGCGAAGGCATTCTTCAAGAT

**APPENDIX V**

**DNA PURITY ASSESSMENT DATA**

|  |  |  |  |
| --- | --- | --- | --- |
| S/NO | 260/280 | 260/230 | ng/µL |
| **JA** |  |  |  |
| 1 | 1.88 | 1.36 | 82.2 |
| 2 | 1.88 | 0.89 | 119.3 |
| 3 | 1.26 | 1.94 | 84.24 |
| 4 | 1.84 | 1.37 | 225.5 |
| 5 | 1.94 | 0.62 | 57.7 |
| 6 | 1.91 | 0.49 | 72.5 |
| 7 | 1.87 | 1.55 | 107.4 |
| 8 | 1.86 | 1.67 | 61.7 |
| 9 | 0.75 | 2.42 | -548.2 |
| 10 | 0.14 | 0.06 | 0.8 |
| 11 | 2.22 | 1.15 | 52.0 |
| 12 | 1.90 | 1.51 | 75.3 |
| 13 | 0.76 | 3.26 | -295 |
| 14 | 0.45 | 2.53 | -453.7 |
| 15 | 1.93 | 1.74 | 99.3 |
| 16 | 0.84 | 1.90 | -789.7 |
| 17 | 4.17 | 0.91 | 88.9 |
| 18 | 1.13 | 1.15 | -43.6 |
| 19 | 1.86 | 1.58 | 94.9 |
| 20 | 0.83 | 1.84 | -1820.8 |
| 21 | 1.90 | 1.91 | 80.0 |
|  |  |  |  |
| **JB** |  |  |  |
| 1 | 1.91 | 1.11 | 41.6 |
| 2 | 1.89 | 1.04 | 72.6 |
| 3 | 1.89 | 1.48 | 95.0 |
| 4 | 2.36 | 0.32 | 7.0 |
| 5 | 1.87 | 1.53 | 84.3 |
| 6 | 1.96 | 0.45 | 25.2 |
| 7 | 1.75 | 0.45 | 45.4 |
| 8 | 1.92 | 0.57 | 36.0 |
| 9 | 1.86 | 1.18 | 186.8 |
| 10 | 1.82 | 2.19 | 331.4 |
| 11 | 0.60 | 2.15 | -73.1 |
| 12 | 0.67 | 1.99 | 25.1 |
| 13 | 2.04 | 0.68 | 47.9 |
| 14 | 1.96 | 1.77 | 180.8 |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| S/NO | 260/280 | 260/230 | ng/µL |
| **JC** |  |  |  |
| 1 | 2.15 | 0.78 | 54.3 |
| 2 | 1.88 | 1.42 | 69.4 |
| 3 | 1.91 | 2.00 | 71.0 |
| 4 | 2.82 | 0.89 | 73.3 |
| 5 | 1.88 | 1.50 | 98.1 |
| 6 | -0.53 | 0.25 | 20.0 |
| 7 | 1.91 | 0.51 | 28.3 |
| 8 | 1.88 | 1.94 | 71.2 |
| 9 | 1.87 | 2.10 | 139.5 |
| 10 | 1.91 | 1.52 | 70.1 |
| 11 | 1.87 | 1.95 | 58.4 |
| 12 | 1.85 | 1.00 | 37.6 |
| 13 | 1.87 | 2.05 | 121.0 |
| 14 | -2.13 | 2.62 | 33.7 |
| 15 | 1.88 | 2.12 | 283.1 |
| 16 | 0.56 | 2.00 | 101.5 |
|  |  |  |  |
| **JD** |  |  |  |
| 1 | 0.76 | 3.52 | -133.1 |
| 2 | -0.32 | 0.52 | 7.5 |
| 3 | 1.79 | 1.61 | 229.4 |
| 4 | 1.89 | 1.29 | 25.7 |
| 5 | 1.61 | 1.02 | 72.2 |
| 6 | 0.86 | 1.70 | -1012.5 |
| 7 | 0.84 | 2.37 | -285.8 |
| 8 | 0.85 | 2.26 | -774.5 |
| 9 | 1.51 | 0.10 | 24.6 |
| 10 | 1.76 | 0.69 | 36.9 |
| 11 | 1.82 | 0.95 | 42.7 |
| 12 | 1.78 | 5.14 | 208.5 |

|  |  |  |  |
| --- | --- | --- | --- |
| S/NO | 260/280 | 260/230 | ng/µL |
| **JE** |  |  |  |
| 1 | 0.37 | -0.75 | -21.8 |
| 2 | 1.86 | 0.60 | 61.3 |
| 3 | 1.85 | 0.69 | 46.3 |
| 4 | 0.86 | 1.85 | -1467.9 |
| 5 | 1.83 | 0.31 | 33.8 |
| 6 | 0.39 | -0.81 | -22.7 |
| 7 | 1.76 | 0.54 | 37.0 |
| 8 | 1.84 | 0.52 | 30.2 |
| 9 | 1.60 | 1.30 | 76.2 |
| 10 | 1.71 | 0.16 | 20.3 |
| 11 | 1.86 | 0.97 | 65.3 |
| 12 | 1.71 | 0.39 | 14.0 |
| 13 | 1.81 | 0.71 | 14.4 |
| 14 | 0.81 | 0.61 | -68.4 |
| 15 | 2.10 | 0.37 | 4.6 |
| 16 | 2.27 | 0.87 | 58.7 |
|  |  |  |  |
| **JF** |  |  |  |
| 1 | 0.79 | 1.78 | -953.6 |
| 2 | 0.83 | 1.97 | -591.4 |
| 3 | 1.93 | 1.82 | 38.8 |
| 4 | 1.89 | 0.90 | 433.2 |
| 5 | 0.63 | 6.26 | -233.7 |
| 6 | 1.78 | 0.16 | 37.5 |
| 7 | 1.81 | 0.36 | 27.1 |
| 8 | 1.87 | 0.34 | 40.4 |
| 9 | 3.31 | 0.53 | 23.2 |
|  |  |  |  |
| **JG** |  |  |  |
| 1 | 1.03 | 2.50 | -30.3 |
| 2 | 1.93 | 1.42 | 79.3 |
| 3 | 2.01 | 1.53 | 24.9 |
| 4 | 2.06 | 2.43 | 17.4 |
| 5 | 1.75 | 2.48 | 107.4 |
| 6 | 0.64 | 10.70 | -37.9 |
| 7 | 1.81 | 1.24 | 28.6 |

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| S/NO | 260/280 | 260/230 | ng/µL |
| **JH** |  |  |  |
| 1 | 0.21 | -0.1 | -1.51 |
| 2 | 1.96 | 0.39 | 42.2 |
| 3 | 1.86 | 0.45 | 38.0 |
| 4 | 1.84 | -1.39 | 27.0 |
| 5 | 1.85 | 0.93 | 28.4 |
| 6 | 1.96 | 1.28 | 142.5 |
| 7 | 2.25 | -1.38 | 17.1 |
| 8 | 1.90 | 0.24 | 40.9 |
| 9 | 1.72 | 1.54 | 281.2 |
| 10 | 0.76 | 2.41 | -176.8 |
| 11 | 1.86 | 0.82 | 28.5 |
| **JI** |  |  |  |
| 1 | 1.80 | 0.33 | 28.9 |
| 2 | 1.89 | 1.27 | 102.0 |
| 3 | 1.81 | 1.15 | 58.6 |
| 4 | 1.86 | 1.66 | 94.4 |
| 5 | 1.85 | 2.02 | 106.3 |
| 6 | 1.85 | 1.50 | 51.5 |
| 7 | 0.79 | 4.41 | -214.8 |
| 8 | 1.88 | 1.37 | 107.9 |
| 9 | 0.57 | 1.87 | -151.2 |
| 10 | 1.86 | 0.57 | 66.2 |
| **JJ** |  |  |  |
| 1 | 1.88 | 1.58 | 89.6 |
| 2 | 0.81 | 1.92 | 438.2 |
| 3 | 3.32 | 0.78 | 16.6 |
| 4 | 1.91 | 1.62 | 37.4 |
| 5 | 2.20 | 0.87 | 216.2 |
| 6 | 1.85 | 0.44 | 24.4 |
| 7 | 1.81 | 0.74 | 13.6 |
| 8 | 2.39 | 0.41 | 57.7 |
| 9 | 0.72 | -1.68 | -67.9 |
| 10 | 1.88 | 1.06 | 132.5 |
| 11 | 1.95 | 0.62 | 23.7 |
| 12 | 1.89 | 0.71 | 69.3 |
| 13 | 1.82 | 0.19 | 101.5 |
| 14 | 0.56 | -6.31 | -74.7 |
| 15 | 1.90 | 1.88 | 87.1 |
| 16 | 1.88 | 0.04 | 35.1 |
| 17 | 2.85 | 0.61 | 59.9 |
| 18 | 1.88 | 1.09 | 72.6 |

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| S/NO | 260/280 | 260/230 | ng/µL |
| **JK** |  |  |  |
| 1 | 1.98 | 0.20 | 10.6 |
| 2 | 1.87 | 1.26 | 28.7 |
| 3 | 2.00 | 0.78 | 30.7 |
| 4 | 1.86 | 1.28 | 96.2 |
| 5 | 1.68 | 1.58 | 82.1 |
| 6 | 0.86 | 1.52 | -521.7 |
| 7 | 1.79 | 1.52 | 53.2 |
| 8 | 0.82 | 1.61 | -66.4 |
| 9 | 1.89 | 1.28 | 28.1 |
|  |  |  |  |
| **JL** |  |  |  |
| 1 | 1.79 | 0.44 | 10.1 |
| 2 | 1.90 | 1.00 | 26.3 |
| 3 | 0.84 | 1.75 | -667.7 |
| 4 | 0.86 | 1.67 | 5028.6 |
| 5 | 1.81 | 1.33 | 93.1 |
| 6 | 1.78 | 1.24 | 76.2 |
| 7 | 1.67 | -8.26 | 8.2 |
| 8 | 1.83 | 1.50 | 92.0 |
| 9 | 1.76 | 5.03 | 20.9 |
| 10 | 1.85 | 0.83 | 82.3 |
| 11 | 1.75 | 0.53 | 93.3 |
| 12 | 0.86 | 1.54 | -484.3 |
| 13 | 0.85 | 1.55 | -683.3 |
| 14 | 1.85 | 1.46 | 69.1 |
|  |  |  |  |
| **JM** |  |  |  |
| 1 | 0.83 | 1.55 | -843.3 |
| 2 | 1.96 | 1.64 | 36.1 |
| 3 | 2.18 | 1.01 | 43.6 |
| 4 | 1.87 | 1.17 | 35.9 |
| 5 | 1.53 | 13.4 | 145.2 |
| 6 | 0.83 | 1.98 | -1065.7 |
| 7 | 3.63 | 1.16 | 57.5 |
| 8 | 1.63 | 3.77 | 164.3 |
| 9 | 1.94 | 1.63 | 66.7 |
| 10 | 0.81 | 1.84 | -244.0 |
| 11 | 1.75 | 3.51 | 200.2 |
| 12 | 0.83 | 1.62 | -421.0 |
| 13 | 0.85 | 1.73 | -774.4 |
| 14 | 2.57 | 1.24 | 85.7 |

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| S/NO | 260/280 | 260/230 | ng/µL |
| **JN** |  |  |  |
| 1 | 1.86 | 2.16 | 34.5 |
| 2 | 1.87 | 1.62 | 87.5 |
| 3 | 1.86 | 1.59 | 83.3 |
| 4 | 0.86 | 1.57 | -509.5 |
| 5 | 1.95 | 1.52 | 74.7 |
| 6 | 1.83 | 0.38 | 9.0 |
| 7 | 0.85 | 1.61 | -1005.6 |
| 8 | 2.26 | 0.52 | 14.3 |
|  |  |  |  |
| **JO** |  |  |  |
| 1 | 1.92 | 0.97 | 19.9 |
| 2 | 1.86 | 1.75 | 71.1 |
| 3 | 1.85 | 1.64 | 59.3 |
| 4 | 0.81 | 1.57 | -178.3 |
| 5 | 1.80 | 1.99 | 39.9 |
| 6 | 1.92 | 1.51 | 34.2 |
| 7 | 0.87 | 1.71 | -1329.5 |
| 8 | 1.82 | 1.96 | 193.5 |
| 9 | 2.06 | 0.79 | 23.3 |
| 10 | 0.81 | 2.89 | -587.9 |
| 11 | 1.66 | 1.97 | 89.0 |
| 12 | 1.89 | 0.37 | 46.6 |
| 13 | 1.92 | 1.69 | 54.5 |
| 14 | 1.39 | 0.14 | 8.0 |
|  |  |  |  |
| **JP** |  |  |  |
| 1 | 1.86 | 0.18 | 21.6 |
| 2 | 1.91 | 1.61 | 31.8 |
| 3 | 1.85 | 0.25 | 26.6 |
| 4 | 2.20 | 0.17 | 17.3 |
| 5 | 2.19 | 0.13 | 15.1 |
| 6 | 2.12 | 0.02 | 21.0 |
| 7 | 2.17 | 0.18 | 29.1 |
| 8 | 0.69 | -0.13 | 34.2 |
| 9 | 1.86 | 1.21 | 68.3 |
| 10 | 1.81 | 2.1 | 72.3 |
| 11 | 1.52 | 0.13 | 19.7 |
| 12 | 1.85 | 0.04 | 14.7 |
| 13 | 1.87 | 0.12 | 24.8 |

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| S/NO | 260/280 | 260/230 | ng/µL |
| **JQ** |  |  |  |
| 1 | 1.92 | 1.52 | 28.4 |
| 2 | 1.36 | 0.04 | 6.7 |
| 3 | 1.81 | 0.19 | 19.8 |
| 4 | 1.77 | 0.28 | 26.9 |
| 5 | -1.03 | 0.07 | 11.6 |
| 6 | 1.76 | 1.10 | 45.1 |
| 7 | 2.74 | 0.15 | 12.0 |
| 8 | 1.76 | 0.14 | 23.8 |
| 9 | 2.54 | 0.07 | 6.7 |
| 10 | 1.84 | 0.14 | 53.5 |
| 11 | 1.82 | 0.82 | 16.4 |
|  |  |  |  |
| **JR** |  |  |  |
| 1 | 1.22 | 0.06 | 12.8 |
| 2 | 0.98 | 0.05 | 39.5 |
| 3 | 1.96 | 0.52 | 18.4 |
| 4 | 1.74 | 0.48 | 39.6 |
| 5 | 1.86 | 0.92 | 76.2 |
| 6 | 0.59 | -0.09 | -10.9 |
| 7 | 1.89 | 1.38 | 34.9 |
| 8 | 1.86 | 0.99 | 15.7 |
| 9 | 1.71 | 0.81 | 32.6 |
|  |  |  |  |
| **JS** |  |  |  |
| 1 | 1.94 | -4.76 | 107.2 |
| 2 | 1.62 | 0.68 | 48.6 |
| 3 | 1.57 | -0.93 | 58.2 |
| 4 | 1.96 | 2.99 | 88.4 |
| 5 | 1.81 | 0.74 | 82.1 |
| 6 | 0.49 | 0.69 | -27.1 |
| 7 | 1.84 | 1.24 | 58.1 |
| 8 | 1.86 | 2.3 | 28.9 |
| 9 | 1.82 | 0.8 | 16.8 |
| 10 | -0.88 | 1.2 | -122.8 |
| 11 | 1.94 | 0.07 | 12.5 |
| 12 | 1.76 | 0.45 | 76.4 |
| 13 | 1.82 | 0.46 | 18.4 |
| 14 | 1.64 | -0.11 | -12.1 |
| 15 | 0.64 | 0.44 | -4.1 |

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| **S/NO** | 260/280 | 260/230 | ng/µL |
| **JT** |  |  |  |
| 1 | 0.88 | 1.85 | -165.7 |
| 2 | 1.31 | 0.06 | 6.6 |
| 3 | 1.87 | 0.52 | 42.9 |
| 4 | 1.55 | 0.22 | 14.9 |
| 5 | 2.00 | 0.58 | 15.9 |
| 6 | 1.95 | 0.13 | 24.6 |
| 7 | 3.53 | 0.03 | 4.7 |
| 8 | 0.47 | -0.22 | -15.3 |
| 9 | 2.16 | 1.69 | 15.4 |
| 10 | 1.98 | 1.05 | 32.9 |
| 11 | 1.97 | 0.20 | 29.8 |
| 12 | 1.98 | 0.19 | 24.3 |
| 13 | 0.68 | -3.23 | 61.7 |
| 14 | 1.94 | 0.70 | 28.3 |
|  |  |  |  |
| **JU** |  |  |  |
| 1 | 2.02 | 0.04 | 17.4 |
| 2 | 2.35 | 0.07 | 18.8 |
| 3 | 1.43 | -0.02 | 1.8 |
| 4 | 1.81 | 0.10 | 14.6 |
| 5 | 1.70 | 0.11 | 11.7 |
| 6 | 1.98 | 2.70 | 42.1 |
| 7 | 1.72 | 0.02 | 7.6 |
| 8 | 1.35 | 0.02 | 1.5 |
| 9 | 2.09 | 0.06 | 35.0 |
| 10 | 0.82 | -0.74 | -186.0 |
|  |  |  |  |
| **JV** |  |  |  |
| 1 | 2.52 | 0.10 | 18.6 |
| 2 | -0.26 | 0.06 | 4.6 |
| 3 | 1.90 | 0.39 | 78.7 |
| 4 | 1.69 | 0.03 | 36.7 |
| 5 | 1.96 | 1.08 | 74.4 |
| 6 | 0.65 | -0.18 | -31.2 |
| 7 | 0.89 | 1.81 | -540.9 |
| 8 | 2.03 | 0.60 | 17.5 |
| 9 | 0.73 | -1.23 | -116.2 |
| 10 | 0.87 | 1.92 | -619.4 |
| 11 | 0.81 | -1.89 | -231.2 |
| 12 | 1.41 | 0.02 | 21.5 |
| 13 | 0.83 | 2.57 | -429.6 |

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| S/NO | 260/280 | 260/230 | ng/µL |
| **JW** |  |  |  |
| 1 | 1.85 | 1.99 | 24.4 |
| 2 | 1.82 | 2.56 | 61.1 |
| 3 | 0.86 | 1.51 | 53.1 |
| 4 | 1.83 | 0.30 | 31.0 |
| 5 | 1.88 | 1.55 | 22.3 |
| 6 | 0.24 | -0.08 | -9.4 |
| 7 | 1.96 | 0.58 | 41.5 |
|  |  |  |  |
| **JX** |  |  |  |
| 1 | 0.84 | 2.38 | -439.8 |
| 2 | 0.83 | 5.15 | -268.2 |
| 3 | 1.54 | 0.65 | 50.2 |
| 4 | 1.51 | -0.25 | 29.7 |
| 5 | 1.63 | 0.65 | 29.1 |
| 6 | 1.74 | 1.19 | 52.8 |
|  |  |  |  |
| **JY** |  |  |  |
| 1 | 2.73 | 0.20 | 28.3 |
| 2 | 1.59 | 1.75 | 51.0 |
| 3 | 1.02 | -0.49 | 11.7 |
| 4 | 1.78 | 0.40 | 37.1 |
| 5 | 1.62 | 0.21 | 59.0 |
| 6 | 1.58 | 0.90 | 49.3 |
| 7 | 2.45 | 0.28 | 24.4 |
| 8 | 1.60 | 0.32 | 53.0 |
| 9 | 1.31 | 0.41 | 24.8 |
| 10 | 2.09 | 0.69 | 27.5 |
|  |  |  |  |
| **JZ** |  |  |  |
| 1 | 1.72 | 0.44 | 48.8 |
| 2 | 1.56 | 2.05 | 51.7 |
| 3 | 1.56 | 2.80 | 45.6 |
| 4 | -0.13 | 0.06 | 2.6 |
| 5 | 1.03 | 0.04 | 22.4 |
| 6 | 1.82 | 0.36 | 12.8 |
| 7 | 1.28 | 0.15 | 22.0 |
| 8 | 0.48 | -0.28 | -7.2 |
| 9 | 1.51 | 0.44 | 42.8 |
| 10 | 1.17 | -1.55 | 18.3 |
| 11 | 1.60 | 0.30 | 7.2 |
| 12 | 1.72 | 0.10 | 10.3 |

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| S/NO | 260/280 | 260/230 | ng/µL |
| **JAA** |  |  |  |
| 1 | 1.33 | 0.17 | 13.3 |
| 2 | 1.95 | 0.05 | 12.7 |
| 3 | 0.57 | -0.05 | -4.7 |
| 4 | 1.85 | 1.31 | 124.6 |
| 5 | 1.33 | 0.46 | 33.6 |
| 6 | 1.66 | -0.87 | 61.6 |
| 7 | 1.53 | 0.27 | 23.6 |
| 8 | 1.54 | -0.32 | 32.4 |
| 9 | 1.17 | 0.82 | 61.4 |
| 10 | 1.97 | 0.04 | 4.4 |
|  |  |  |  |
| **JAB** |  |  |  |
| 1 | 1.07 | 0.09 | 18.8 |
| 2 | 1.09 | 0.11 | 25.6 |
| 3 | -0.54 | 0.12 | 23.5 |
| 4 | 1.69 | -0.90 | 48.2 |
| 5 | 3.4 | 0.01 | 6.5 |
| 6 | 1.74 | 0.02 | 12.3 |
| 7 | 1.78 | -0.18 | 21.4 |
|  |  |  |  |
| **JAC** |  |  |  |
| 1 | 1.03 | 0.02 | 21.1 |
| 2 | 1.97 | 0.01 | 59.3 |
| 3 | 1.89 | 0.01 | 46.1 |
| 4 | 0.40 | -0.27 | 20.2 |
| 5 | 1.11 | 0.04 | 6.6 |
| 6 | 3.30 | 0.01 | 2.6 |
| 7 | 1.90 | 0.04 | 10.7 |
| 8 | 1.66 | 0.03 | 19.6 |
|  |  |  |  |
| **JAD** |  |  |  |
| 1 | 0.35 | 0.01 | 3.9 |
| 2 | 1.70 | 0.01 | 21.5 |
| 3 | 2.49 | 0.09 | 12.4 |
| 4 | 1.69 | 0.36 | 18.7 |
| 5 | 1.75 | -0.17 | 25.3 |
| 6 | 1.15 | 0.00 | 0.5 |
| 7 | 0.79 | 0.24 | 20,5 |
| 8 | 1.86 | 0.19 | 48.5 |
| 9 | 1.72 | 0.19 | 63.2 |
| 10 | 1.94 | 1.28 | 78.3 |
| 11 | 1.84 | 1.56 | 14.8 |
| 12 | 1.83 | 1.38 | 43.1 |

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| S/NO | 260/280 | 260/230 | ng/µL |
| **JAE** |  |  |  |
| 1 | 1.76 | 0.41 | 12.1 |
| 2 | 2.01 | 1.21 | 41.8 |
| 3 | 1.96 | 0.81 | 27.1 |
| 4 | 1.84 | 1.12 | 28.1 |
| 5 | 0.85 | 0.05 | 24.6 |
| 6 | 1.76 | 0.18 | 26.9 |
| 7 | 1.81 | 0.08 | 76.8 |
| 8 | 0.96 | 0.48 | 128.5 |
| 9 | 1.91 | 0.01 | 7.5 |
| 10 | 1.76 | 1.23 | 72.1 |
| 11 | 1.65 | 1.41 | 21.8 |
| 12 | 1.86 | 1.23 | 181.5 |
| 13 | 1.88 | 0.18 | 0.5 |
|  |  |  |  |
| **JAF** |  |  |  |
| 1 | 0.79 | 1.31 | 28.1 |
| 2 | 1.91 | 1.2 | 76.4 |
| 3 | 1.96 | 0.91 | 28.7 |
| 4 | 1.68 | 0.62 | 48.6 |
| 5 | 1.98 | 1.12 | 43.3 |
|  |  |  |  |
| **JAG** |  |  |  |
| 1 | 1.71 | 0.28 | 12.5 |
| 2 | 1.82 | 1.24 | 78.6 |
| 3 | 1.94 | 0.45 | 21.5 |
| 4 | 1.86 | 0.78 | 126.2 |
| 5 | 1.65 | 1.28 | 21.5 |
| 6 | 1.52 | 1.21 | 71.8 |
|  |  |  |  |
| **JAH** |  |  |  |
| 1 | 1.98 | 3.81 | 13.8 |
| 2 | 1.74 | 0.81 | 72.5 |
| 3 | 1.68 | 0.08 | 61.5 |
| 4 | 0.28 | 0.78 | 96.8 |
| 5 | 1.82 | 2.51 | 41.8 |
| 6 | 0.53 | -0.25 | -32.1 |
| 7 | 1.76 | 0.56 | 40.2 |
| 8 | 1.86 | 0.72 | 17.8 |
| 9 | 1.96 | 1.21 | 28.6 |
|  |  |  |  |

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| S/NO | 260/280 | 260/230 | ng/µL |
| **JAI** |  |  |  |
| 1 | 1.96 | 0.88 | 28.5 |
| 2 | 1.76 | 0.28 | 68.3 |
| 3 | 1.81 | 0.01 | 38.1 |
| 4 | 0.81 | 0.74 | -2.81 |
| 5 | 1.80 | 0.76 | 78.4 |
| 6 | 1.76 | 0.36 | 91.4 |
| 7 | 1.85 | 0.94 | 18.1 |
| 8 | 0.76 | 0.28 | 19.2 |
|  |  |  |  |
| **JAJ** |  |  |  |
| 1 | 0.29 | 0.01 | 72.6 |
| 2 | 1.98 | 1.32 | 28.6 |
| 3 | 1.85 | 0.76 | 12.8 |
| 4 | 1.78 | 1.28 | 52.8 |
| 5 | 1.85 | 0.98 | 16.5 |
| 6 | 1.86 | 0.13 | 53.8 |
|  |  |  |  |