## -Supplementary Information for:

## Chapter 4 | Population and Functional Genomics of West African Cattle

## This PDF file includes:

**Supplementary Table 4.2** 

**Supplementary Table 4.3** 

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**Supplementary Figure 4.1** 

**Supplementary Table 4.2:**  $f_3$  statistics calculated using EAT;NDG and AAI as reference populations.

| pop1 | pop2 | рорЗ | est      | se      | z      | <i>P</i> -value |
|------|------|------|----------|---------|--------|-----------------|
| ВАО  | EAT  | AAI  | 0.01120  | 0.00042 | 26.88  | 3.87E-159       |
| ВАО  | NDG  | AAI  | -0.00550 | 0.00031 | -17.60 | 2.62E-69        |
| BIC  | EAT  | AAI  | 0.01334  | 0.00054 | 24.48  | 2.17E-132       |
| BIC  | NDG  | AAI  | -0.00303 | 0.00044 | -6.81  | 1.00E-11        |
| BRG  | EAT  | AAI  | -0.01167 | 0.00056 | -20.71 | 2.68E-95        |
| BRG  | NDG  | AAI  | -0.02345 | 0.00051 | -46.11 | 0               |
| DJK  | EAT  | AAI  | -0.01781 | 0.00038 | -46.31 | 0               |
| DJK  | NDG  | AAI  | -0.02752 | 0.00037 | -75.33 | 0               |
| КАР  | EAT  | AAI  | -0.00980 | 0.00057 | -17.05 | 3.25E-65        |
| KAP  | NDG  | AAI  | -0.02114 | 0.00050 | -42.00 | 0               |
| KUR  | EAT  | AAI  | -0.01683 | 0.00038 | -43.86 | 0               |
| KUR  | NDG  | AAI  | -0.02714 | 0.00033 | -82.45 | 0               |
| LAG  | EAT  | AAI  | 0.02618  | 0.00047 | 55.26  | 0               |
| LAG  | NDG  | AAI  | 0.00849  | 0.00037 | 22.80  | 4.42E-115       |
| МВО  | EAT  | AAI  | -0.00715 | 0.00067 | -10.67 | 1.42E-26        |
| МВО  | NDG  | AAI  | -0.01408 | 0.00068 | -20.64 | 1.14E-94        |
| NAM  | EAT  | AAI  | -0.00112 | 0.00065 | -1.73  | 0.0842          |
| NAM  | NDG  | AAI  | -0.01605 | 0.00057 | -28.39 | 3.07E-177       |
| NDA  | EAT  | AAI  | 0.01059  | 0.00049 | 21.77  | 4.69E-105       |
| NDA  | NDG  | AAI  | -0.00829 | 0.00037 | -22.37 | 7.30E-111       |
| SHK  | EAT  | AAI  | -0.01495 | 0.00038 | -39.18 | 0               |
| SHK  | NDG  | AAI  | -0.02107 | 0.00038 | -56.06 | 0               |
| SKG  | EAT  | AAI  | -0.01084 | 0.00066 | -16.31 | 8.28E-60        |
| SKG  | NDG  | AAI  | -0.01714 | 0.00067 | -25.43 | 1.06E-142       |
| SOM  | EAT  | AAI  | 0.01630  | 0.00046 | 35.57  | 3.97E-277       |
| SOM  | NDG  | AAI  | -0.00041 | 0.00038 | -1.06  | 0.2896          |
| WHF  | EAT  | AAI  | -0.01659 | 0.00052 | -32.15 | 9.55E-227       |
| WHF  | NDG  | AAI  | -0.02313 | 0.00052 | -44.09 | 0               |
| ZBP  | EAT  | AAI  | -0.01117 | 0.00057 | -19.53 | 6.53E-85        |
| ZBP  | NDG  | AAI  | -0.01811 | 0.00058 | -31.09 | 2.90E-212       |

**Supplementary Table 4.3:** *D*-statistics calculated using EAT,NDG, AAI and OUT as reference populations.

| pop1 | pop2 | рорЗ | pop4 | est      | se       | z      | <i>P</i> -value |
|------|------|------|------|----------|----------|--------|-----------------|
| EAT  | KUR  | AAI  | OUT  | -0.0059  | 0.0003   | -18.19 | 6.48E-74        |
| EAT  | КАР  | AAI  | OUT  | -0.0049  | 0.0003   | -16.13 | 1.59E-58        |
| EAT  | NAM  | AAI  | OUT  | -0.0019  | 0.0002   | -8.59  | 8.36E-18        |
| EAT  | LAG  | AAI  | OUT  | 0.0007   | 0.0001   | 5.84   | 5.17E-09        |
| EAT  | SOM  | AAI  | ОИТ  | 0.0005   | 0.0001   | 3.91   | 9.07E-05        |
| EAT  | BRG  | AAI  | ОИТ  | -0.0050  | 0.0003   | -16.23 | 2.94E-59        |
| EAT  | ZBP  | AAI  | OUT  | -0.0103  | 0.0005   | -20.76 | 1.00E-95        |
| EAT  | МВО  | AAI  | OUT  | -0.0103  | 0.0005   | -19.90 | 3.72E-88        |
| EAT  | SKG  | AAI  | ОИТ  | -0.0100  | 0.0005   | -20.37 | 2.90E-92        |
| EAT  | WHF  | AAI  | ОИТ  | -0.0101  | 0.0005   | -20.91 | 4.27E-97        |
| EAT  | BIC  | AAI  | ОИТ  | 6.68E-05 | 0.0001   | 0.51   | 0.61347         |
| EAT  | DJK  | AAI  | ОИТ  | -0.0082  | 0.0004   | -20.34 | 5.82E-92        |
| EAT  | SHK  | AAI  | ОИТ  | -0.0089  | 0.0004   | -21.42 | 8.62E-102       |
| EAT  | NDA  | AAI  | ОИТ  | -0.0007  | 0.0001   | -5.00  | 5.73E-07        |
| EAT  | BAO  | AAI  | ОИТ  | -0.0005  | 0.0001   | -3.77  | 0.00016         |
| EAT  | NDG  | AAI  | OUT  | 0.0009   | 0.0001   | 8.51   | 1.69E-17        |
| NDG  | KUR  | AAI  | OUT  | -0.0068  | 0.0003   | -22.00 | 2.90E-107       |
| NDG  | KAP  | AAI  | OUT  | -0.0058  | 0.0003   | -20.15 | 2.63E-90        |
| NDG  | NAM  | AAI  | OUT  | -0.0028  | 0.0002   | -13.89 | 7.13E-44        |
| NDG  | LAG  | AAI  | OUT  | -0.0002  | 9.27E-05 | -1.74  | 0.08239         |
| NDG  | SOM  | AAI  | OUT  | -0.0004  | 9.37E-05 | -4.15  | 3.33E-05        |
| NDG  | BRG  | AAI  | OUT  | -0.0059  | 0.0003   | -20.07 | 1.38E-89        |
| NDG  | ZBP  | AAI  | OUT  | -0.0112  | 0.0005   | -23.31 | 3.22E-120       |
| NDG  | МВО  | AAI  | OUT  | -0.0112  | 0.0005   | -22.20 | 3.74E-109       |
| NDG  | SKG  | AAI  | OUT  | -0.0109  | 0.0005   | -22.74 | 1.62E-114       |
| NDG  | WHF  | AAI  | OUT  | -0.0110  | 0.0005   | -23.44 | 1.69E-121       |
| NDG  | BIC  | AAI  | OUT  | -0.0008  | 0.0001   | -7.58  | 3.47E-14        |
| NDG  | DJK  | AAI  | OUT  | -0.0090  | 0.0004   | -23.53 | 1.95E-122       |
| NDG  | SHK  | AAI  | OUT  | -0.0097  | 0.0004   | -24.48 | 2.16E-132       |
| NDG  | NDA  | AAI  | OUT  | -0.0016  | 0.0001   | -13.82 | 1.93E-43        |
| NDG  | ВАО  | AAI  | ОИТ  | -0.0014  | 9.62E-05 | -14.16 | 1.53E-45        |
| NDG  | NDG  | AAI  | OUT  | 4.51E-19 | 3.32E-16 | 0.00   | 0.99892         |

**Supplementary Table 4.4**: Regions identified by Population Branch Statistics (PBS) analysis of African taurine populations.

| Chromosome | Genomic Range        | NumVariants | Mean PBS     |
|------------|----------------------|-------------|--------------|
| 1          | 1:6382001-6456000    | 497         | 0.5399952386 |
| 1          | 1:72001-128000       | 51          | 0.4887224484 |
| 1          | 1:67926001-67978000  | 249         | 0.472475885  |
| 2          | 2:70356001-70422000  | 358         | 0.5190776566 |
| 3          | 3:54150001-54256000  | 476         | 0.62730989   |
| 5          | 5:28290001-28346000  | 314         | 0.4886572406 |
| 5          | 5:74520001-74572000  | 619         | 0.4756725571 |
| 5          | 5:70070001-70120000  | 152         | 0.4633686179 |
| 6          | 6:4362001-4430000    | 317         | 0.5269084562 |
| 6          | 6:87480001-87598000  | 442         | 0.4965430087 |
| 9          | 9:3408001-3510000    | 459         | 0.545304252  |
| 9          | 9:43486001-43562000  | 591         | 0.4907822924 |
| 10         | 10:27846001-27928000 | 1111        | 0.5142565813 |
| 11         | 11:32110001-32208000 | 673         | 0.5953079984 |
| 15         | 15:55694001-55748000 | 230         | 0.4803306572 |
| 17         | 17:22126001-22200000 | 326         | 0.5332284725 |
| 17         | 17:59070001-59120000 | 175         | 0.4861010476 |
| 17         | 17:68156001-68216000 | 302         | 0.4710301407 |
| 22         | 22:10822001-10878000 | 25          | 0.5007855537 |
| 25         | 25:40038001-40120000 | 409         | 0.5255056706 |
| 26         | 26:38346001-38428000 | 229         | 0.4928684679 |
| 29         | 29:42460001-42636000 | 144         | 0.5170256347 |

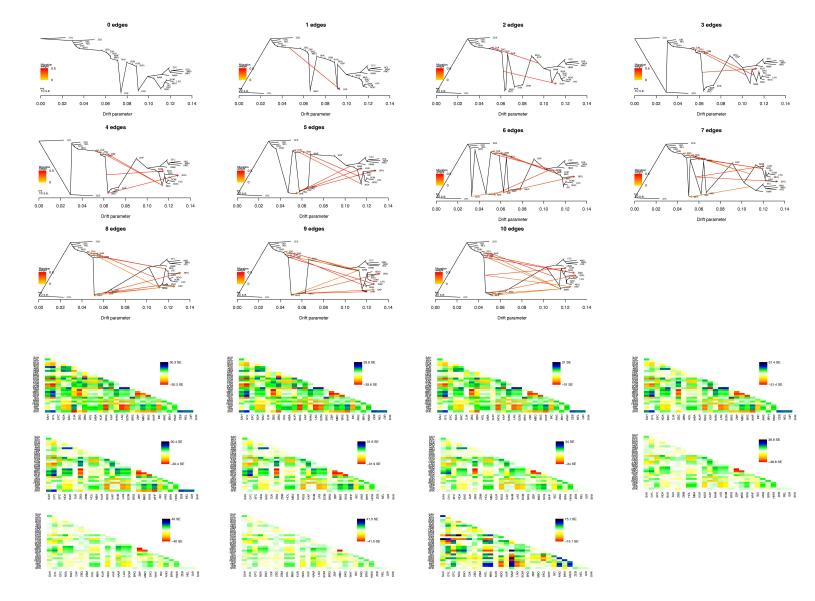
**Supplementary Table 4.5**: Genes identified in the regions found using PBS analysis and some traits for which some genes are associated with a traits mentioned in the manuscript.

| ENSBTAG0000023607         HACD2         BTA1           ENSBTAG00000034854         GRIK1         BTA1           ENSBTAG00000051986         BTA10           ENSBTAG00000053279         BTA10           ENSBTAG00000047107         TNIP3         BTA17           ENSBTAG00000054284         BTA17           ENSBTAG00000004035         SDK1         BTA22           ENSBTAG00000008644         KCNK4         BTA29           ENSBTAG00000008645         ESRRA         BTA29           ENSBTAG00000008646         TRMT112         BTA29           ENSBTAG00000008648         PRDX5         BTA29           ENSBTAG00000012511         BAD         BTA29           ENSBTAG00000012512         GPR137         BTA29           ENSBTAG00000015663         STIP1         BTA29           ENSBTAG00000015663         STIP1         BTA29           ENSBTAG00000016559         NUDT22         BTA29           ENSBTAG00000016559         NUDT22         BTA29           ENSBTAG0000001781         MACROD1         BTA29           ENSBTAG00000045862         FERMT3         BTA29           ENSBTAG00000047657         VEGFB         BTA29           ENSBTAG000000147         RIC8B         BTA3  |                    | 1       | 1     |
|---|--------------------|---------|-------|
| ENSBTAGO000014854 GRIK1 BTA1 ENSBTAGO0000051986 BTA10 ENSBTAGO0000053279 BTA10 ENSBTAGO0000047107 TNIP3 BTA17 ENSBTAGO0000047107 TNIP3 BTA17 ENSBTAGO000004284 BTA17 ENSBTAGO0000016563 GOLGA4 BTA22 ENSBTAGO000004035 SDK1 BTA25 ENSBTAGO000008644 KCNK4 BTA29 ENSBTAGO000008645 ESRRA BTA29 ENSBTAGO000008646 TRMT112 BTA29 ENSBTAGO000008648 PRDX5 BTA29 ENSBTAGO0000012511 BAD BTA29 ENSBTAGO0000012512 GPR137 BTA29 ENSBTAGO0000012512 GPR137 BTA29 ENSBTAGO0000015663 STIP1 BTA29 ENSBTAGO0000015663 STIP1 BTA29 ENSBTAGO0000015663 STIP1 BTA29 ENSBTAGO0000015655 TRPT1 BTA29 ENSBTAGO000016559 NUDT22 BTA29 ENSBTAGO000016559 NUDT22 BTA29 ENSBTAGO000017181 MACROD1 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000017181 BTA29 ENSBTAGO00000047667 VEGFB BTA29 ENSBTAGO0000047567 VEGFB BTA29 ENSBTAGO00000143 BTA3 ENSBTAGO00000147 RICSB BTA5 ENSBTAGO0000001790 SLCAA8 BTA5 ENSBTAGO0000001790 SLCAA8 ENSBTAGO000000037524 BTA5   | ENSEMBL_ID         | SYMBOL  | CHROM |
| ENSBTAGO000051986 ENSBTAGO0000053279 ENSBTAGO0000047107 TNIP3 BTA17 ENSBTAGO0000047107 TNIP3 BTA17 ENSBTAGO0000016563 GOLGA4 BTA22 ENSBTAGO0000016563 SDK1 BTA25 ENSBTAGO000008644 KCNK4 BTA29 ENSBTAGO000008645 ESRRA BTA29 ENSBTAGO000008646 TRMT112 BTA29 ENSBTAGO000008646 PRDXS BTA29 ENSBTAGO0000012511 BAD BTA29 ENSBTAGO0000012511 BAD BTA29 ENSBTAGO0000012512 GPR137 BTA29 ENSBTAGO0000013606 FKBP2 BTA29 ENSBTAGO0000015663 STIP1 BTA29 ENSBTAGO0000016555 TRPT1 BTA29 ENSBTAGO0000016559 NUDT22 BTA29 ENSBTAGO0000016559 NUDT22 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000017181 ENSBTAGO0000017181 BTA29 ENSBTAGO0000017181 BTA29 ENSBTAGO000001765 ENSBTAGO000004765 FERMT3 BTA29 ENSBTAGO000004766 BTA29 ENSBTAGO000004766 BTA29 ENSBTAGO00000143 BTA29 ENSBTAGO000001143 BTA3 ENSBTAGO000001143 BTA3 ENSBTAGO0000017950 SLC4A8 BTA5 ENSBTAGO0000017950 SLC4A8 BTA5 ENSBTAGO000003852 ENSBTAGO0000038524 ENSBTAGO000003852 ENSBTAGO0000038524 ENSBTAGO0000038524 ENSBTAGO000003852     | ENSBTAG00000023607 | HACD2   | BTA1  |
| ENSBTAGO0000053279 ENSBTAGO0000047107 TNIP3 ENSBTAGO0000047107 TNIP3 BTA17 ENSBTAGO0000016563 GOLGA4 BTA22 ENSBTAGO0000016563 SDK1 BTA25 ENSBTAGO000008644 KCNK4 BTA29 ENSBTAGO000008645 ESRRA BTA29 ENSBTAGO000008646 TRMT112 BTA29 ENSBTAGO000008648 PRDX5 BAD BTA29 ENSBTAGO0000012511 BAD BAD BTA29 ENSBTAGO0000012512 GPR137 BTA29 ENSBTAGO0000012512 GPR137 BTA29 ENSBTAGO000001563 STIP1 BTA29 ENSBTAGO000001563 STIP1 BTA29 ENSBTAGO0000016555 TRPT1 BTA29 ENSBTAGO0000016555 TRPT1 BTA29 ENSBTAGO0000016559 NUDT22 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO00000047265 BNSBTAGO00000047667 VEGFB BNSBTAGO000000143 BTA29 ENSBTAGO00000143 ENSBTAGO000001750 ENSBTAGO000001770 RICBB ENSBTAGO000001770 RICBB ENSBTAGO0000001770 RICBB ENSBTAGO000000000000000000000000000000000000 | ENSBTAG00000034854 | GRIK1   | BTA1  |
| ENSBTAGO000047107 TNIP3 BTA17 ENSBTAGO0000016563 GOLGA4 BTA22 ENSBTAGO0000016563 GOLGA4 BTA25 ENSBTAGO0000016563 SDK1 BTA25 ENSBTAGO000000844 KCNK4 BTA29 ENSBTAGO000008645 ESRRA BTA29 ENSBTAGO000008646 TRMT112 BTA29 ENSBTAGO000008648 PRDX5 BTA29 ENSBTAGO0000012511 BAD BTA29 ENSBTAGO000012512 GPR137 BTA29 ENSBTAGO000012512 GPR137 BTA29 ENSBTAGO000015663 STIP1 BTA29 ENSBTAGO000015663 STIP1 BTA29 ENSBTAGO000016555 TRPT1 BTA29 ENSBTAGO000016559 NUDT22 BTA29 ENSBTAGO000016559 NUDT22 BTA29 ENSBTAGO000017181 MACROD1 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO000004190 CCDC88B BTA29 ENSBTAGO0000047567 VEGFB BTA29 ENSBTAGO0000047567 VEGFB BTA29 ENSBTAGO000001143 BTA3 ENSBTAGO000001143 BTA3 ENSBTAGO0000017950 SLC4A8 BTA5 ENSBTAGO0000017950 SLC4A8 BTA5 ENSBTAGO0000038652 BTA5 ENSBTAGO0000038652 BTA5 ENSBTAGO0000038652 BTA5 ENSBTAGO0000039524 BTA5  | ENSBTAG00000051986 |         | BTA10 |
| ENSBTAGO000054284 ENSBTAGO0000016563 GOLGA4 BTA22 ENSBTAGO0000004035 SDK1 BTA25 ENSBTAGO0000008644 KCNK4 BTA29 ENSBTAGO000008645 ESRRA BTA29 ENSBTAGO000008646 TRMT112 BTA29 ENSBTAGO000008648 PRDX5 BTA29 ENSBTAGO0000012511 BAD BTA29 ENSBTAGO0000012512 GPR137 BTA29 ENSBTAGO0000013606 FKBP2 ENSBTAGO0000015663 STIP1 BTA29 ENSBTAGO000016555 TRPT1 BTA29 ENSBTAGO0000016555 TRPT1 BTA29 ENSBTAGO000016559 NUDT22 BTA29 ENSBTAGO000017181 MACROD1 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000017181 BTA29 ENSBTAGO00000017181 BTA29 ENSBTAGO00000017181 BTA29 ENSBTAGO00000017181 BTA29 ENSBTAGO00000017950 SLC4A8 BTA3 ENSBTAGO00000017950 SLC4A8 BTA5 ENSBTAGO0000038652 ENSBTAGO0000039524 BTA5   | ENSBTAG00000053279 |         | BTA10 |
| ENSBTAGO000016563 ENSBTAGO000004035 SDK1 BTA25 ENSBTAGO0000008644 KCNK4 BTA29 ENSBTAGO0000008645 ESRRA BTA29 ENSBTAGO0000008646 TRMT112 BTA29 ENSBTAGO0000008648 PRDX5 BTA29 ENSBTAGO0000012511 BAD BTA29 ENSBTAGO0000012512 GPR137 BTA29 ENSBTAGO0000013606 FKBP2 ENSBTAGO0000013606 FKBP2 BTA29 ENSBTAGO000001563 STIP1 BTA29 ENSBTAGO000001555 TRPT1 BTA29 ENSBTAGO0000016559 NUDT22 BTA29 ENSBTAGO0000016559 NUDT22 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000017181 BTA29 ENSBTAGO000001780 ENSBTAGO000001780 ENSBTAGO000001780 ENSBTAGO000001780 BTA29 ENSBTAGO0000001780 ENSBTAGO000001780 BTA29 ENSBTAGO000001780 BTA29 ENSBTAGO000001780 BTA29 ENSBTAGO000001780 BTA29 ENSBTAGO000001780 BTA29 ENSBTAGO0000001780 BTA3 ENSBTAGO0000001780 BTA3 ENSBTAGO0000001780 BTA3 ENSBTAGO0000001790 SLC4A8 BTA5 ENSBTAGO00000039524 BTA5  | ENSBTAG00000047107 | TNIP3   | BTA17 |
| ENSBTAGO000004035 ENSBTAGO0000008644 KCNK4 BTA29 ENSBTAGO000008645 ESRRA BTA29 ENSBTAGO000008646 TRMT112 BTA29 ENSBTAGO000008648 PRDX5 BTA29 ENSBTAGO0000012511 BAD BTA29 ENSBTAGO000012512 GPR137 BTA29 ENSBTAGO0000012512 GPR137 BTA29 ENSBTAGO0000013606 FKBP2 ENSBTAGO0000015663 STIP1 BTA29 ENSBTAGO0000016555 TRPT1 BTA29 ENSBTAGO0000016559 NUDT22 BTA29 ENSBTAGO0000016559 NUDT22 BTA29 ENSBTAGO000001781 MACROD1 BTA29 ENSBTAGO000001781 MACROD1 BTA29 ENSBTAGO0000047265 ENSBTAGO0000047265 BTA29 ENSBTAGO0000047265 ENSBTAGO0000017950 ENSBTAGO00000147 RICSB ENSBTAGO000000147 RICSB ENSBTAGO00000017950 SLC4A8 BTA5 ENSBTAGO0000017950 SLC4A8 BTA5 ENSBTAGO0000038652 ENSBTAGO0000039524 BTA5   | ENSBTAG00000054284 |         | BTA17 |
| ENSBTAGO000008644 KCNK4 BTA29 ENSBTAGO000008645 ESRRA BTA29 ENSBTAGO000008646 TRMT112 BTA29 ENSBTAGO000008648 PRDX5 BTA29 ENSBTAGO0000012511 BAD BTA29 ENSBTAGO000012512 GPR137 BTA29 ENSBTAGO0000012512 GPR37 BTA29 ENSBTAGO0000013606 FKBP2 BTA29 ENSBTAGO0000015663 STIP1 BTA29 ENSBTAGO000001555 TRPT1 BTA29 ENSBTAGO0000016559 NUDT22 BTA29 ENSBTAGO0000016559 DNAJC4 BTA29 ENSBTAGO0000016560 DNAJC4 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000040190 CCDC88B BTA29 ENSBTAGO0000045862 FERMT3 BTA29 ENSBTAGO0000047667 VEGFB BTA29 ENSBTAGO0000047667 VEGFB BTA29 ENSBTAGO00000143 BTA3 ENSBTAGO00000143 BTA3 ENSBTAGO00000147 RIC8B BTA3 ENSBTAGO0000017950 SLC4A8 BTA5 ENSBTAGO0000038652 BTA5 ENSBTAGO0000038652 BTA5 ENSBTAGO0000038652 BTA5 ENSBTAGO0000038652 BTA5  | ENSBTAG00000016563 | GOLGA4  | BTA22 |
| ENSBTAG00000008645         ESRRA         BTA29           ENSBTAG00000008646         TRMT112         BTA29           ENSBTAG00000008648         PRDX5         BTA29           ENSBTAG00000012511         BAD         BTA29           ENSBTAG00000012512         GPR137         BTA29           ENSBTAG00000013606         FKBP2         BTA29           ENSBTAG00000015663         STIP1         BTA29           ENSBTAG00000016555         TRPT1         BTA29           ENSBTAG00000016559         NUDT22         BTA29           ENSBTAG0000001781         MACROD1         BTA29           ENSBTAG0000004190         CCDC88B         BTA29           ENSBTAG00000047265         BTA29           ENSBTAG00000047265         BTA29           ENSBTAG00000047567         VEGFB         BTA29           ENSBTAG000000037634         BTA3           ENSBTAG0000000147         RIC8B         BTA5           ENSBTAG000000037652         SLC4A8         BTA5           ENSBTAG000000039524         BTA5         BTA5   | ENSBTAG00000004035 | SDK1    | BTA25 |
| ENSBTAGO000008646 TRMT112 BTA29 ENSBTAGO000008648 PRDX5 BTA29 ENSBTAGO0000012511 BAD BTA29 ENSBTAGO0000012512 GPR137 BTA29 ENSBTAGO0000013606 FKBP2 BTA29 ENSBTAGO0000015663 STIP1 BTA29 ENSBTAGO0000016555 TRPT1 BTA29 ENSBTAGO0000016559 NUDT22 BTA29 ENSBTAGO0000016560 DNAIC4 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000047265 FERMT3 BTA29 ENSBTAGO0000047667 VEGFB BTA29 ENSBTAGO0000047667 VEGFB BTA29 ENSBTAGO00000143 BTA3 ENSBTAGO00000143 BTA3 ENSBTAGO000000147 RICSB BTA5 ENSBTAGO00000017950 SLC4A8 BTA5 ENSBTAGO0000037652 BTA5 ENSBTAGO00000017950 SLC4A8 BTA5 ENSBTAGO0000037652 BTA5 ENSBTAGO00000037654 BTA5 ENSBTAGO00000017950 SLC4A8 BTA5 ENSBTAGO0000037654 BTA5   | ENSBTAG00000008644 | KCNK4   | BTA29 |
| ENSBTAGO000008648 PRDX5 BTA29 ENSBTAG00000012511 BAD BTA29 ENSBTAG00000012512 GPR137 BTA29 ENSBTAG00000013606 FKBP2 BTA29 ENSBTAG00000015663 STIP1 BTA29 ENSBTAG00000016555 TRPT1 BTA29 ENSBTAG00000016559 NUDT22 BTA29 ENSBTAG00000016560 DNAJC4 BTA29 ENSBTAG00000017181 MACROD1 BTA29 ENSBTAG00000017181 MACROD1 BTA29 ENSBTAG00000040190 CCDC88B BTA29 ENSBTAG00000047265 BTA29 ENSBTAG00000047265 BTA29 ENSBTAG00000047367 VEGFB BTA29 ENSBTAG000000053576 BTA29 ENSBTAG000000143 BTA3 ENSBTAG0000000147 RIC8B BTA3 ENSBTAG000000017950 SLC4A8 BTA5 ENSBTAG00000038652 BTA5 ENSBTAG000000038652 BTA5 ENSBTAG000000038652 BTA5 ENSBTAG000000039524 BTA5   | ENSBTAG00000008645 | ESRRA   | BTA29 |
| ENSBTAG0000012511 BAD BTA29 ENSBTAG00000012512 GPR137 BTA29 ENSBTAG00000013606 FKBP2 BTA29 ENSBTAG00000015663 STIP1 BTA29 ENSBTAG00000016555 TRPT1 BTA29 ENSBTAG00000016559 NUDT22 BTA29 ENSBTAG00000016560 DNAJC4 BTA29 ENSBTAG00000017181 MACROD1 BTA29 ENSBTAG00000047181 MACROD1 BTA29 ENSBTAG0000004790 CCDC88B BTA29 ENSBTAG0000004765 BTA29 ENSBTAG00000047667 VEGFB BTA29 ENSBTAG00000047567 VEGFB BTA29 ENSBTAG00000035576 BTA29 ENSBTAG0000001143 BTA3 ENSBTAG00000001747 RIC8B BTA3 ENSBTAG000000017950 SLC4A8 BTA5 ENSBTAG00000038652 BTA5 ENSBTAG00000038652 BTA5 ENSBTAG00000038652 BTA5 ENSBTAG00000039524 BTA5  | ENSBTAG00000008646 | TRMT112 | BTA29 |
| ENSBTAGO000012512 GPR137 BTA29 ENSBTAG00000013606 FKBP2 BTA29 ENSBTAG00000015663 STIP1 BTA29 ENSBTAG00000016555 TRPT1 BTA29 ENSBTAG00000016559 NUDT22 BTA29 ENSBTAG00000016560 DNAJC4 BTA29 ENSBTAG00000017181 MACROD1 BTA29 ENSBTAG00000040190 CCDC88B BTA29 ENSBTAG00000047265 BTA29 ENSBTAG00000047265 BTA29 ENSBTAG00000047567 VEGFB BTA29 ENSBTAG0000001143 BTA29 ENSBTAG0000000143 BTA3 ENSBTAG0000000143 BTA3 ENSBTAG000000017950 SLC4A8 BTA5 ENSBTAG00000017950 SLC4A8 ENSBTAG000000039524 BTA5   | ENSBTAG00000008648 | PRDX5   | BTA29 |
| ENSBTAGO000013606 FKBP2 BTA29 ENSBTAG00000015663 STIP1 BTA29 ENSBTAG00000016555 TRPT1 BTA29 ENSBTAG00000016559 NUDT22 BTA29 ENSBTAG00000016560 DNAJC4 BTA29 ENSBTAG00000017181 MACROD1 BTA29 ENSBTAG00000040190 CCDC88B BTA29 ENSBTAG00000045862 FERMT3 BTA29 ENSBTAG00000047265 BTA29 ENSBTAG00000047567 VEGFB BTA29 ENSBTAG00000035576 BTA29 ENSBTAG0000001143 BTA3 ENSBTAG000000017950 SLC4A8 BTA5 ENSBTAG00000017950 SLC4A8 ENSBTAG00000038652 ENSBTAG00000038652 ENSBTAG00000039524 BTA5   | ENSBTAG00000012511 | BAD     | BTA29 |
| ENSBTAG00000015663         STIP1         BTA29           ENSBTAG00000016555         TRPT1         BTA29           ENSBTAG00000016559         NUDT22         BTA29           ENSBTAG00000016560         DNAJC4         BTA29           ENSBTAG00000017181         MACROD1         BTA29           ENSBTAG00000040190         CCDC88B         BTA29           ENSBTAG00000045862         FERMT3         BTA29           ENSBTAG00000047265         BTA29           ENSBTAG00000047567         VEGFB         BTA29           ENSBTAG00000053576         BTA3           ENSBTAG00000001143         BTA3           ENSBTAG0000000147         RIC8B         BTA3           ENSBTAG000000017950         SLC4A8         BTA5           ENSBTAG00000038652         BTA5           ENSBTAG000000039524         BTA5   | ENSBTAG00000012512 | GPR137  | BTA29 |
| ENSBTAGO0000016555 TRPT1 BTA29 ENSBTAGO0000016559 NUDT22 BTA29 ENSBTAGO0000016560 DNAJC4 BTA29 ENSBTAGO0000017181 MACROD1 BTA29 ENSBTAGO0000040190 CCDC88B BTA29 ENSBTAGO0000045862 FERMT3 BTA29 ENSBTAGO0000047265 BTA29 ENSBTAGO0000047567 VEGFB BTA29 ENSBTAGO0000033576 BTA29 ENSBTAGO000001143 BTA3 ENSBTAGO00000017950 SLC4A8 BTA5 ENSBTAGO0000017950 SLC4A8 ENSBTAGO0000039524 BTA5  | ENSBTAG00000013606 | FKBP2   | BTA29 |
| ENSBTAG00000016559         NUDT22         BTA29           ENSBTAG00000016560         DNAJC4         BTA29           ENSBTAG00000017181         MACROD1         BTA29           ENSBTAG00000040190         CCDC88B         BTA29           ENSBTAG00000045862         FERMT3         BTA29           ENSBTAG00000047265         BTA29           ENSBTAG00000047567         VEGFB         BTA29           ENSBTAG000000053576         BTA3           ENSBTAG00000001143         BTA3           ENSBTAG0000000147         RIC8B         BTA5           ENSBTAG00000017950         SLC4A8         BTA5           ENSBTAG00000038652         BTA5           ENSBTAG000000039524         BTA5   | ENSBTAG00000015663 | STIP1   | BTA29 |
| ENSBTAG00000016560         DNAJC4         BTA29           ENSBTAG00000017181         MACROD1         BTA29           ENSBTAG00000040190         CCDC88B         BTA29           ENSBTAG00000045862         FERMT3         BTA29           ENSBTAG0000047265         BTA29           ENSBTAG00000047567         VEGFB         BTA29           ENSBTAG00000053576         BTA29           ENSBTAG000000143         BTA3           ENSBTAG000000147         RIC8B         BTA3           ENSBTAG0000000147         RIC8B         BTA5           ENSBTAG00000038652         BTA5           ENSBTAG000000039524         BTA5   | ENSBTAG00000016555 | TRPT1   | BTA29 |
| ENSBTAG0000017181 MACROD1 BTA29 ENSBTAG00000040190 CCDC88B BTA29 ENSBTAG00000045862 FERMT3 BTA29 ENSBTAG00000047265 BTA29 ENSBTAG00000047567 VEGFB BTA29 ENSBTAG00000053576 BTA29 ENSBTAG0000001143 BTA3 ENSBTAG00000037634 BTA3 ENSBTAG0000000147 RIC8B BTA5 ENSBTAG00000017950 SLC4A8 BTA5 ENSBTAG00000038652 BTA5 ENSBTAG00000039524 BTA5  | ENSBTAG00000016559 | NUDT22  | BTA29 |
| ENSBTAG00000040190         CCDC88B         BTA29           ENSBTAG00000045862         FERMT3         BTA29           ENSBTAG00000047265         BTA29           ENSBTAG00000047567         VEGFB         BTA29           ENSBTAG00000053576         BTA29           ENSBTAG00000001143         BTA3           ENSBTAG00000037634         BTA3           ENSBTAG0000000147         RIC8B         BTA5           ENSBTAG00000017950         SLC4A8         BTA5           ENSBTAG00000038652         BTA5           ENSBTAG000000039524         BTA5  | ENSBTAG00000016560 | DNAJC4  | BTA29 |
| ENSBTAG00000045862 FERMT3 BTA29  ENSBTAG00000047265 BTA29  ENSBTAG00000047567 VEGFB BTA29  ENSBTAG00000053576 BTA29  ENSBTAG0000001143 BTA3  ENSBTAG00000037634 BTA3  ENSBTAG0000000147 RIC8B BTA5  ENSBTAG00000017950 SLC4A8 BTA5  ENSBTAG00000038652 BTA5  ENSBTAG00000039524 BTA5  | ENSBTAG00000017181 | MACROD1 | BTA29 |
| ENSBTAG00000047265 BTA29 ENSBTAG00000047567 VEGFB BTA29 ENSBTAG00000053576 BTA29 ENSBTAG0000001143 BTA3 ENSBTAG00000037634 BTA3 ENSBTAG0000000147 RIC8B BTA5 ENSBTAG000000017950 SLC4A8 BTA5 ENSBTAG00000038652 BTA5 ENSBTAG00000039524 BTA5  | ENSBTAG00000040190 | CCDC88B | BTA29 |
| ENSBTAG0000047567 VEGFB BTA29  ENSBTAG00000053576 BTA29  ENSBTAG0000001143 BTA3  ENSBTAG00000037634 BTA3  ENSBTAG0000000147 RIC8B BTA5  ENSBTAG00000017950 SLC4A8 BTA5  ENSBTAG00000038652 BTA5  ENSBTAG00000039524 BTA5  | ENSBTAG00000045862 | FERMT3  | BTA29 |
| ENSBTAG00000053576 BTA29 ENSBTAG00000001143 BTA3 ENSBTAG00000037634 BTA3 ENSBTAG0000000147 RIC8B BTA5 ENSBTAG00000017950 SLC4A8 BTA5 ENSBTAG00000038652 BTA5 ENSBTAG00000039524 BTA5  | ENSBTAG00000047265 |         | BTA29 |
| ENSBTAG0000001143 BTA3 ENSBTAG00000037634 BTA3 ENSBTAG0000000147 RIC8B BTA5 ENSBTAG00000017950 SLC4A8 BTA5 ENSBTAG00000038652 BTA5 ENSBTAG00000039524 BTA5  | ENSBTAG00000047567 | VEGFB   | BTA29 |
| ENSBTAG00000037634 BTA3 ENSBTAG0000000147 RIC8B BTA5 ENSBTAG00000017950 SLC4A8 BTA5 ENSBTAG00000038652 BTA5 ENSBTAG00000039524 BTA5   | ENSBTAG00000053576 |         | BTA29 |
| ENSBTAG000000147 RIC8B BTA5 ENSBTAG00000017950 SLC4A8 BTA5 ENSBTAG00000038652 BTA5 ENSBTAG00000039524 BTA5  | ENSBTAG0000001143  |         | вта3  |
| ENSBTAG0000017950 SLC4A8 BTA5 ENSBTAG00000038652 BTA5 ENSBTAG00000039524 BTA5   | ENSBTAG00000037634 |         | вта3  |
| ENSBTAG00000038652 BTA5 ENSBTAG00000039524 BTA5   | ENSBTAG0000000147  | RIC8B   | BTA5  |
| ENSBTAG00000039524 BTA5   | ENSBTAG00000017950 | SLC4A8  | BTA5  |
|   | ENSBTAG00000038652 |         | BTA5  |
| ENSBTAG0000006507 ADAMTS3 BTA6  | ENSBTAG00000039524 |         | BTA5  |
|   | ENSBTAG00000006507 | ADAMTS3 | BTA6  |

| ENSBTAG00000010634 | NDNF   | BTA6 |
|--------------------|--------|------|
| ENSBTAG00000017527 | CRYBG1 | вта9 |

## **Supplementary Table 4.9**: Trypanosoma species identified using HAYSTAC and the samples they were identified in.

| Taxon       | Mean      | 95 CI  | 95 CI  | Minimum  | Maximum  | Dirichlet | Evenness of    | Fraction of | Cove | Aligned | Sa  | Breed   |
|-------------|-----------|--------|--------|----------|----------|-----------|----------------|-------------|------|---------|-----|---------|
|             | Posterior | lower  | upper  | Read Num | Read Num | Read Num  | Coverage Ratio | Genome      | rage | Read    | mpl |         |
|             | Abundance |        |        |          |          |           |                | Covered     |      | Num     | e   |         |
| Trypanosoma | 9,18E-07  | 7,99E- | 1,05E- | 184      | 241      | 211       | 6.84           | 0.0025      | 0.01 | 226     | WG  | Kuri    |
| vivax       |           | 07     | 06     |          |          |           |                |             | 74   |         | 03  |         |
| Trypanosoma | 6,20E-05  | 6,10E- | 6,31E- | 13788    | 14252    | 14018     | 1.21           | 0.1560      | 0,18 | 14486   | WG  | Kuri    |
| vivax       |           | 05     | 05     |          |          |           |                |             | 96   |         | 04  |         |
| Trypanosoma | 1,98E-05  | 1,92E- | 2,04E- | 4314     | 4576     | 4443      | 1.43           | 0.0312      | 0,04 | 7403    | WG  | N'Dama  |
| congolense  |           | 05     | 05     |          |          |           |                |             | 45   |         | 15  | Gambian |
| Trypanosoma | 9,89E-06  | 9,47E- | 1,03E- | 1998     | 2177     | 2086      | 1.67           | 0.0253      | 0,04 | 2189    | WG  | White   |
| vivax       |           | 06     | 05     |          |          |           |                |             | 23   |         | 44  | Fulani  |



**Supplementary Figure 4.1:** Results from Treemix analysis for sequentially adding migration edges from 0 to 10. Each tree has its respective residual matrix below.