

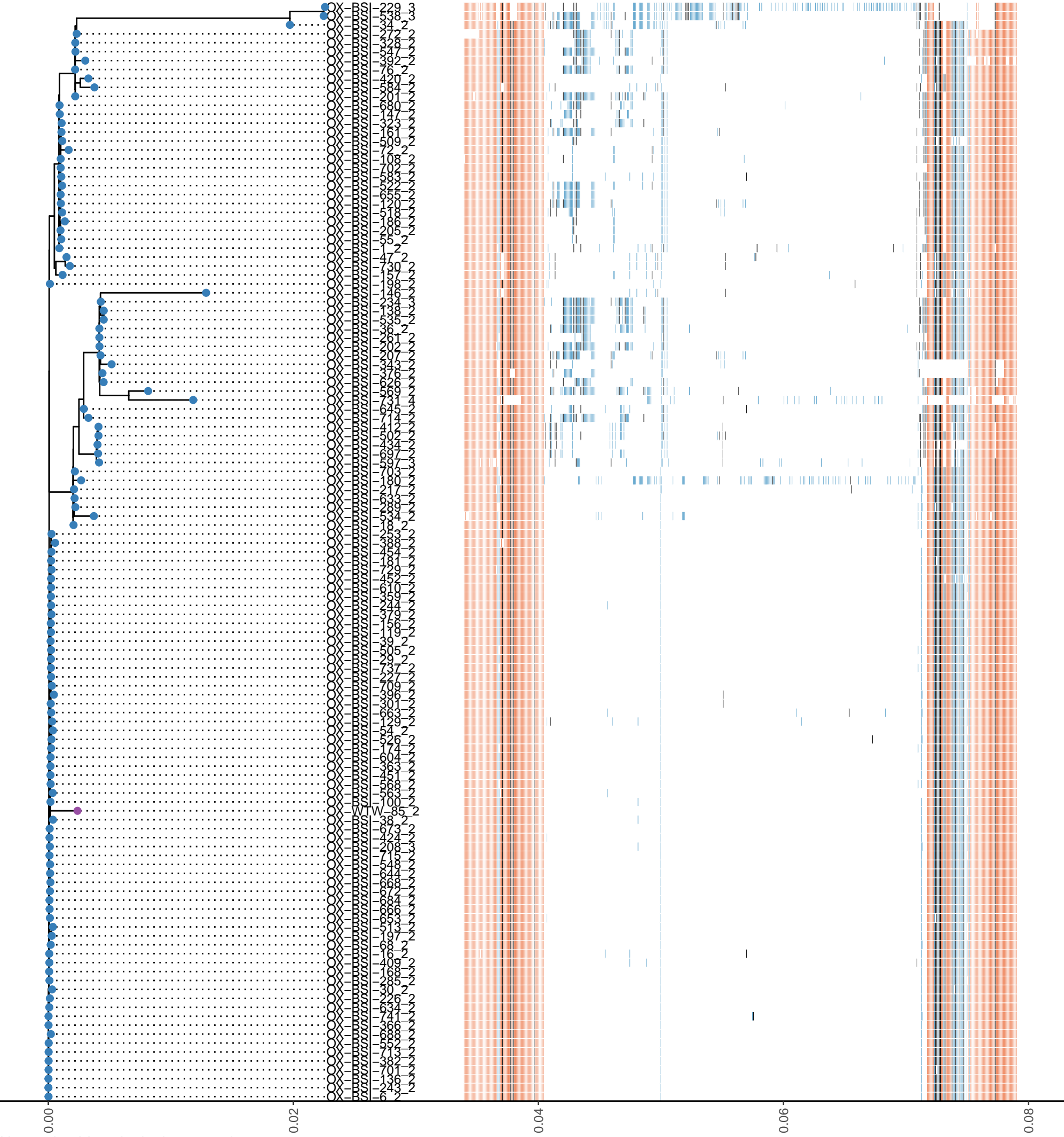
Supplementary File 1

In order, this document contains

- (i) A metadata table for all plasmid clusters where every plasmid has at least one core gene. Presented are the cluster name, cluster size, mlst PubMLST genera of plasmid hosts, plasmid PlasmidFinder annotations, and plasmid NCBIAMRFinder annotations.
- (ii) A core gene phylogeny and consensus gene synteny heatmap for all clusters in the metadata table, in cluster size decreasing order. Core gene phylogeny scales are in single nucleotide polymorphisms (SNPs).

Cluster name	Cluster size	Host-PubMLST(s)	PlasmidFinder	AMRFinderPlus
1	123	ecoli,cfreundii	Col156_1,IncFIB(AP001918)_1,IncFII(29)_1_pUTi89,IncFII_1,IncFIC(FII)_1	aac(3)-Ild,aadA5,aph(3'')-Ib,aph(6)-Id,blaTEM-1,dfrA17,mph(A),qacEdelta1,sul1,sul2,tet(A),catA1,tet(B),blaTEM,blaCTX-M-27,blaTEM-30,dfrA8
2	100	ecoli,senterica	IncFIA_1,IncFIB(AP001918)_1,IncFIC(FII)_1,IncFII_1	aph(3'')-Ib,aph(6)-Id,blaTEM-1,dfrA14,sul2,tet(A),dfrA5,aac(3)-Ild,catA1,tet(B),aph(3')-Ia,aadA1,aadA2,cmlA1,dfrA12,qacL,sul3,qacEdelta1,sul1,blaTEM-40,blaTEM,aadA5,dfrA17,catA2,floR
3	73	ecoli,senterica,cfreundii	Incl1_1_Alpha,Incl_Gamma_1	blaTEM-1,qnrS1,blaCTX-M-15,blaCTX-M-1,sul2,tet(A),mcr-5.1,aph(3')-Ia,aph(3'')-Ib,aph(6)-Id,tet(B),aadA1,dfrA1,qacEdelta1,sul1,aadA2,cmlA1,qacL,sul3,blaCMY-2,blaCTX-M-14,blaLAP-2,dfrA14,sat2,blaCTX-M-55,blaTEM
4	69	ecoli,cfreundii,kpneumoniae	Col156_1	blaTEM-1,blaCTX-M-27
5	68	ecoli,kpneumoniae,senterica	IncFIA_1,IncFIB(AP001918)_1,IncFII(pRSB107)_1_pRSB107,Col156_1,IncFIB(pB171)_1_pB171,IncFII(pAMA1167-NDM-5)_1_pAMA1167-NDM-5,IncFIC(FII)_1,ColRNAI_1	aph(3'')-Ib,aph(6)-Id,blaTEM-1,sul2,dfrA14,mph(A),tet(B),blaCTX-M-27,catA1,aph(3')-Ia,aadA1,dfrA1,qacEdelta1,sul1,tet(A),aadA5,dfrA17,aadA2,blaCARB-2,aac(3)-Ile,aac(6'')-Ib-cr5,blaCTX-M-15,blaOXA-1,catB3,aac(3)-Ild,erm(B),dfrA12
7	58	ecoli	IncB/O/K/Z_2,IncB/O/K/Z_3,IncB/O/K/Z_1	aph(3'')-Ib,blaTEM-1,sul2,aph(6)-Id,aadA1,dfrA1,qacEdelta1,sul1,tet(A),dfrA14,blaTEM-30,tet(B),blaCTX-M-14,erm(B),qacE,aadA5,dfrA17,mph(A),blaTEM
9	51	ecoli,senterica,kpneumoniae	Col8282_1	
10	47	ecoli	IncFIB(AP001918)_1,IncFIA_1,IncFIC(FII)_1	
11	43	ecoli,cfreundii,senterica	ColRNAI_1	
12	42	ecoli	IncFIC(FII)_1,IncFII_1,NA,IncFII(pHN7A8)_1_pHN7A8,IncFII(pRSB107)_1_pRSB107,IncFII(pCoo)_1_pCoo,IncFIA_1,IncFIB(AP001918)_1	blaTEM-1,NA,aph(3'')-Ib,aph(6)-Id,sul2
13	41	kpneumoniae,koxytoca,ecoli	IncFII_1_pKP91	aac(3)-Ile,aac(6'')-Ib-cr5,aph(3'')-Ib,aph(6)-Id,blaCTX-M-15,blaOXA-1,blaTEM-1,catB3,dfrA14,sul2,qnrB1,tet(A),blaTEM
14	40	ecoli	IncFIB(AP001918)_1,IncFIB(pB171)_1_pB171,IncFIA_1,IncFIC(FII)_1	
15	38	ecoli,cfreundii	Col156_1,IncFIB(AP001918)_1,IncFIC(FII)_1,IncFIA_1,IncFII(29)_1_pUTi89	blaTEM-1,tet(B),aph(3'')-Ib,aph(6)-Id,sul2,mph(A),aadA1,blaSHV-1,qacEdelta1,sul1,tet(D),aadA2,dfrA12,blaSHV
16	37	kpneumoniae,koxytoca	IncFIB(K)_1_Kpn3,IncFII_1_pKP91	aadA1,blaSHV-1,dfrA1,qacEdelta1,sul1,tet(D),aph(3'')-Ib,aph(6)-Id,blaTEM-1,dfrA14,mph(A),sul2,tet(A),aph(3')-Ia,aac(3)-Ile,blaSCO-1,catA1,dfrA8,aac(6'')-Ib-cr5,blaCTX-M-15,blaOXA-1,catB3,qnrB1,blaSHV,dfrA7,aac(3)-Ild,aadA2,blaAAK,blaSHV-12,blaSHV-2A
17	35	ecoli	ColRNAI_1	blaTEM
18	34	kpneumoniae		blaCTX-M-15
19	33	kpneumoniae	IncFIB(K)_1_Kpn3	
20	32	kpneumoniae	IncFIA(H11)_1_HI1	
21	29	ecoli,kpneumoniae	Col8282_1,Col(MG828)_1	
22	29	ecoli	Col(BS512)_1	
23	26	ecoli	IncX1_1	blaTEM-1,sul2,tet(A)
24	25	ecoli	Col156_1	
25	24	ecoli,cfreundii	RepA_1_pKPC-CAV1321	aac(3)-Ild,aadA2,aph(3'')-Ib,aph(6)-Id,blaTEM-1,dfrA12,mph(A),qacEdelta1,sul1,sul2,tet(B)
27	23	ecoli	IncFIB(pHCM2)_1_pHCM2	blaCTX-M-15
28	21	ecloacae,koxytoca	ColRNAI_1	
30	21	ecoli	Col156_1,IncFIA_1,IncFIB(AP001918)_1,IncFIC(FII)_1	aac(3)-Ile,aac(6'')-Ib-cr5,aadA5,blaCTX-M-15,blaOXA-1,catB3,dfrA17,mph(A),qacEdelta1,sul1,blaTEM-1,tet(B),tet(A),aac(3)-Ild,catA1,blaDHA-1,qacE,qnrB4
31	20	ecoli,cfreundii	Col156_1	
33	19	ecoli,koxytoca	IncHI2_1,IncHI2A_1,RepA_1_pKPC-CAV1321	aadA1,aph(3'')-Ib,aph(6)-Id,blaTEM-1,dfrA1,qacEdelta1,sul1,sul2,tet(A),aac(3)-Iva,aadA2,aph(3'')-Ia,aph(3'')-Ila,aph(4)-Ia,ble,cmlA1,dfrA12,qacL,sul3,oxxB,tet(B),NA,mef(B),floR,mph(B)
34	18	koxytoca,ecloacae,ecoli,cfreundii	Col440II_1,ColRNAI_1	
35	17	ecoli	Incl2_1_Delta,Incl2_1	
36	17	ecoli	IncFIB(AP001918)_1,IncFIC(FII)_1,IncFIA_1,IncFIB(pB171)_1_pB171	
37	16	ecoli	ColRNAI_1	
38	15	ecoli,cfreundii,koxytoca	ColRNAI_1	aph(3'')-Ib,aph(6)-Id,dfrA14,sul2,blaTEM-1,tet(A)
39	15	ecoli		blaTEM-1
41	14	ecoli	ColRNAI_1	
42	14	ecloacae	IncFIB(pECLA)_1_pECLA,IncFII(pECLA)_1_pECLA,IncR_1	
43	14	ecoli,kpneumoniae	IncX4_1,IncX4_2	aadA1,blaTEM-31,Inu(G),mcr-1,blaCTX-M-14
44	14	ecoli	Col440I_1,ColRNAI_1	
45	14	ecoli		
46	14	ecoli	ColRNAI_1	
47	13	ecoli,cfreundii		
48	13	kpneumoniae,ecloacae,koxytoca	Col440I_1,Col440II_1	
49	13	kpneumoniae	Col440I_1	
50	13	ecoli	IncX1_1	aadA1,aadA2,blaCTX-M-32,cmlA1,dfrA12,qacL,qnrB19,sul3
51	12	koxytoca,ecloacae	Col440II_1,ColRNAI_1,Col440I_1	
52	11	ecoli	ColRNAI_1	
53	11	koxytoca,kpneumoniae	Col440I_1,Col440II_1	
54	11	ecoli	Col156_1	
55	11	ecoli	Col156_1	
56	11	kpneumoniae,koxytoca	Col440I_1,IncFIB(K)_1_Kpn3,IncFII_1_pKP91,IncR_1	
57	11	ecoli,koxytoca	IncFIA(H11)_1_HI1,IncHI1A_1,IncHI1B(R27)_1_R27	aph(3'')-Ib,aph(3')-Ia,aph(6)-Id,blaCTX-M-1,mph(A),sul2,tet(B)
58	11	ecoli,kpneumoniae	IncN_1,ColE10_1	aph(3'')-Ib,aph(6)-Id,blaTEM-54,dfrA14,sul2,tet(A),aadA22,dfrA1,qacEdelta1,sul1,blaCTX-M-15,blaTEM-1,aac(6'')-Ib-cr5,aadA16,arr-3,dfrA27,qnrB6
59	11	ecoli	IncHI1B(CIT)_1_pNDM-CIT,p0111_1,IncFIB(K)_1_Kpn3	blaTEM,aadA1,dfrA1,qacEdelta1,sul1,tet(A),blaTEM-1
60	10	ecoli		
61	10	ecoli	ColRNAI_1	
62	10	ecloacae,kpneumoniae	Col440II_1,ColRNAI_1	
63	10	ecoli,kpneumoniae,ecloacae	IncN_1	
64	10	ecoli	IncY_1,p0111_1	aadA5,blaCTX-M-15,dfrA17,mph(A),qacEdelta1,sul1
66	10	ecoli	IncFIA(H11)_1_HI1,IncFIB(K)_1_Kpn3	tet(A)
67	10	ecoli	ColRNAI_1	
68	10	ecloacae,kpneumoniae	Col440II_1,ColRNAI_1	
69	10	cfreundii,ecloacae	ColRNAI_1,Col440I_1	

Cluster 1
116 core genes
358 accessory genes



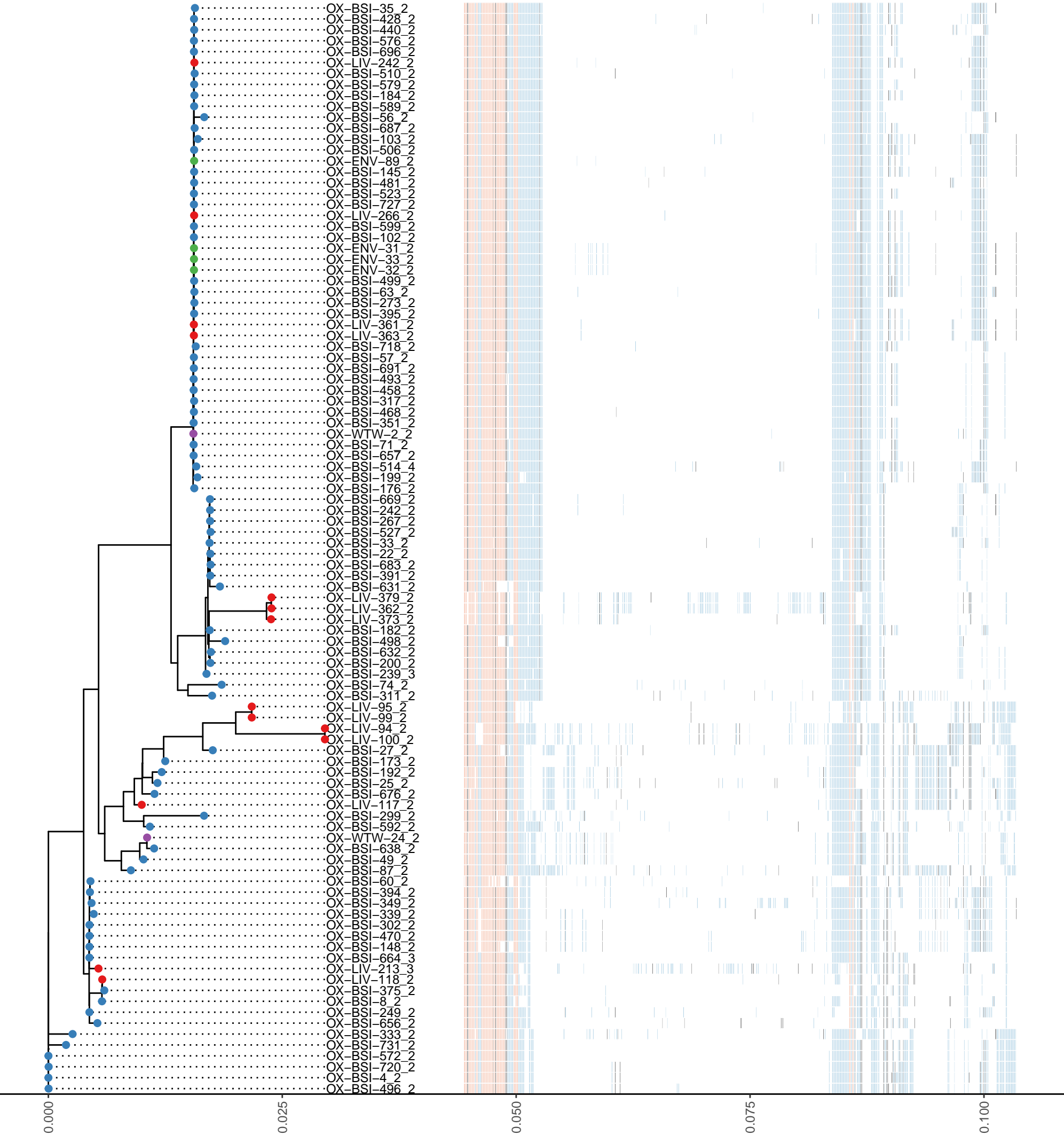
Gene type

- Absent
- Core
- Accessory
- Transposase

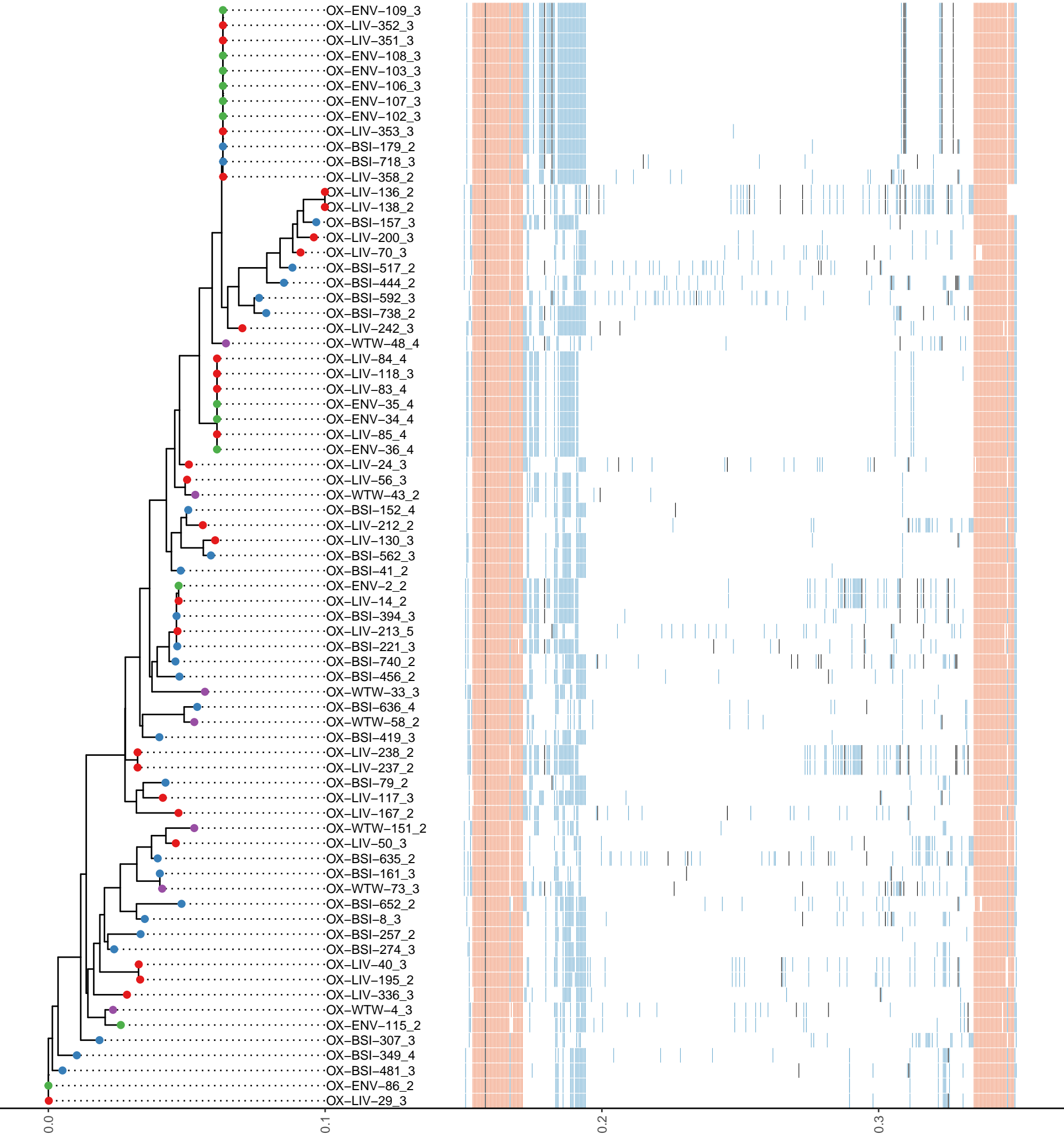
Compartment

- BSI
- Environmental
- Livestock
- WwTW

Cluster 2
52 core genes
628 accessory genes

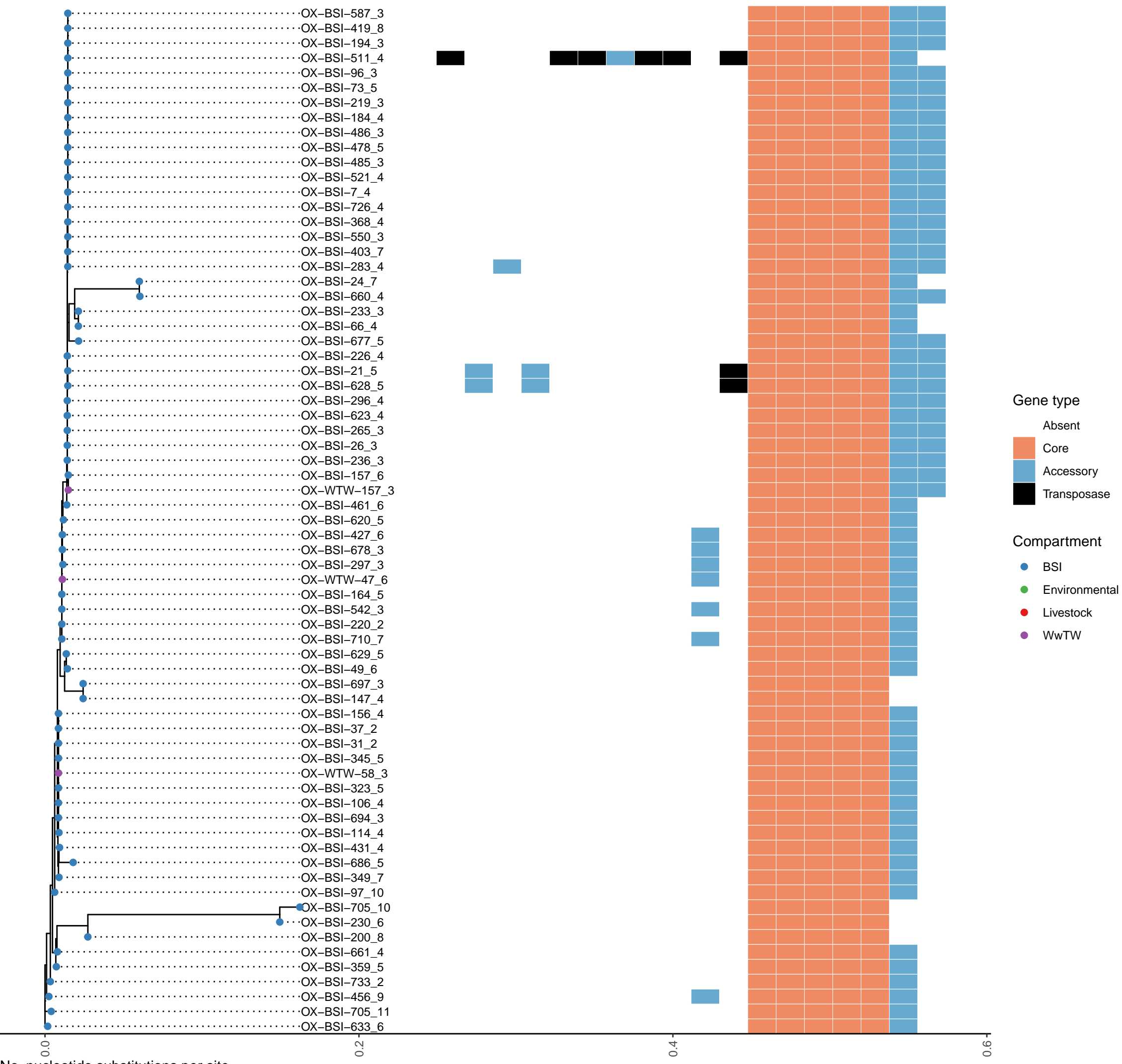


Cluster 3
71 core genes
377 accessory genes



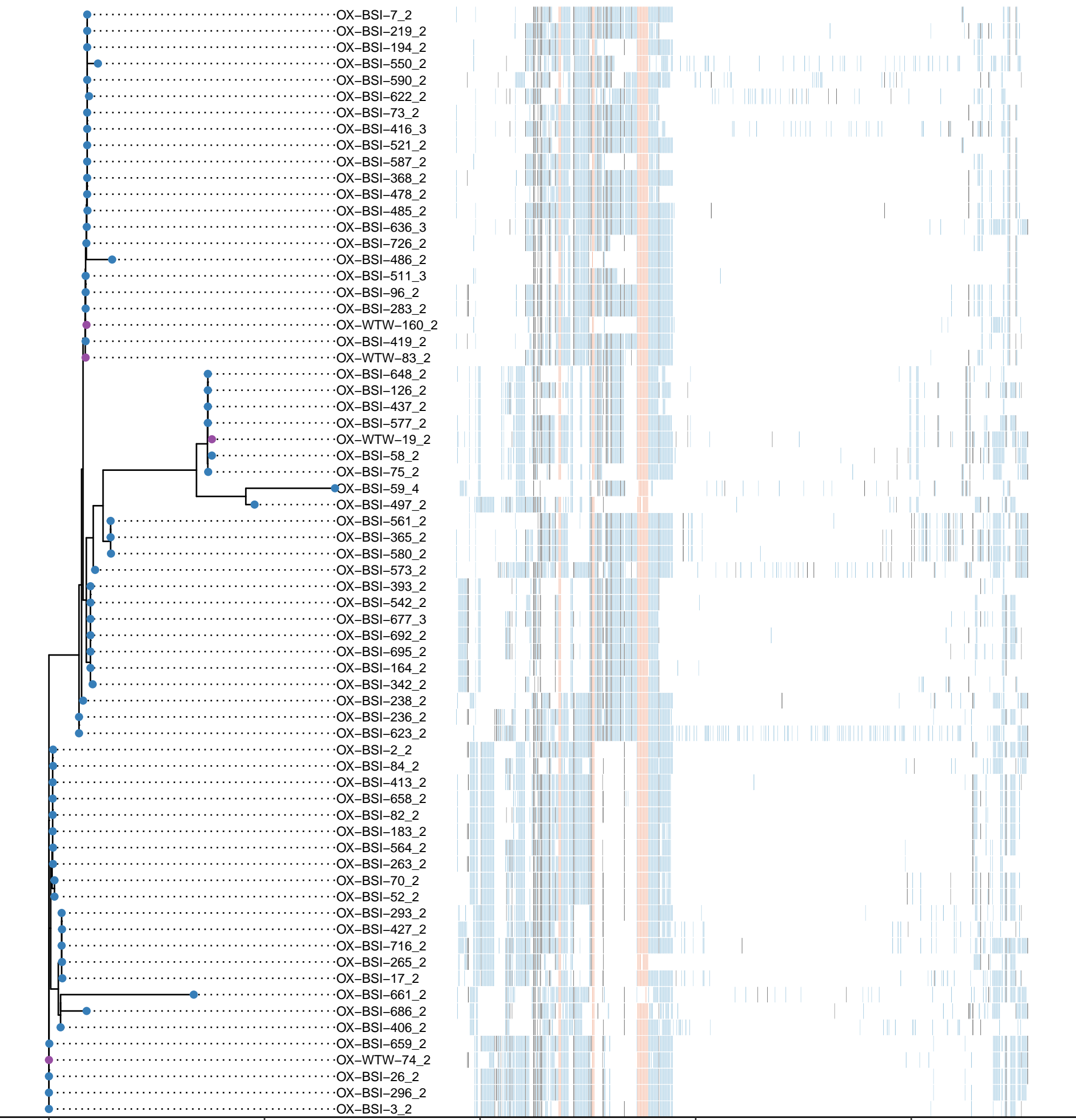
No. nucleotide substitutions per site

Cluster 4
5 core genes
13 accessory genes



No. nucleotide substitutions per site

Cluster 5
18 core genes
613 accessory genes



Gene type

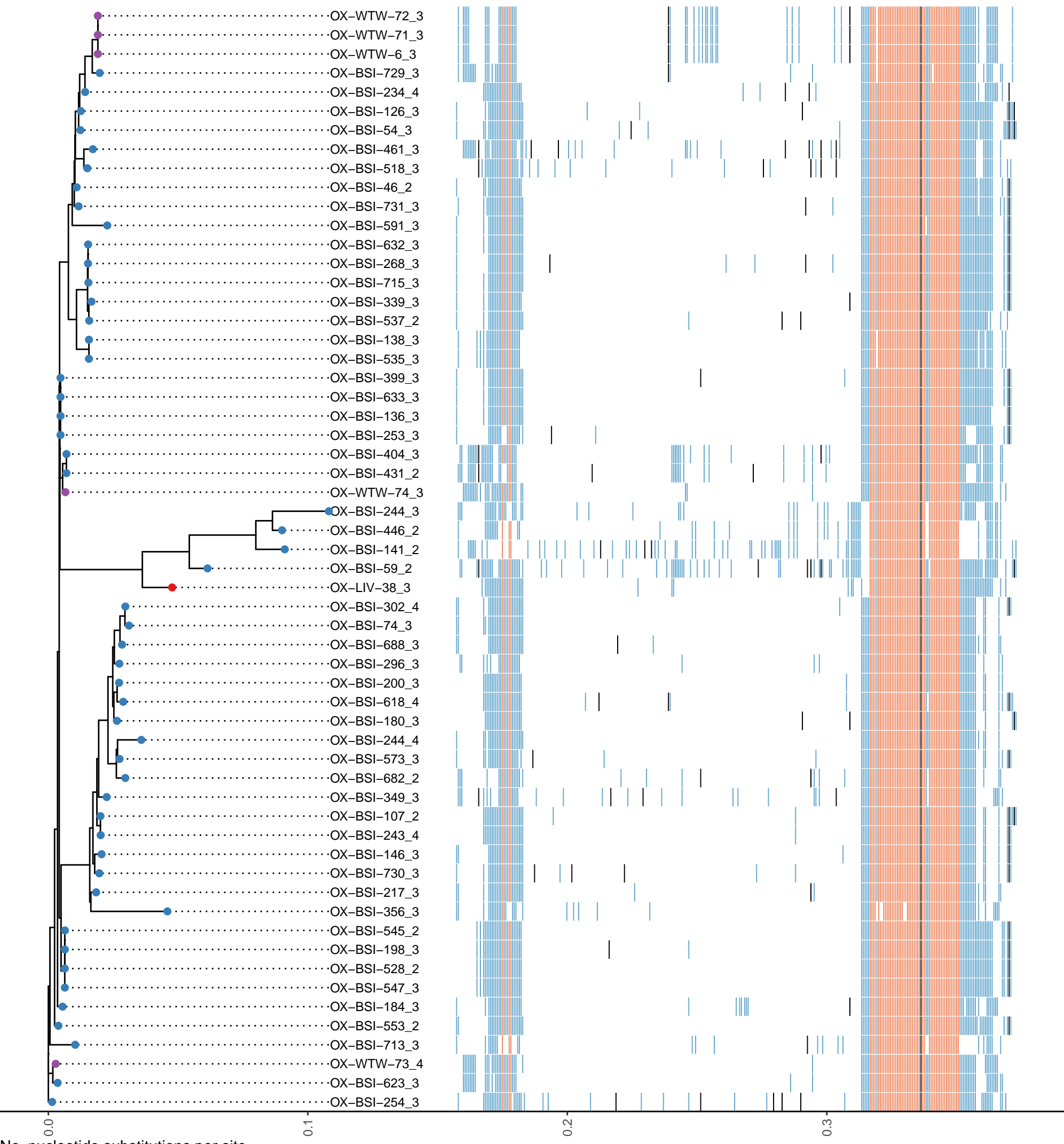
- Absent
- Core
- Accessory
- Transposase

Compartment

- BSI
- Environmental
- Livestock
- WwTW

No. nucleotide substitutions per site

Cluster 7
52 core genes
279 accessory genes



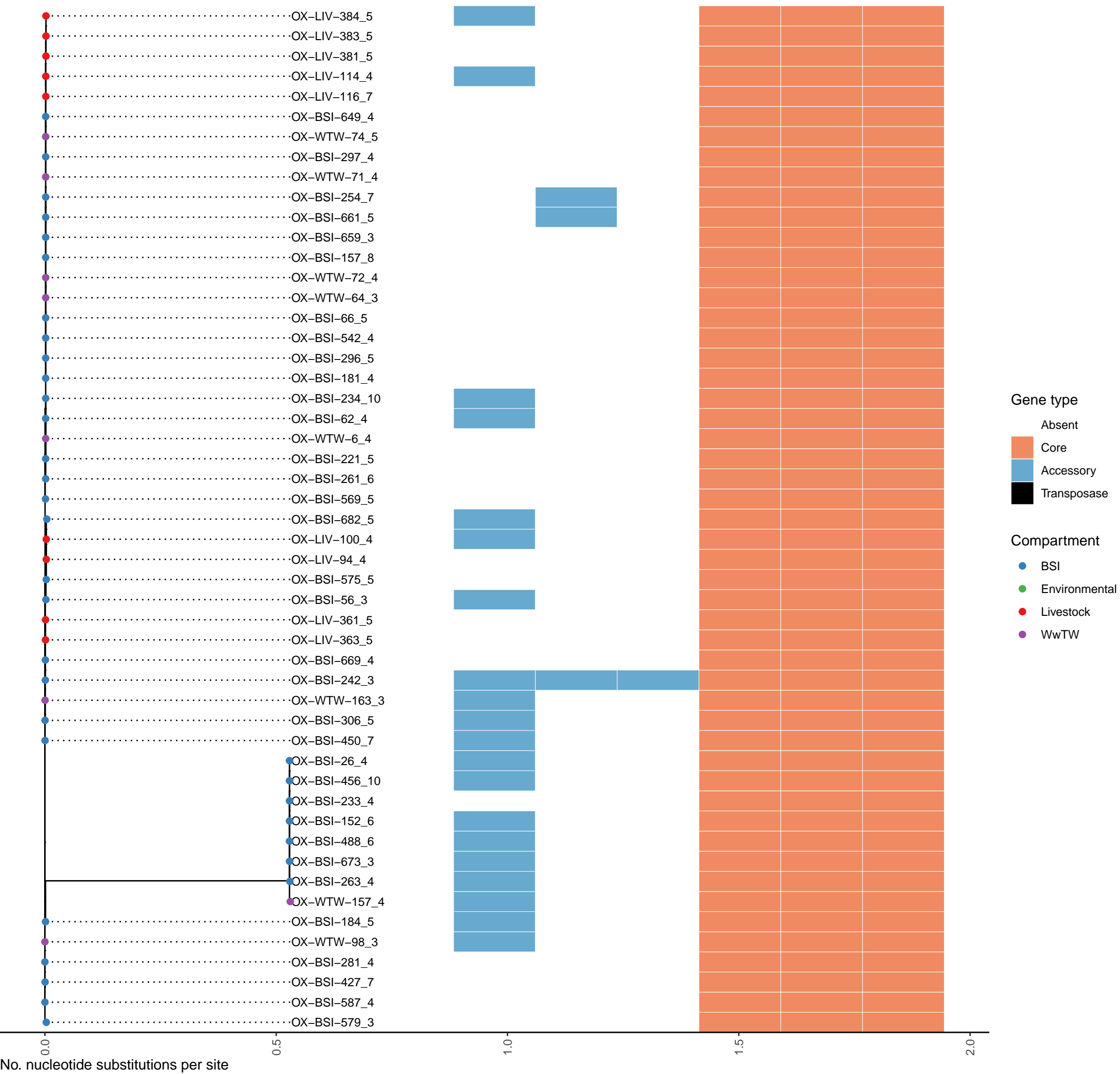
Gene type

- Absent
- Core
- Accessory
- Transposase

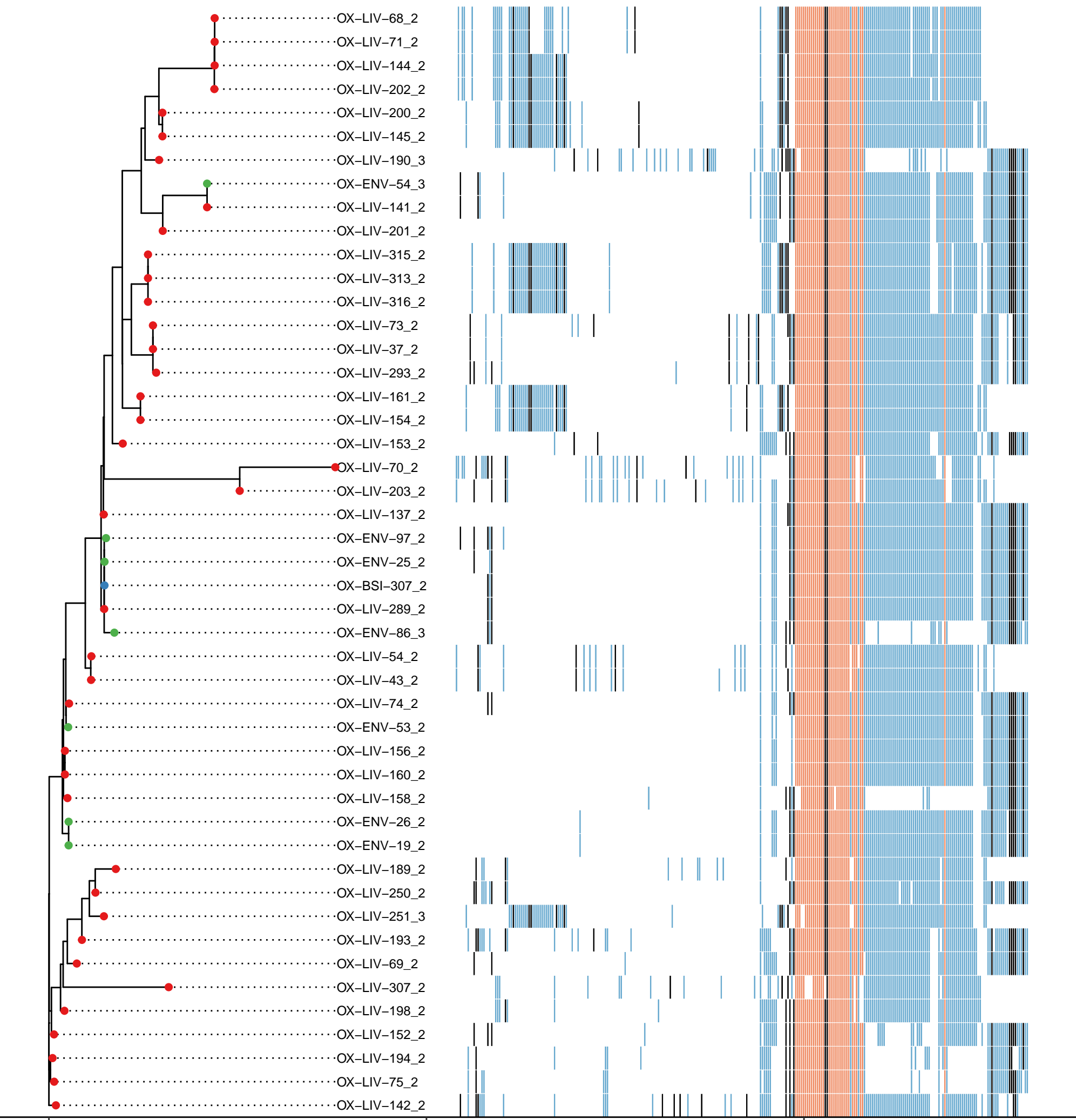
Compartment

- BSI
- Environmental
- Livestock
- WwTW

Cluster 9
3 core genes
3 accessory genes



Cluster 10
32 core genes
260 accessory genes



Gene type

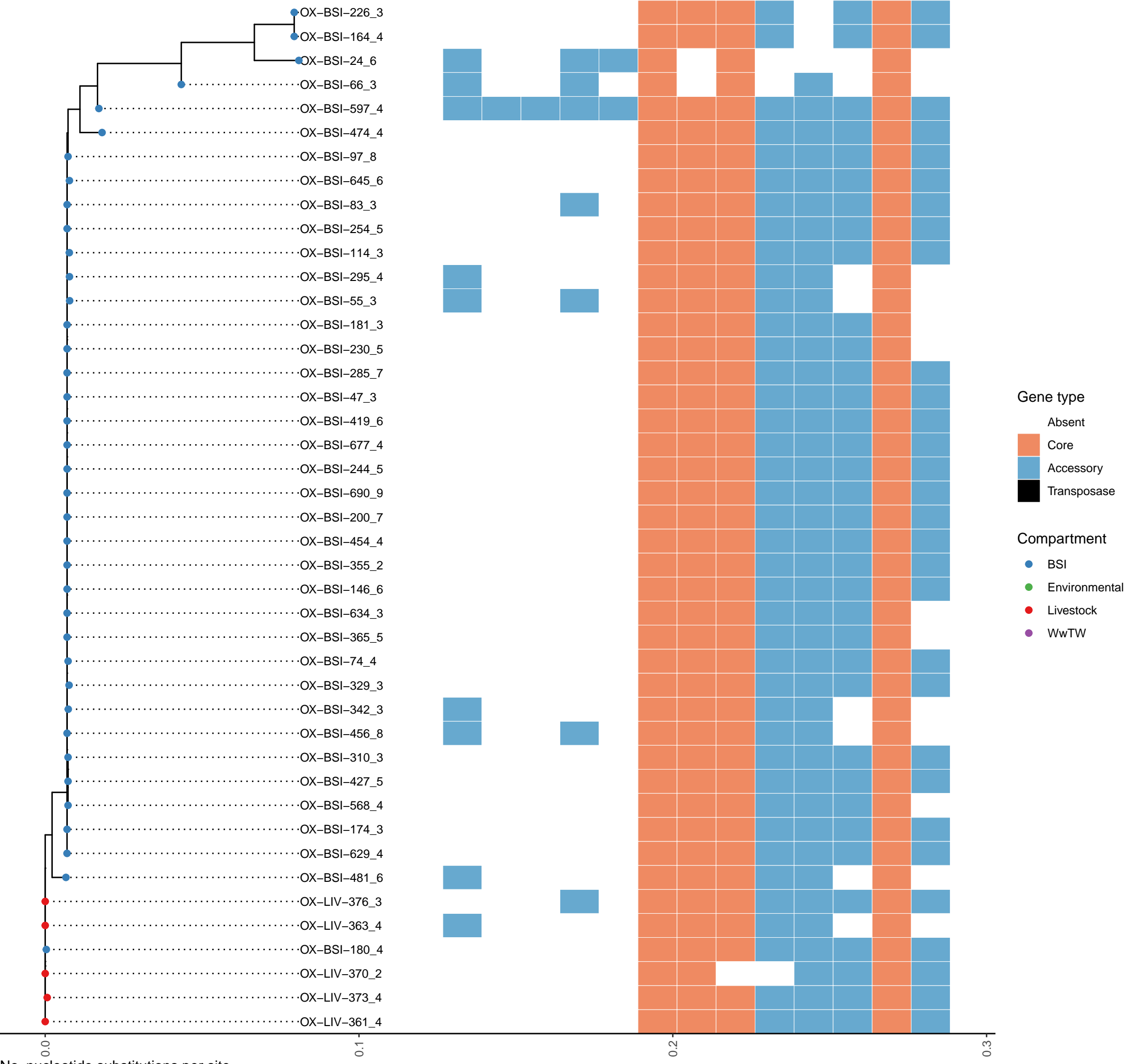
- Absent
- Core
- Accessory
- Transposase

Compartment

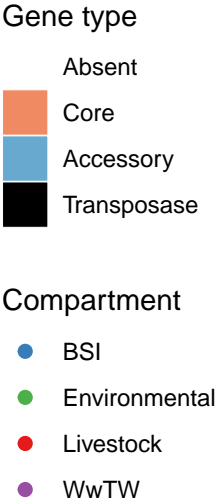
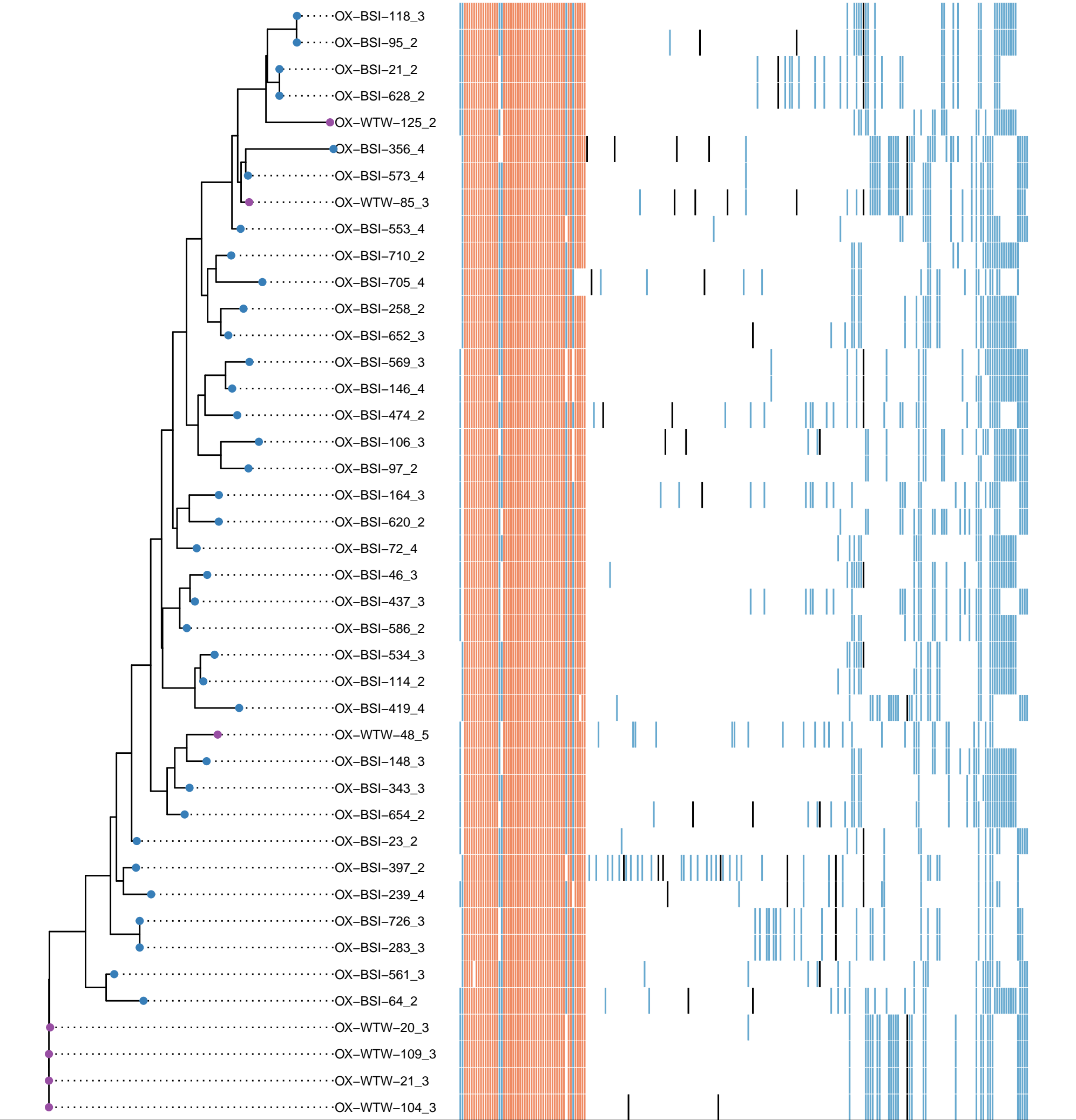
- BSI
- Environmental
- Livestock
- WwTW

No. nucleotide substitutions per site

Cluster 11
4 core genes
9 accessory genes

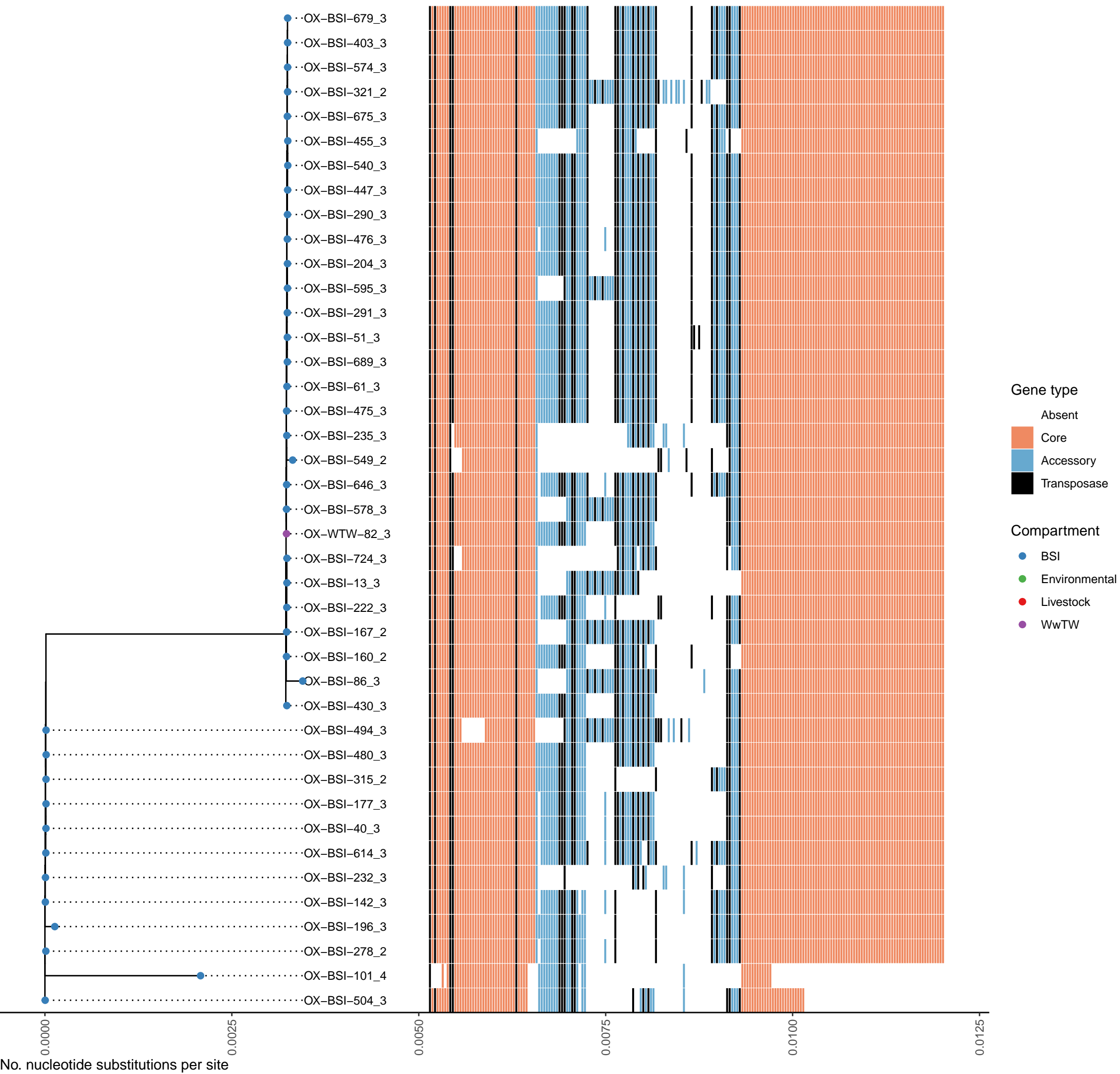


Cluster 12
49 core genes
198 accessory genes

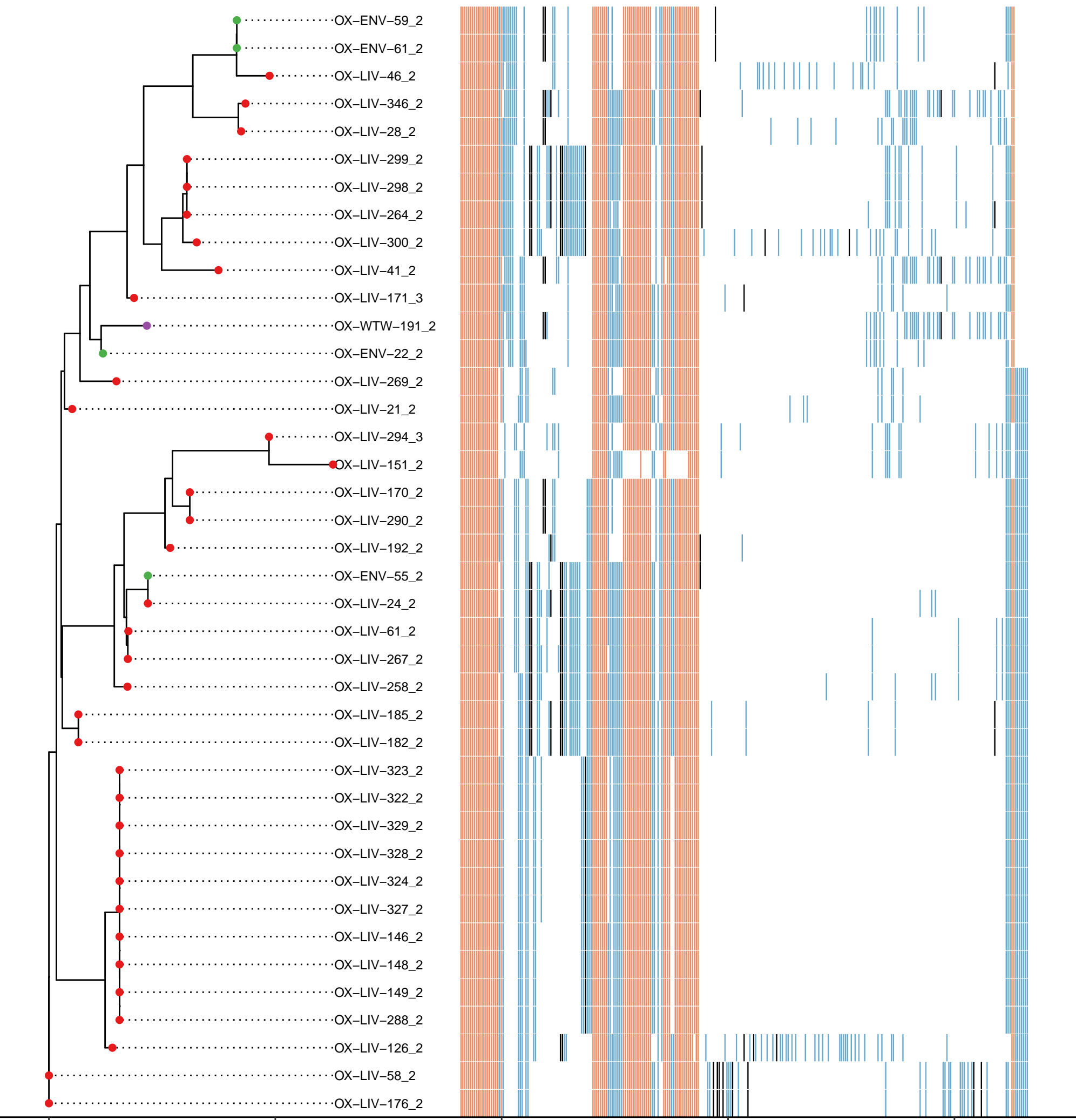


No. nucleotide substitutions per site

Cluster 13
117 core genes
86 accessory genes



Cluster 14
63 core genes
234 accessory genes



Gene type

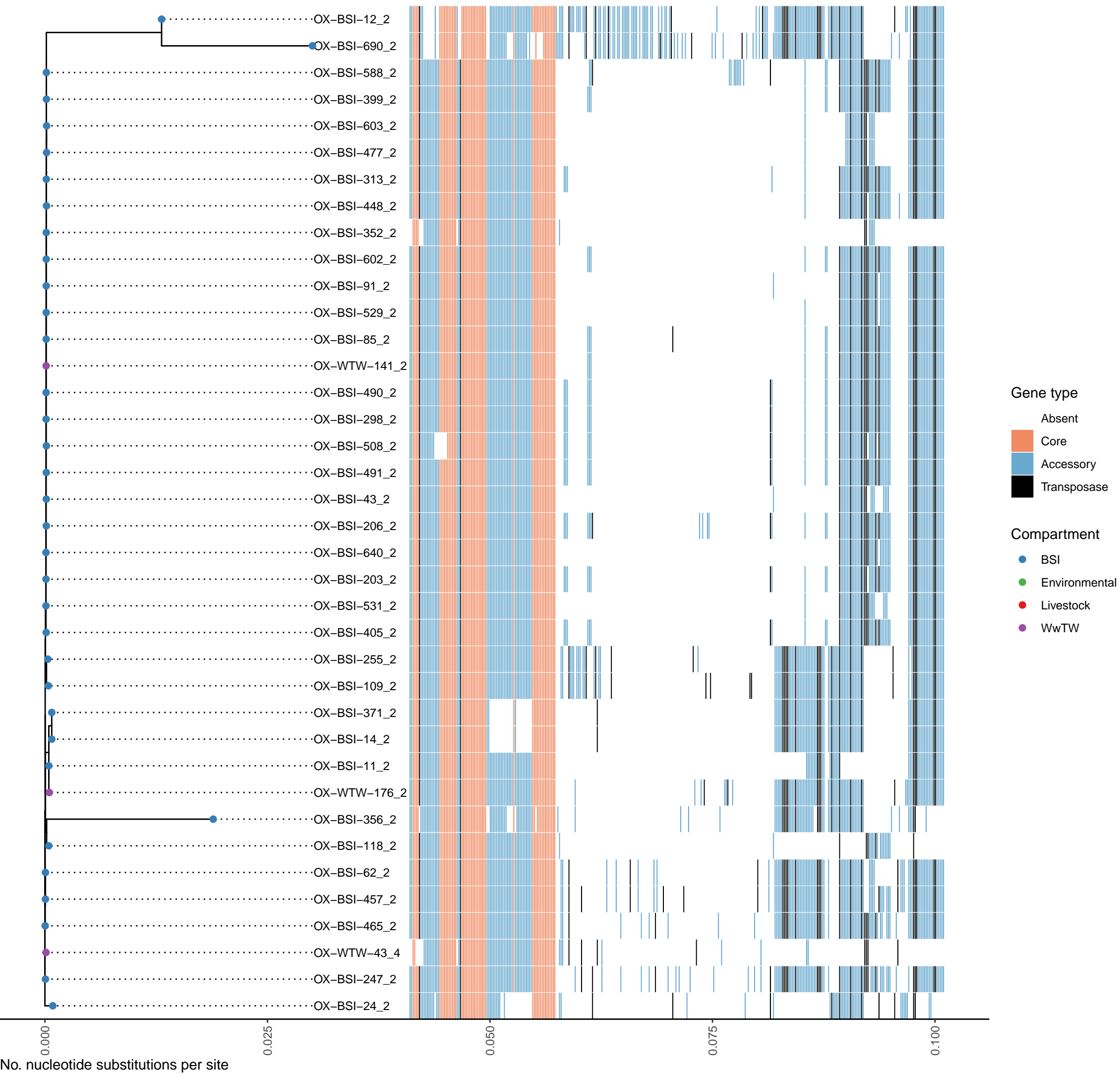
- Absent
- Core
- Accessory
- Transposase

Compartment

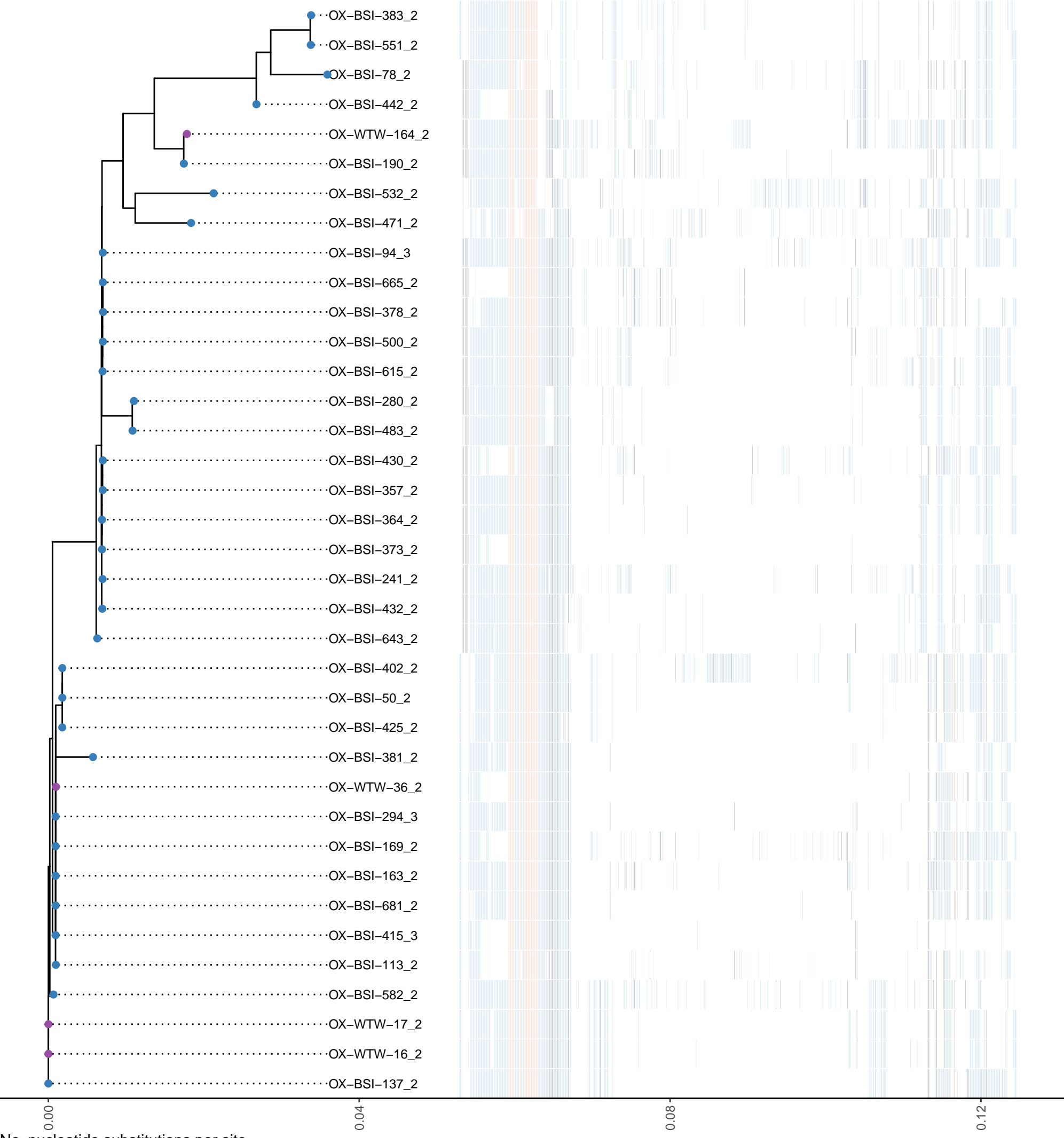
- BSI
- Environmental
- Livestock
- WwTW

No. nucleotide substitutions per site

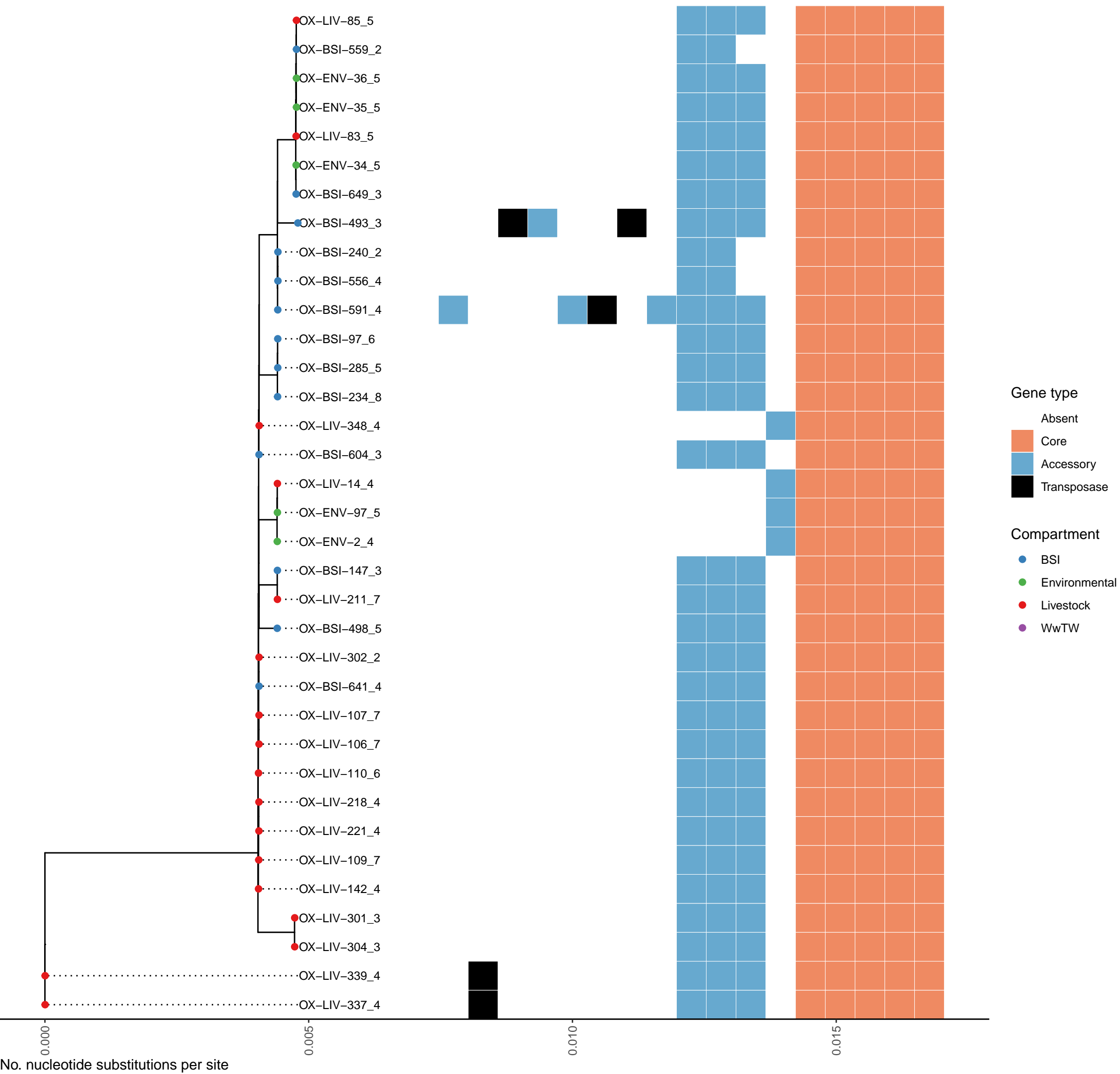
Cluster 15
47 core genes
293 accessory genes



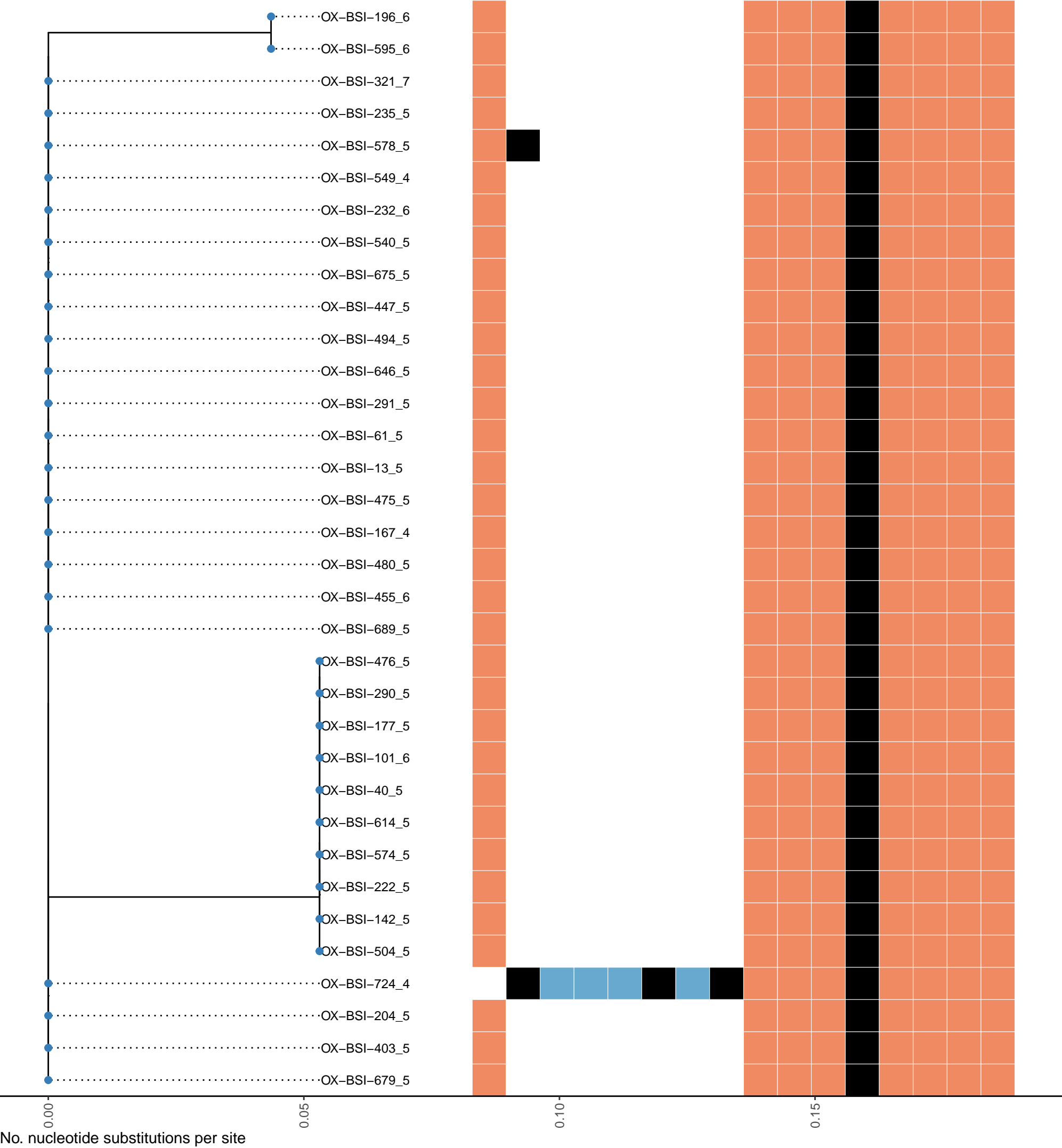
Cluster 16
32 core genes
801 accessory genes



Cluster 17
5 core genes
12 accessory genes



Cluster 18
8 core genes
8 accessory genes



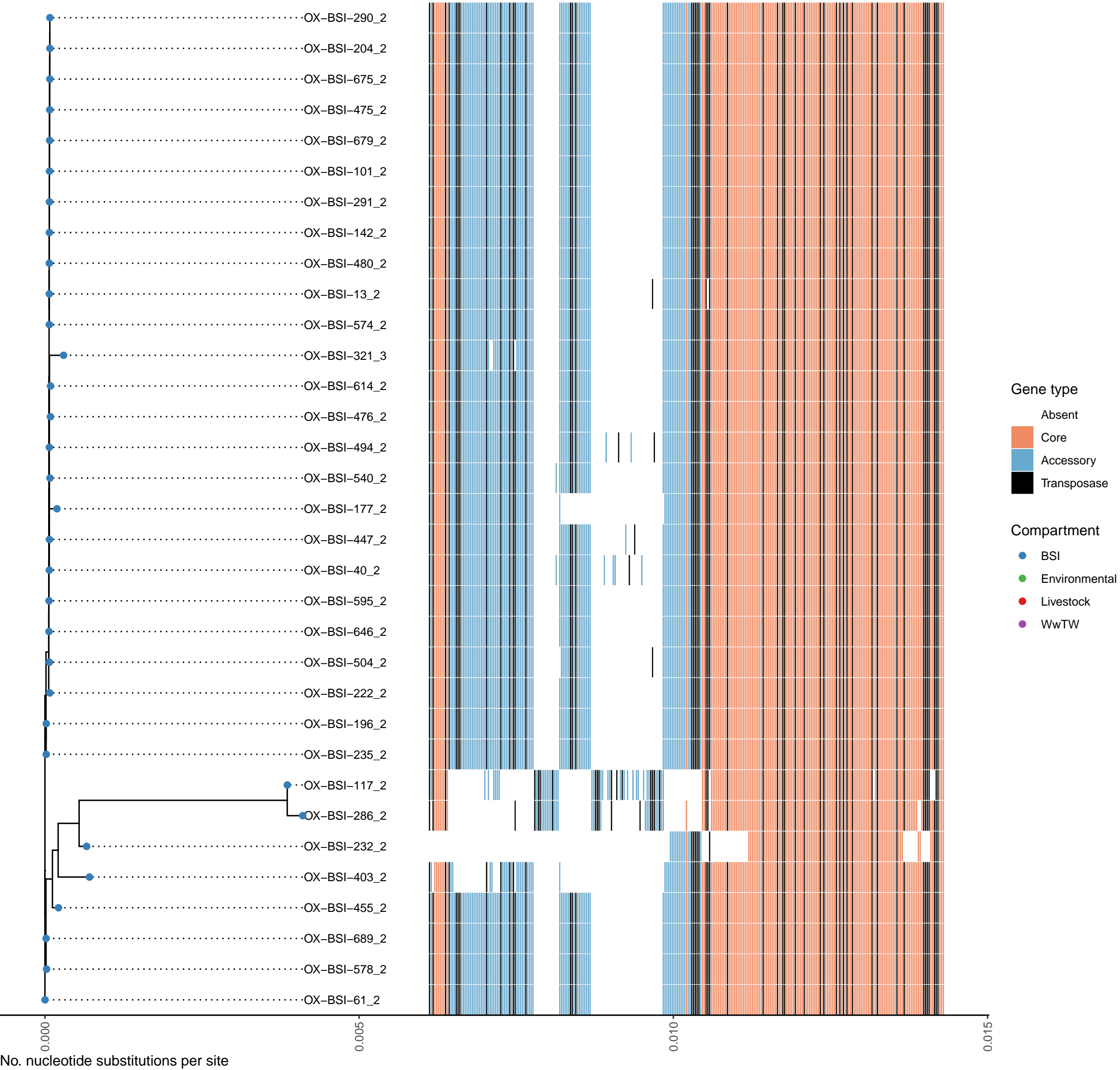
Gene type

- Absent
- Core
- Accessory
- Transposase

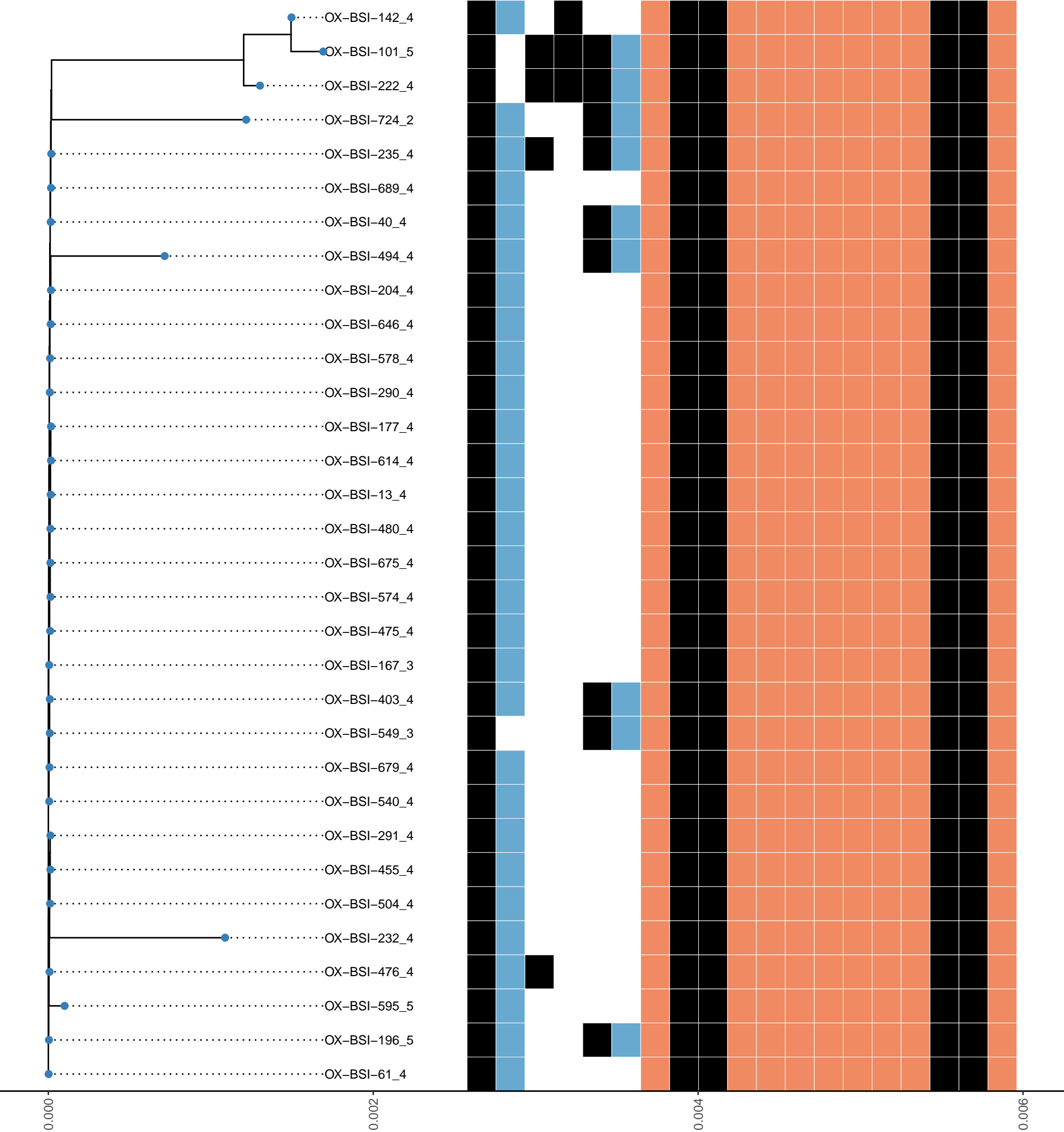
Compartment

- BSI
- Environmental
- Livestock
- WwTW

Cluster 19
116 core genes
173 accessory genes



Cluster 20
9 core genes
10 accessory genes



Gene type

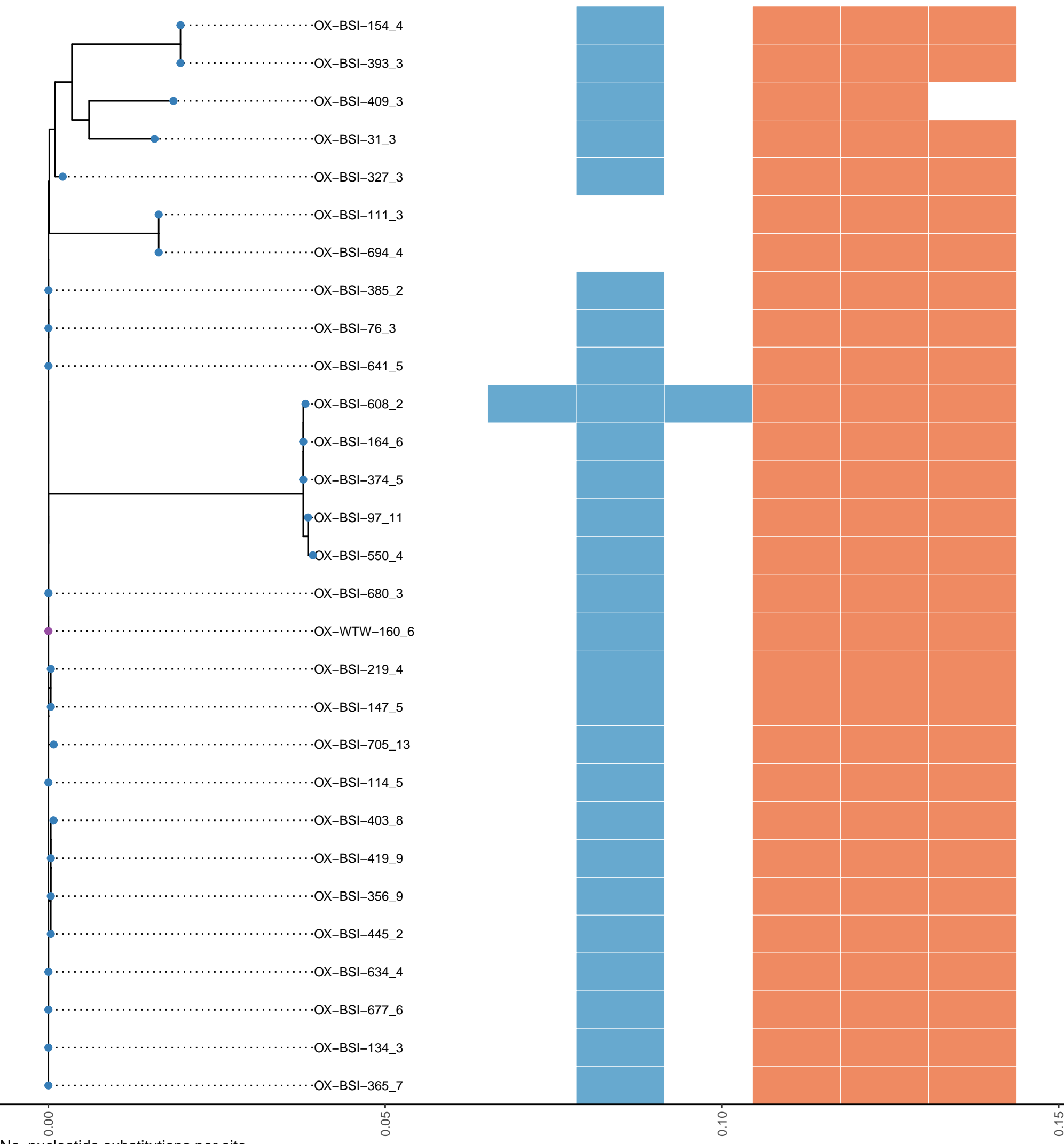
- Absent
- Core
- Accessory
- Transposase

Compartment

- BSI
- Environmental
- Livestock
- WwTW

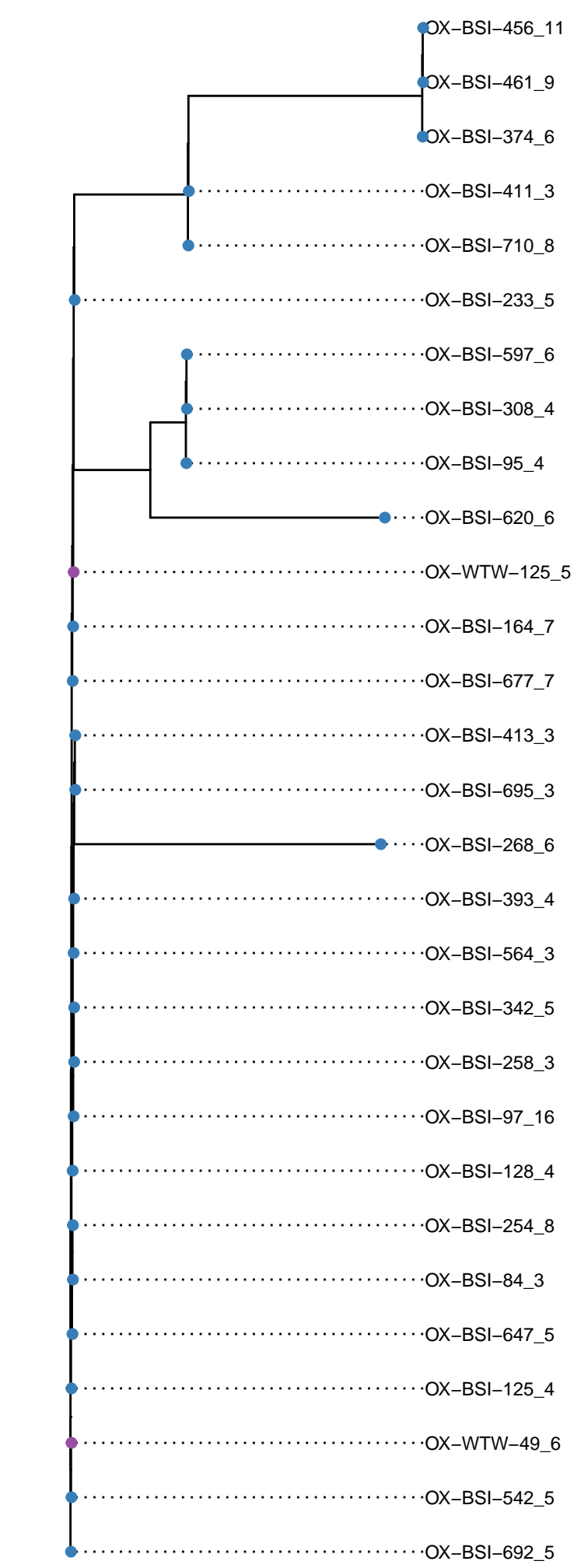
No. nucleotide substitutions per site

Cluster 21
3 core genes
3 accessory genes



No. nucleotide substitutions per site

Cluster 22
2 core genes
0 accessory genes



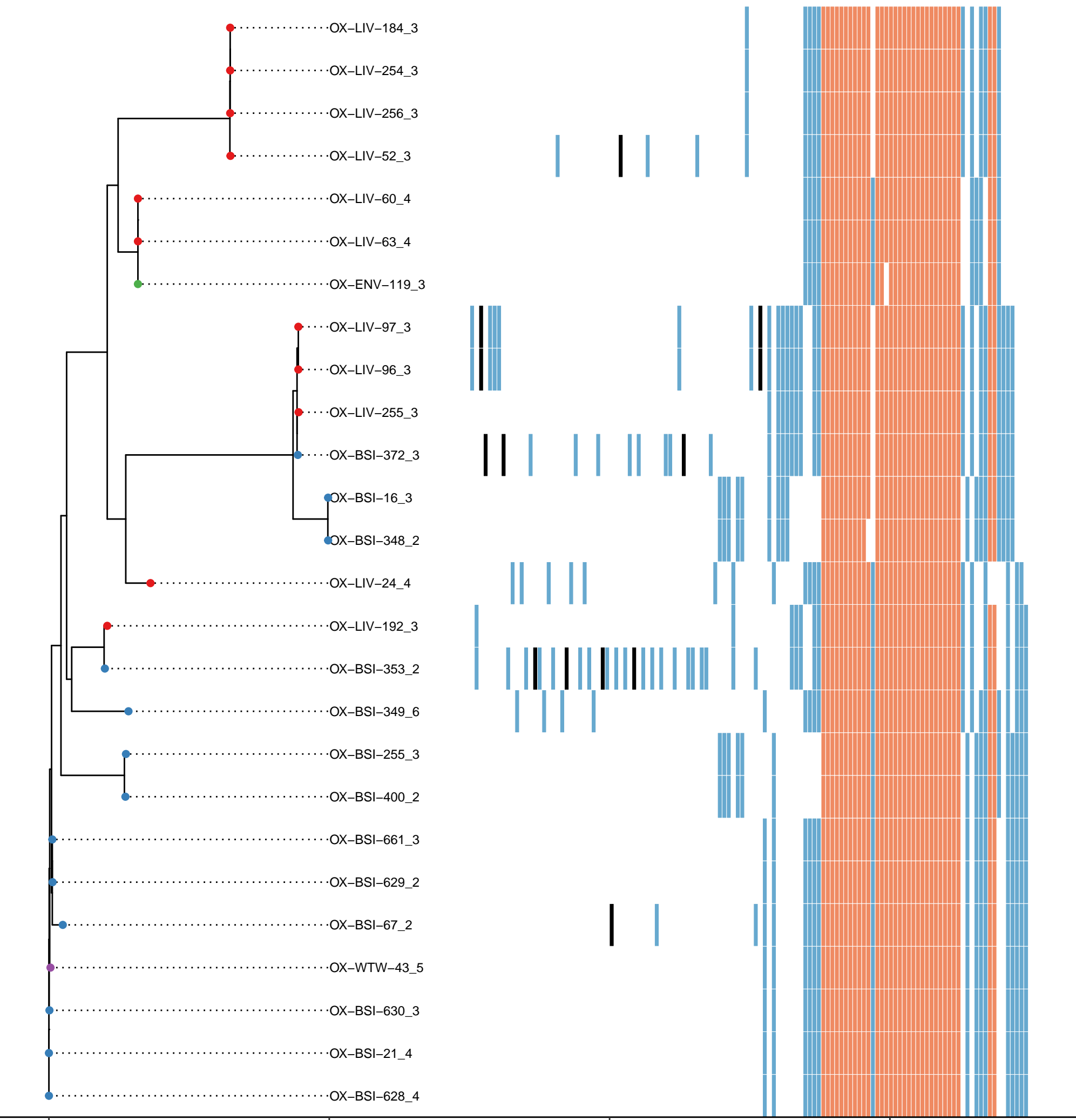
Gene type

- Absent
- Core
- Accessory
- Transposase

Compartment

- BSI
- Environmental
- Livestock
- WwTW

Cluster 23
32 core genes
92 accessory genes



Gene type

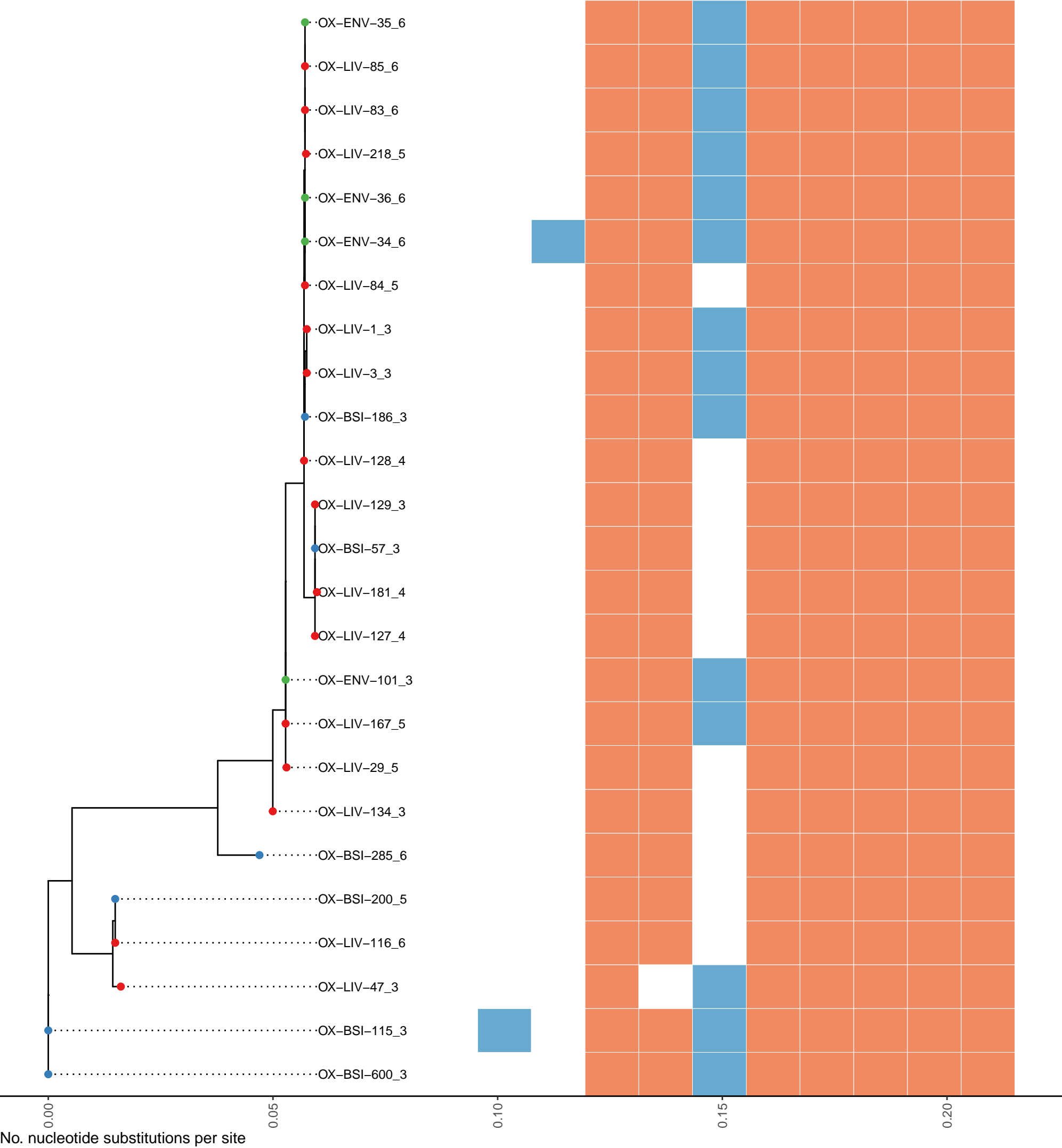
- Absent
- Core
- Accessory
- Transposase

Compartment

- BSI
- Environmental
- Livestock
- WwTW

No. nucleotide substitutions per site

Cluster 24
7 core genes
3 accessory genes



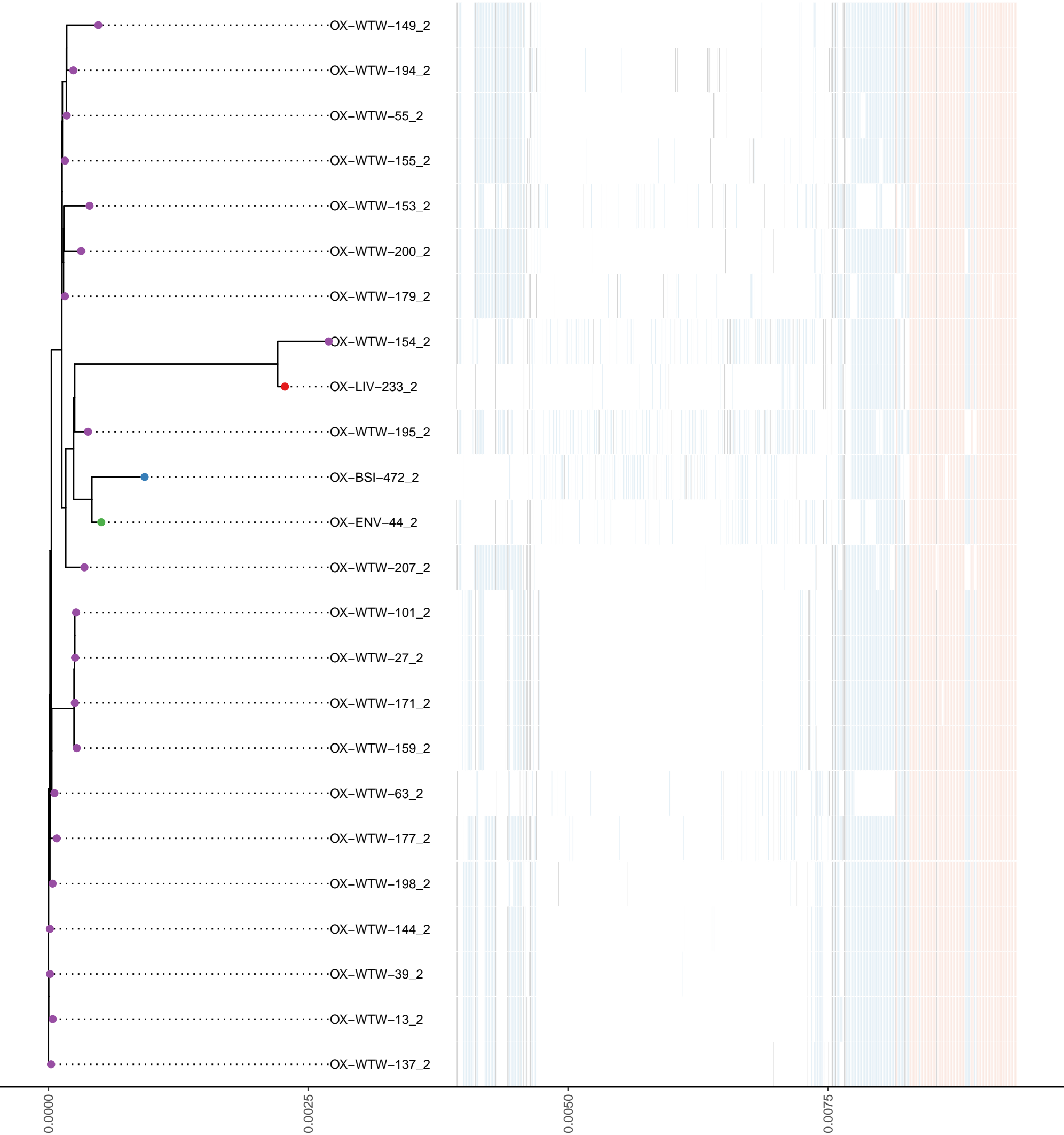
Gene type

- Absent
- Core
- Accessory
- Transposase

Compartment

- BSI
- Environmental
- Livestock
- WwTW

Cluster 25
153 core genes
704 accessory genes



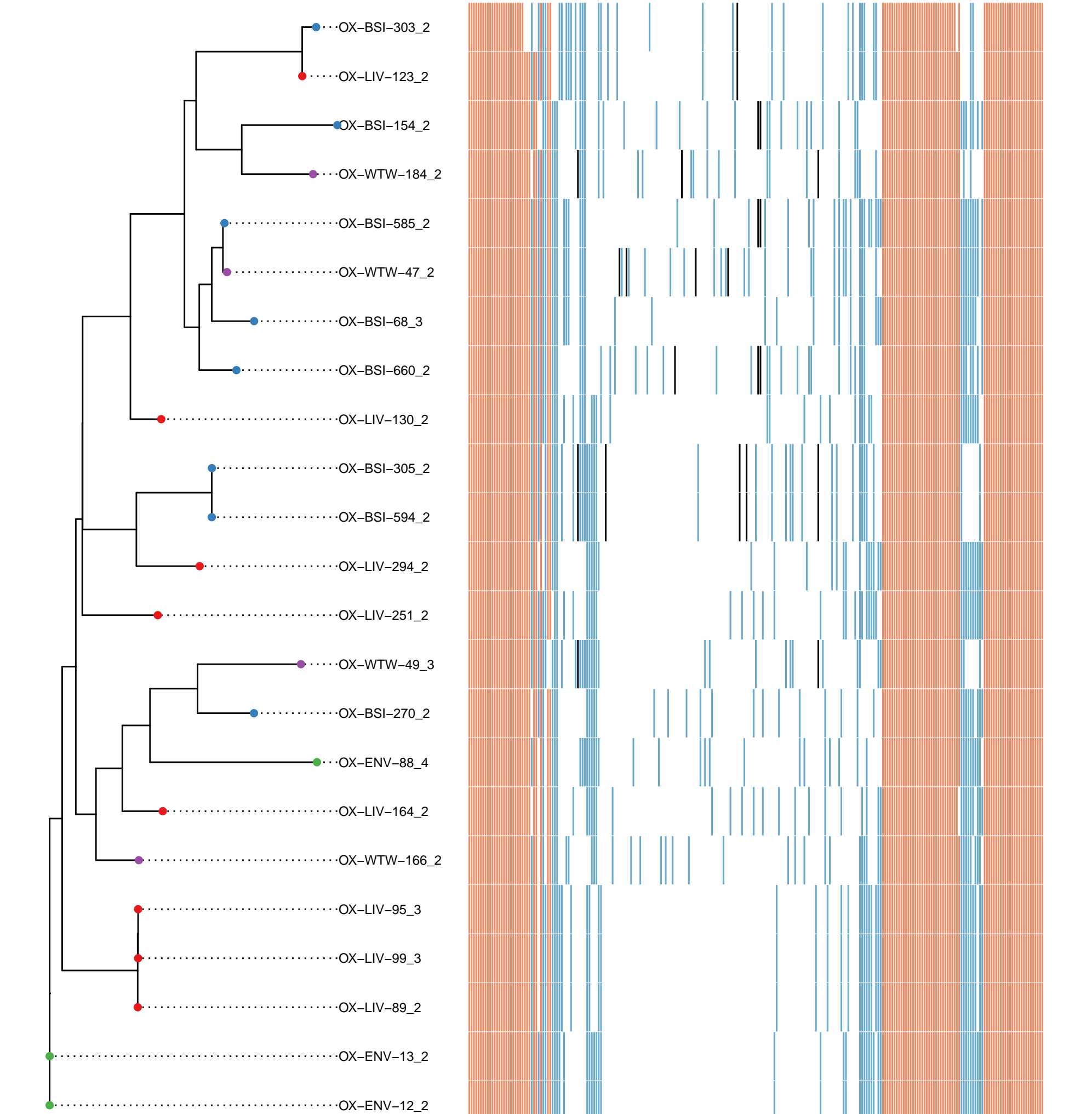
Gene type

- Absent
- Core
- Accessory
- Transposase

Compartment

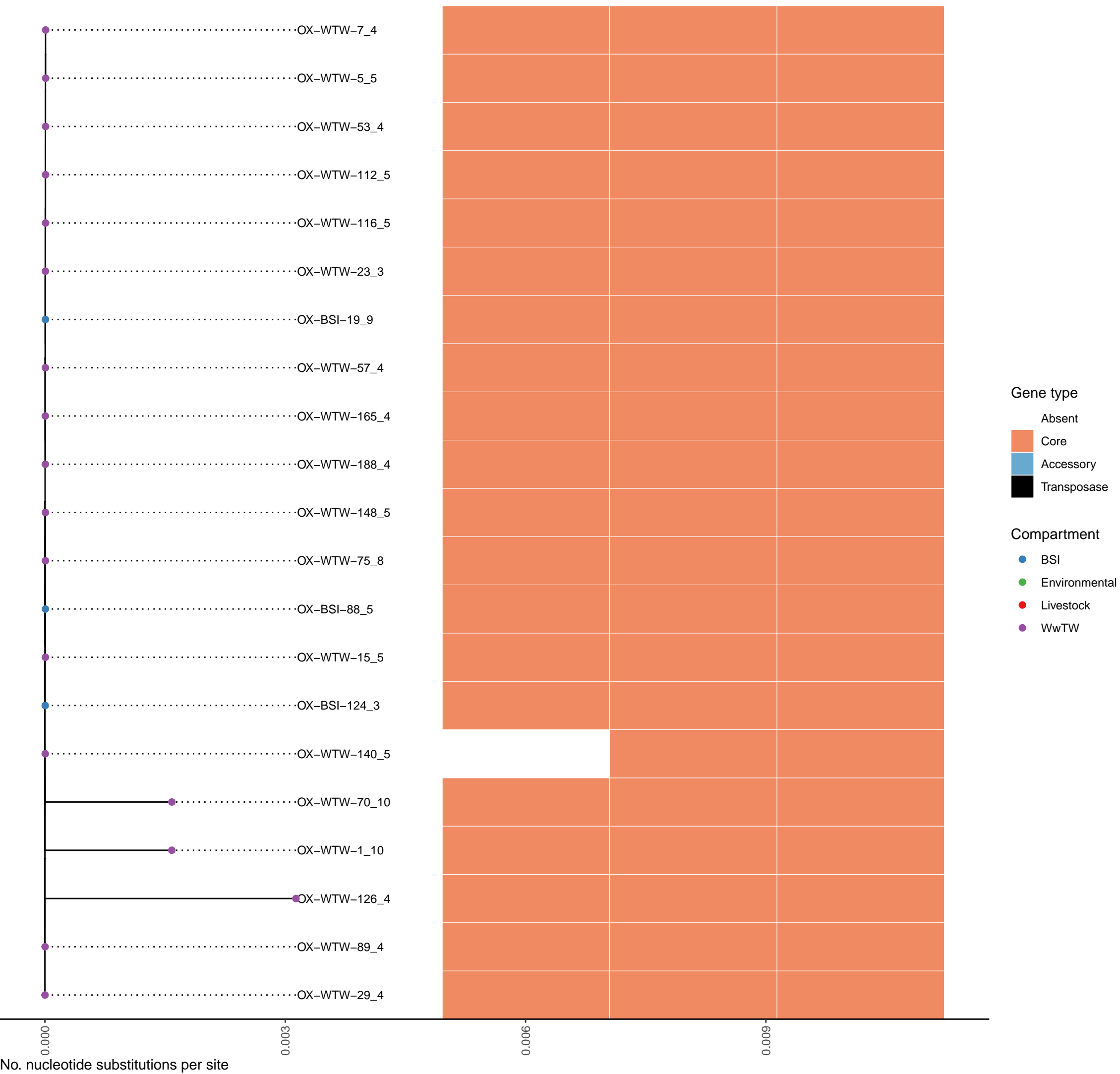
- BSI
- Environmental
- Livestock
- WwTW

Cluster 27
92 core genes
157 accessory genes

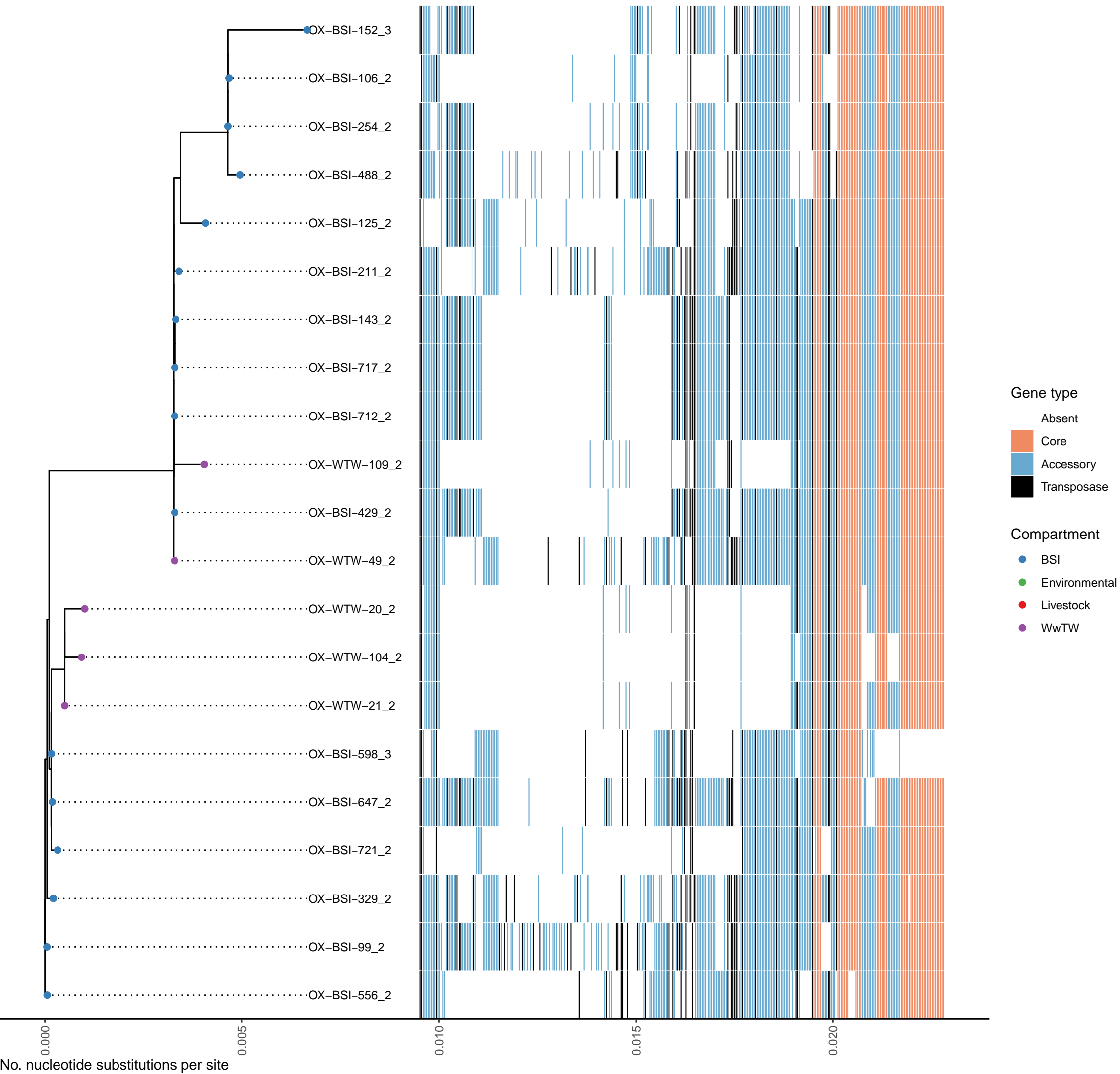


No. nucleotide substitutions per site

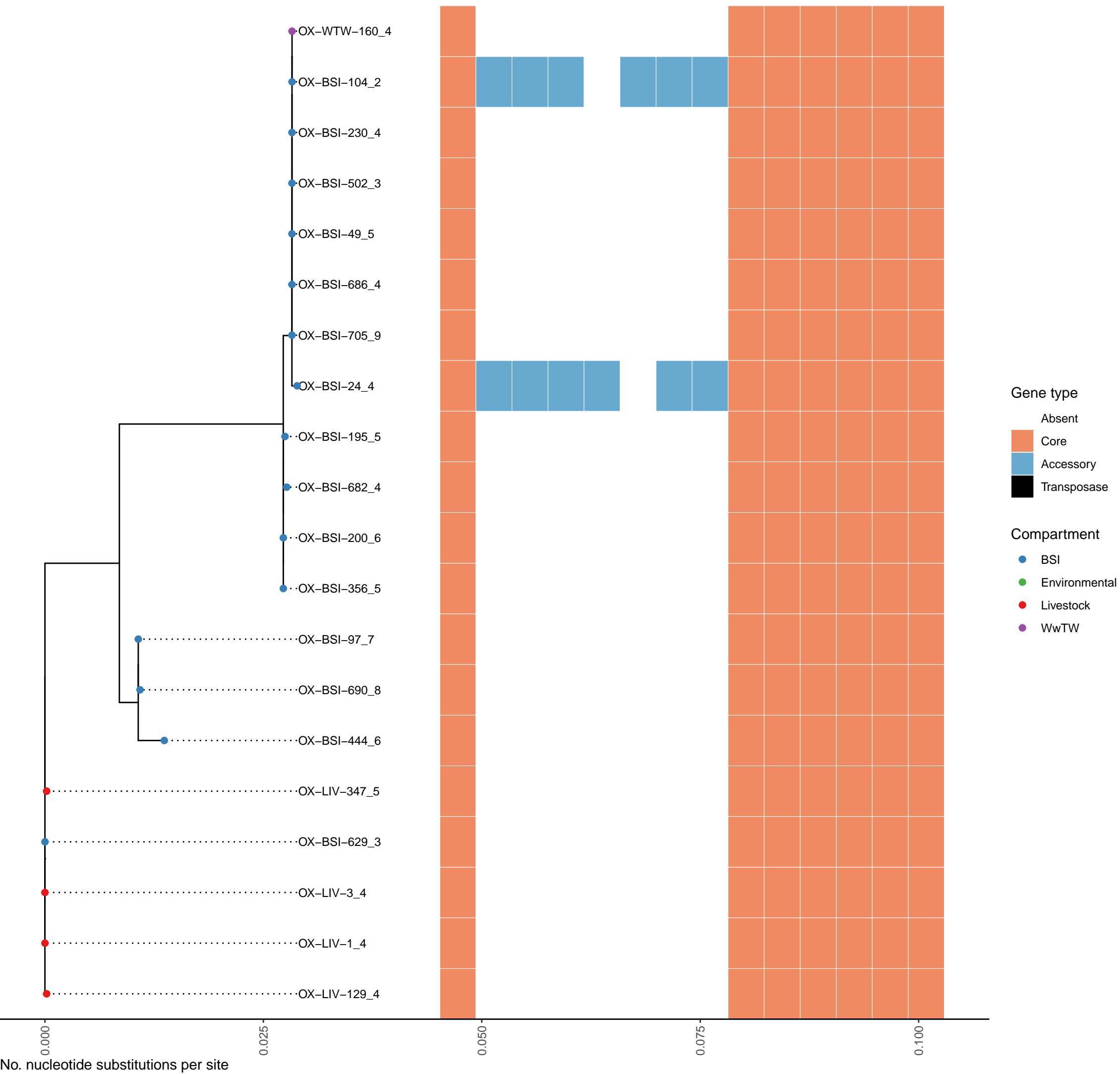
Cluster 28
3 core genes
0 accessory genes



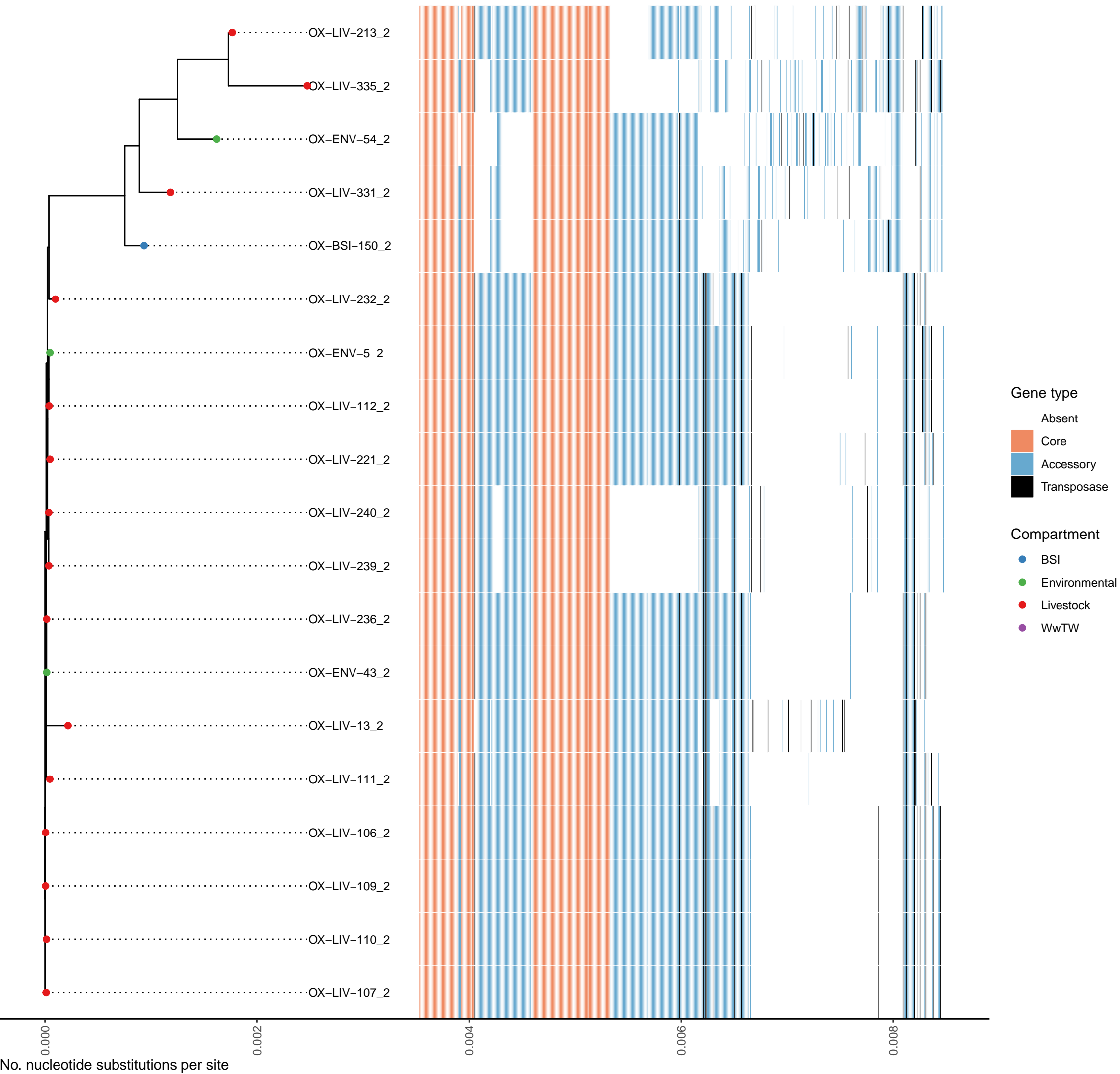
Cluster 30
55 core genes
269 accessory genes



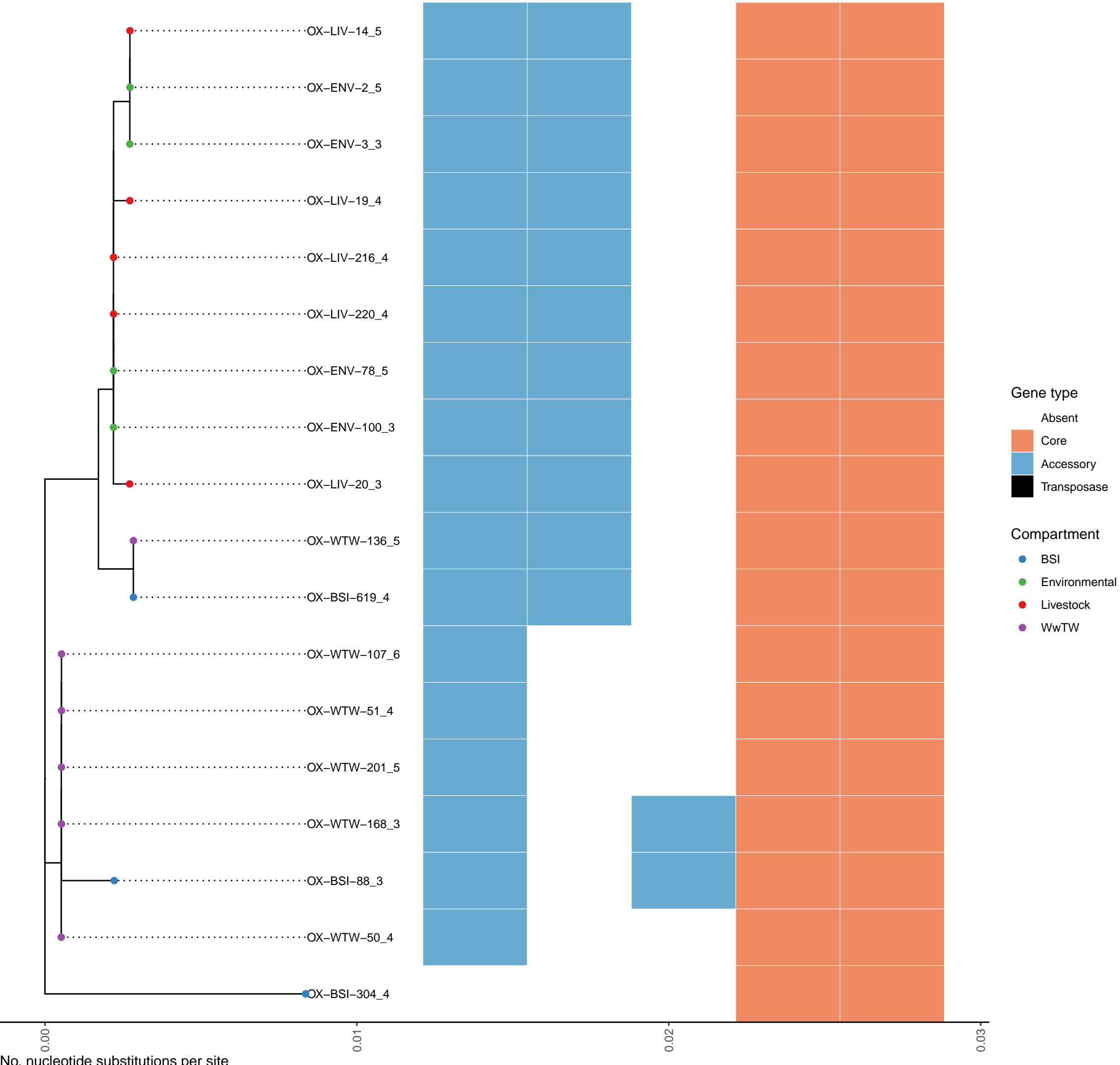
Cluster 31
7 core genes
7 accessory genes



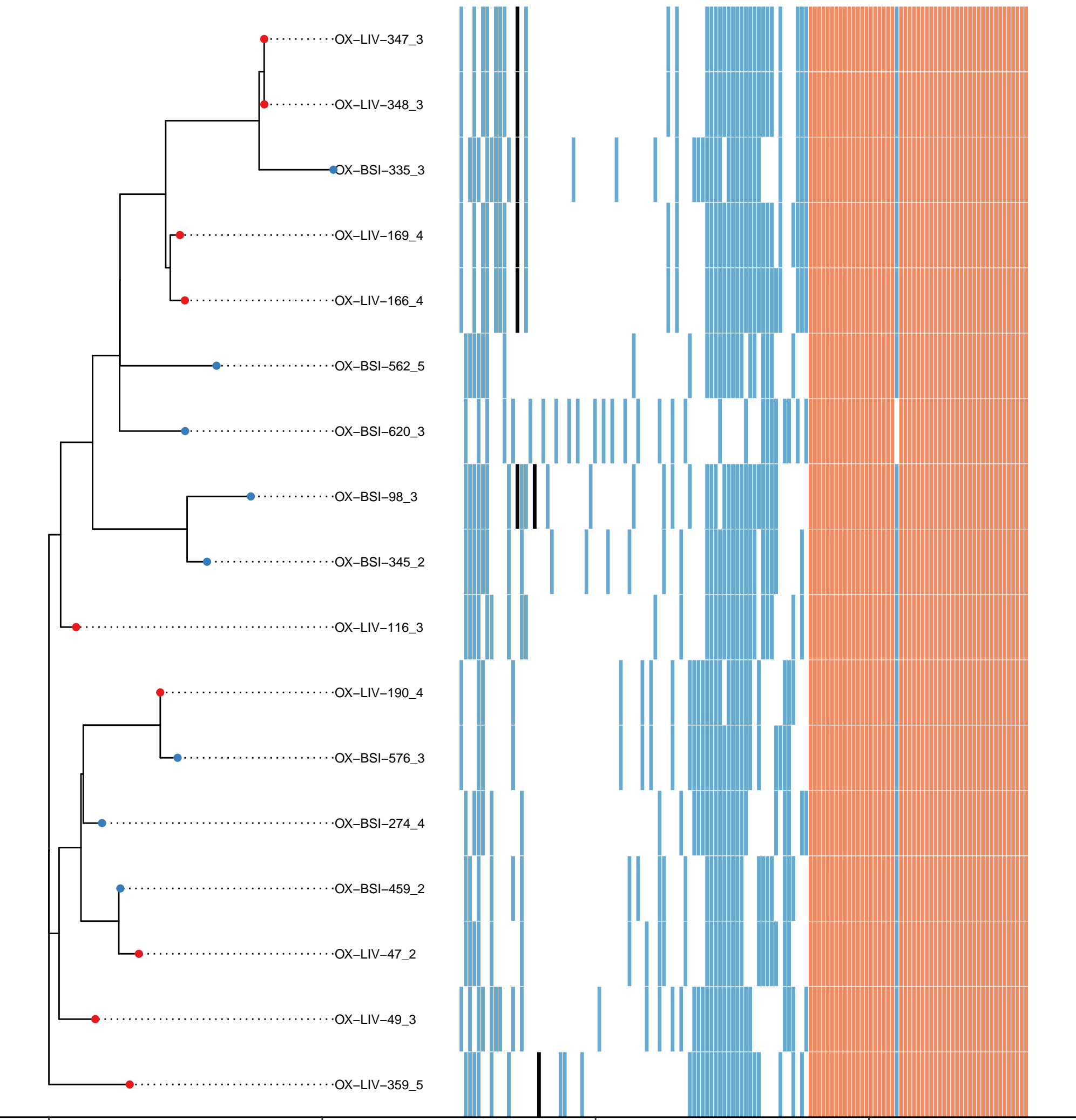
Cluster 33
114 core genes
353 accessory genes



Cluster 34
2 core genes
3 accessory genes

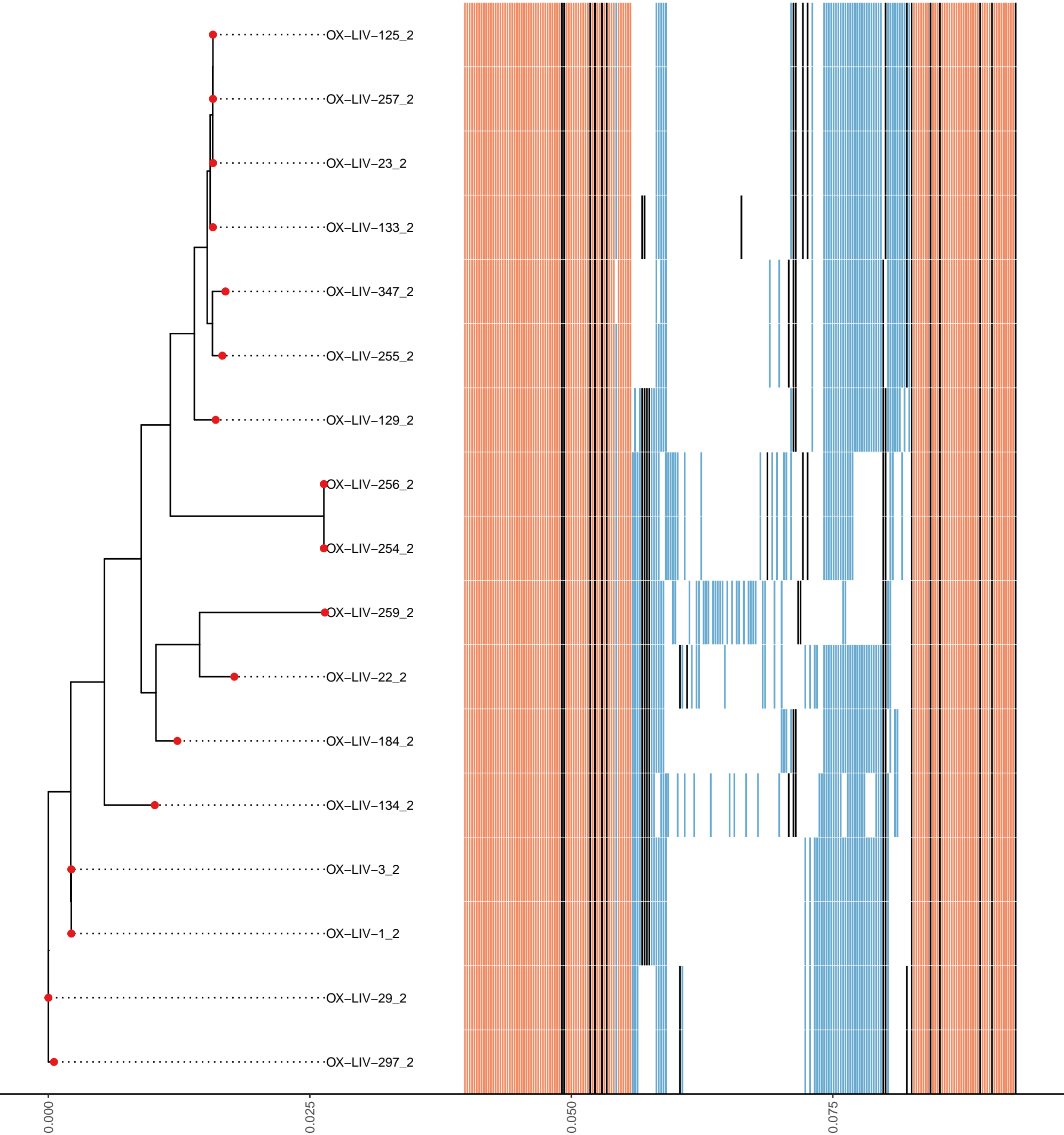


Cluster 35
50 core genes
82 accessory genes



No. nucleotide substitutions per site

Cluster 36
103 core genes
131 accessory genes



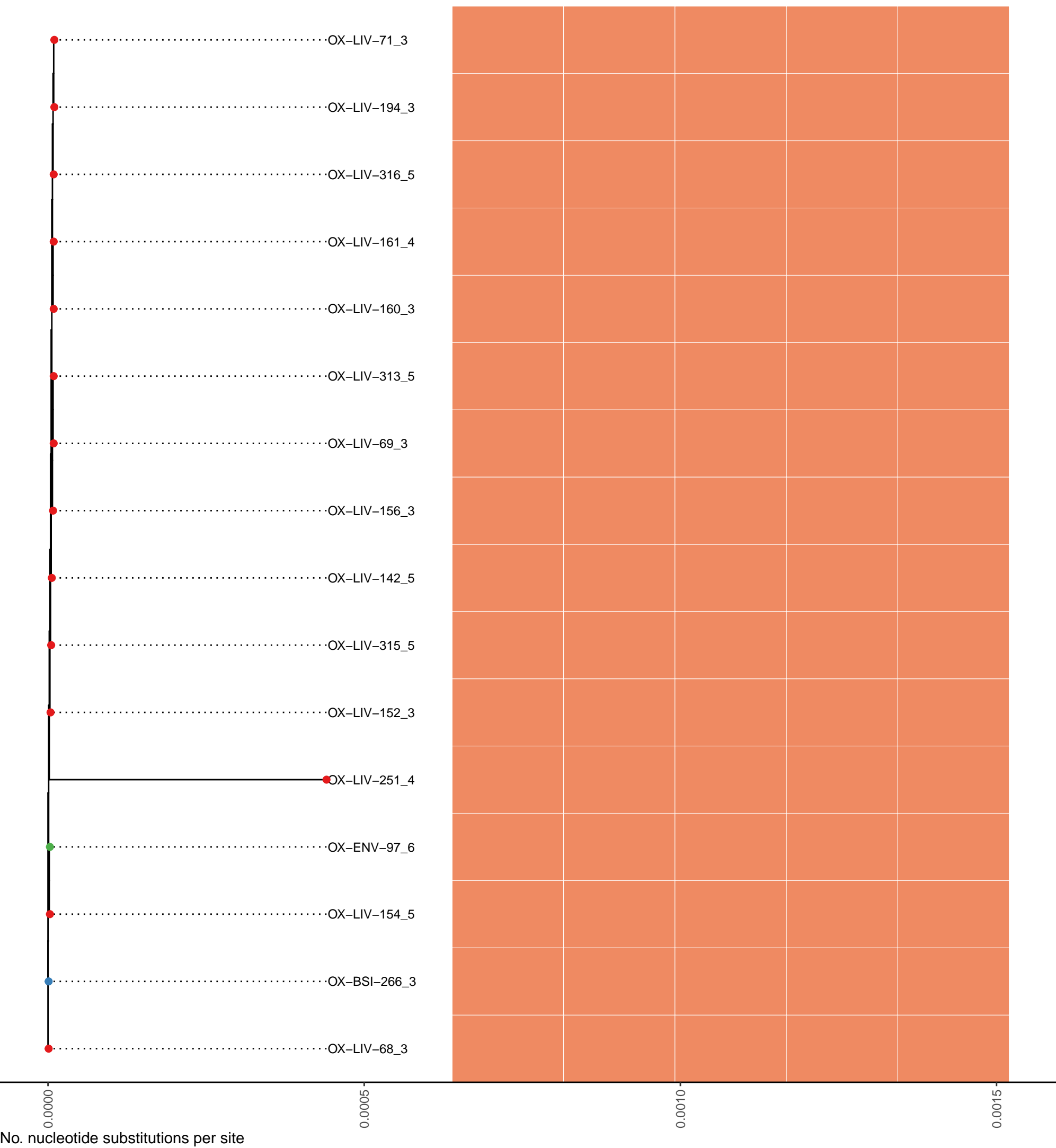
Gene type

- Absent
- Core
- Accessory
- Transposase

Compartment

- BSI
- Environmental
- Livestock
- WwTW

Cluster 37
5 core genes
0 accessory genes



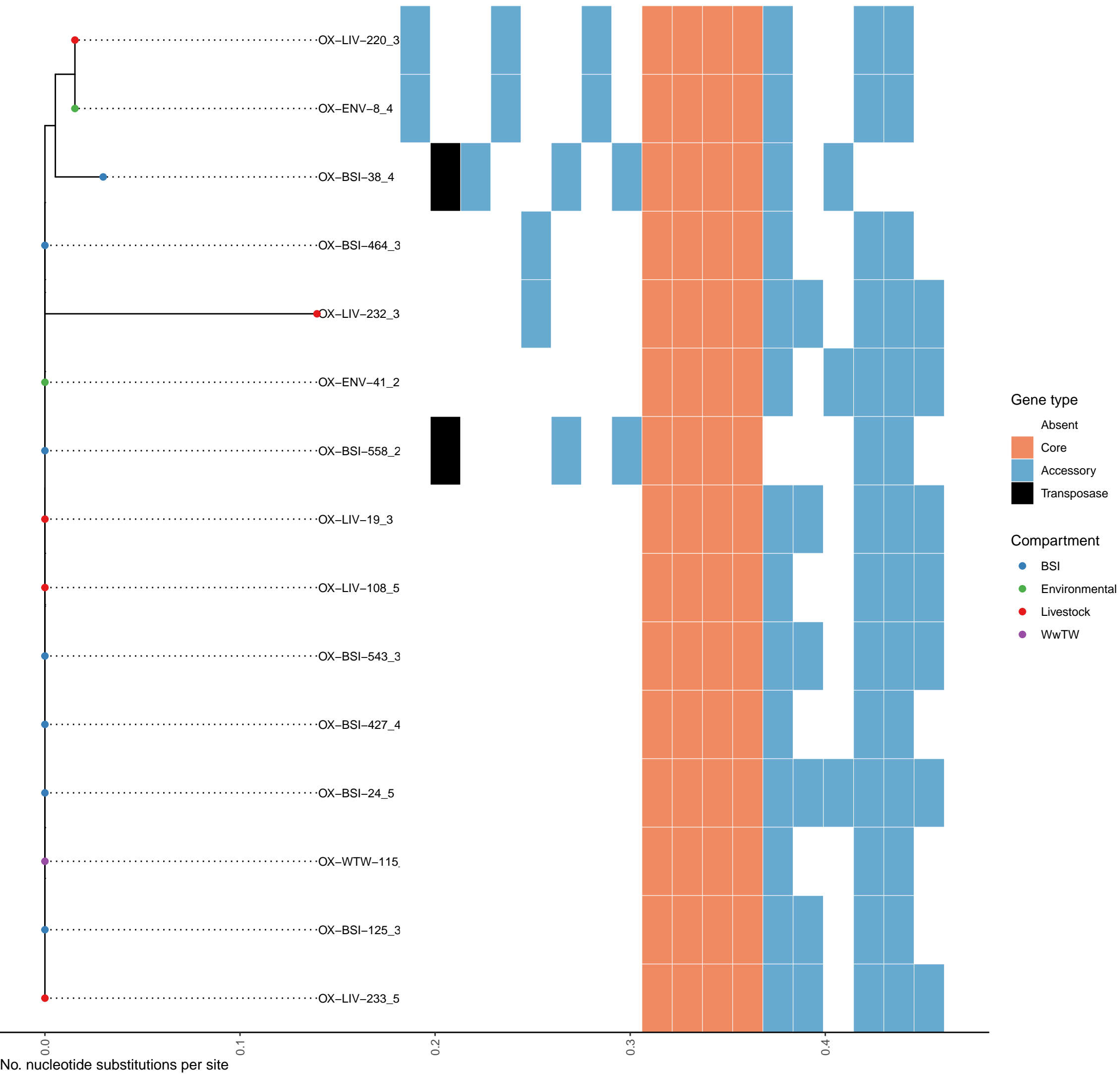
Gene type

- Absent
- Core
- Accessory
- Transposase

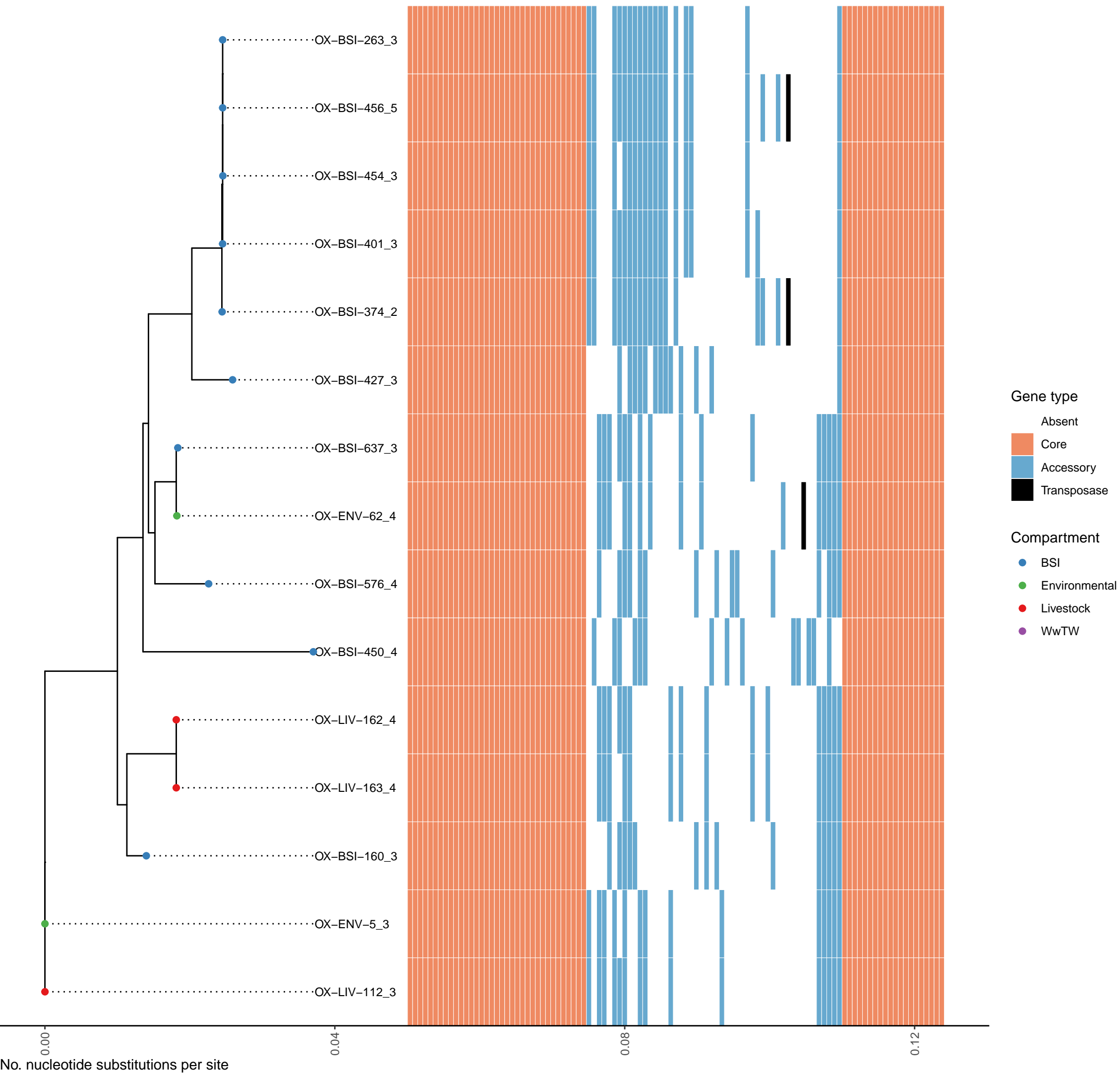
Compartment

- BSI
- Environmental
- Livestock
- WwTW

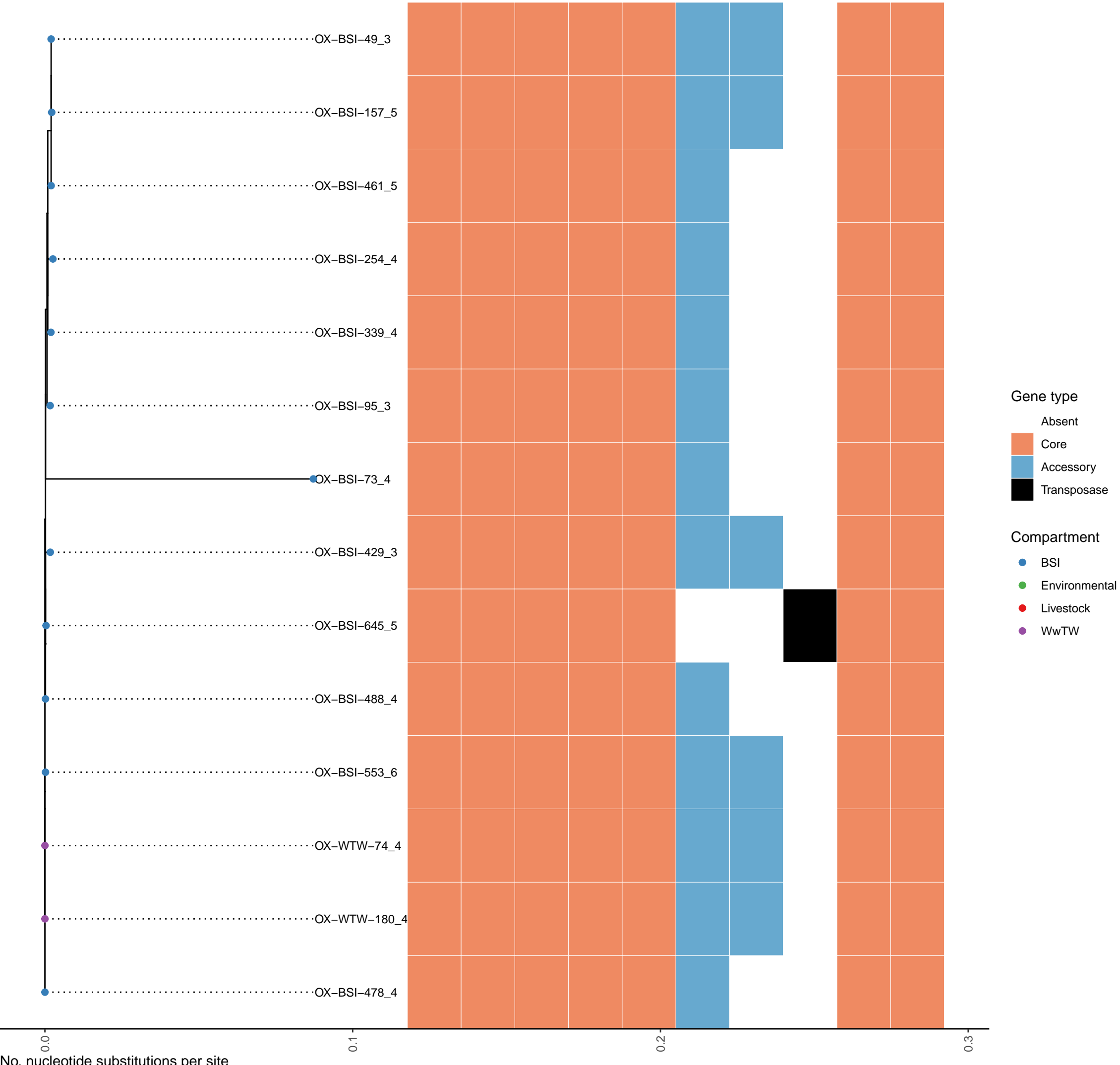
Cluster 38
4 core genes
14 accessory genes



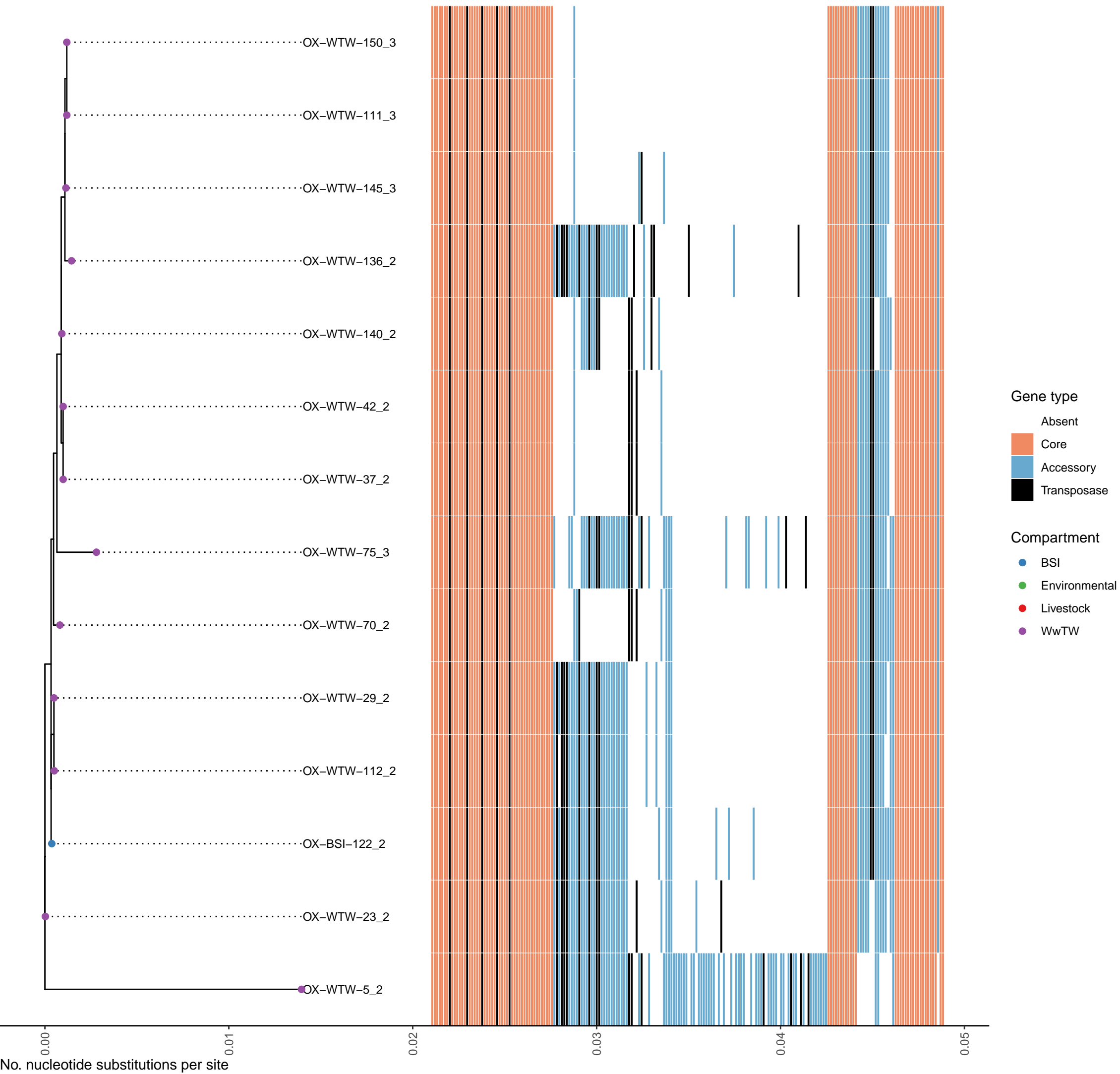
Cluster 39
55 core genes
50 accessory genes



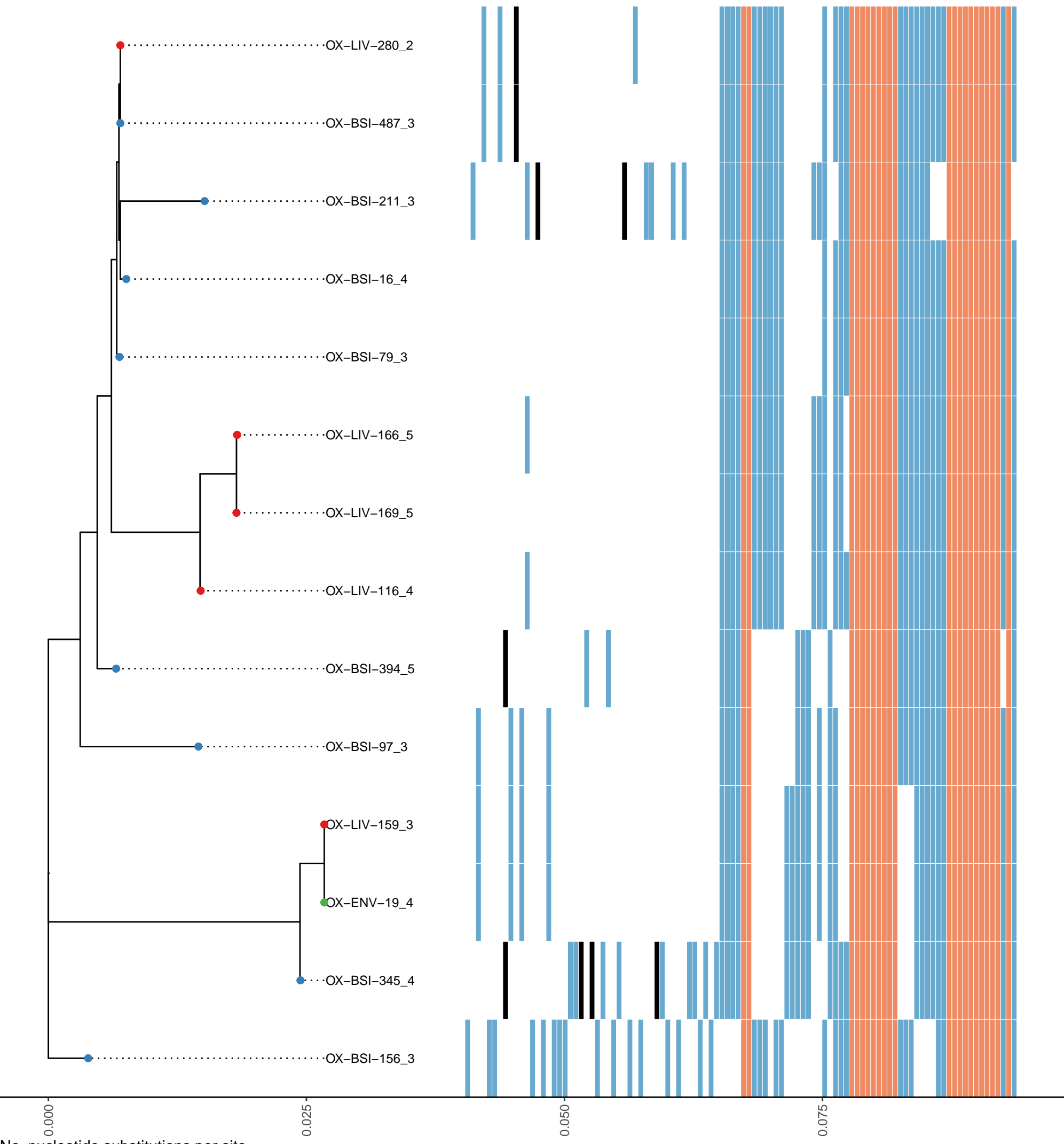
Cluster 41
7 core genes
3 accessory genes



Cluster 42
75 core genes
131 accessory genes



Cluster 43
22 core genes
80 accessory genes



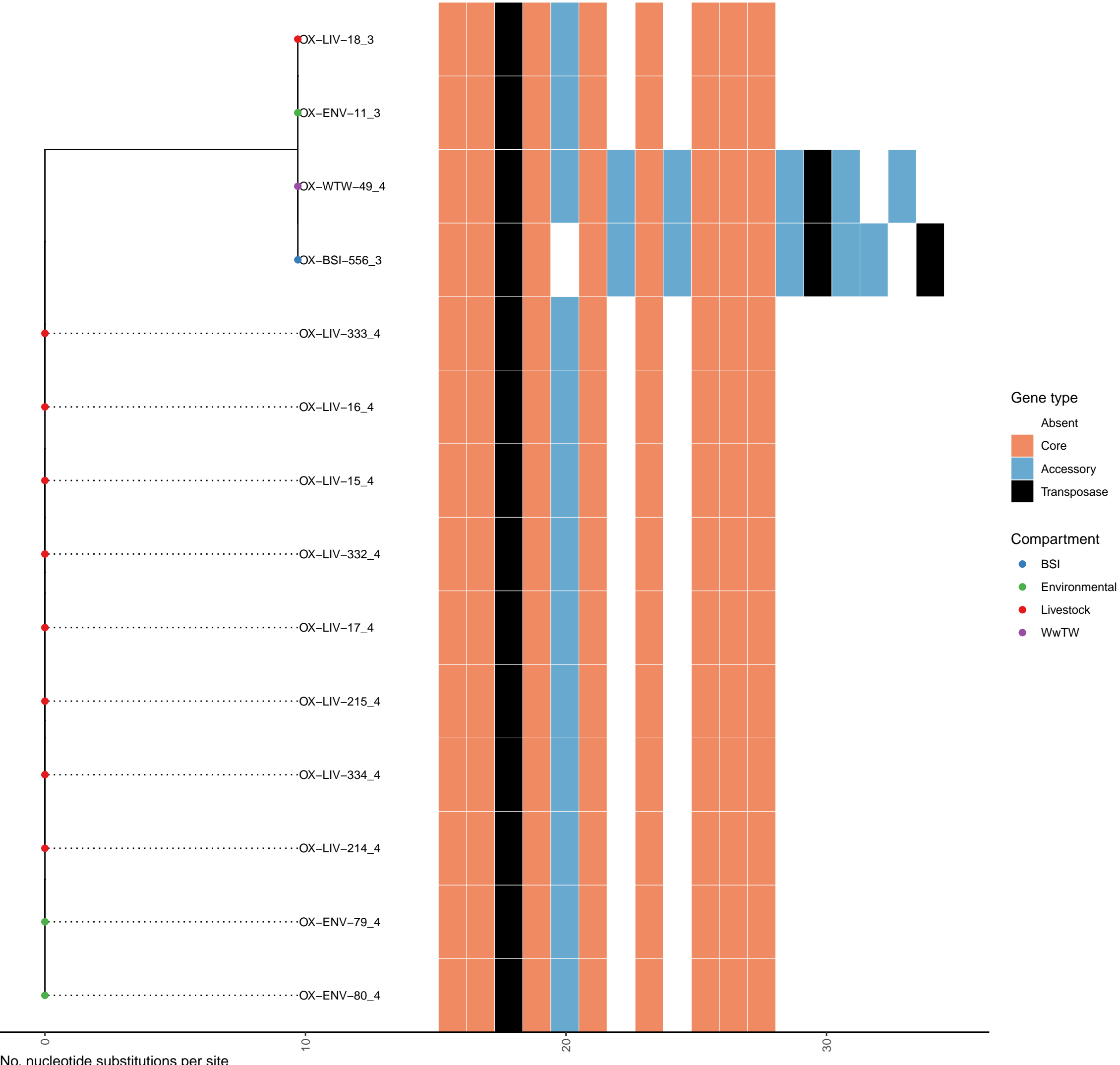
Gene type

- Absent
- Core
- Accessory
- Transposase

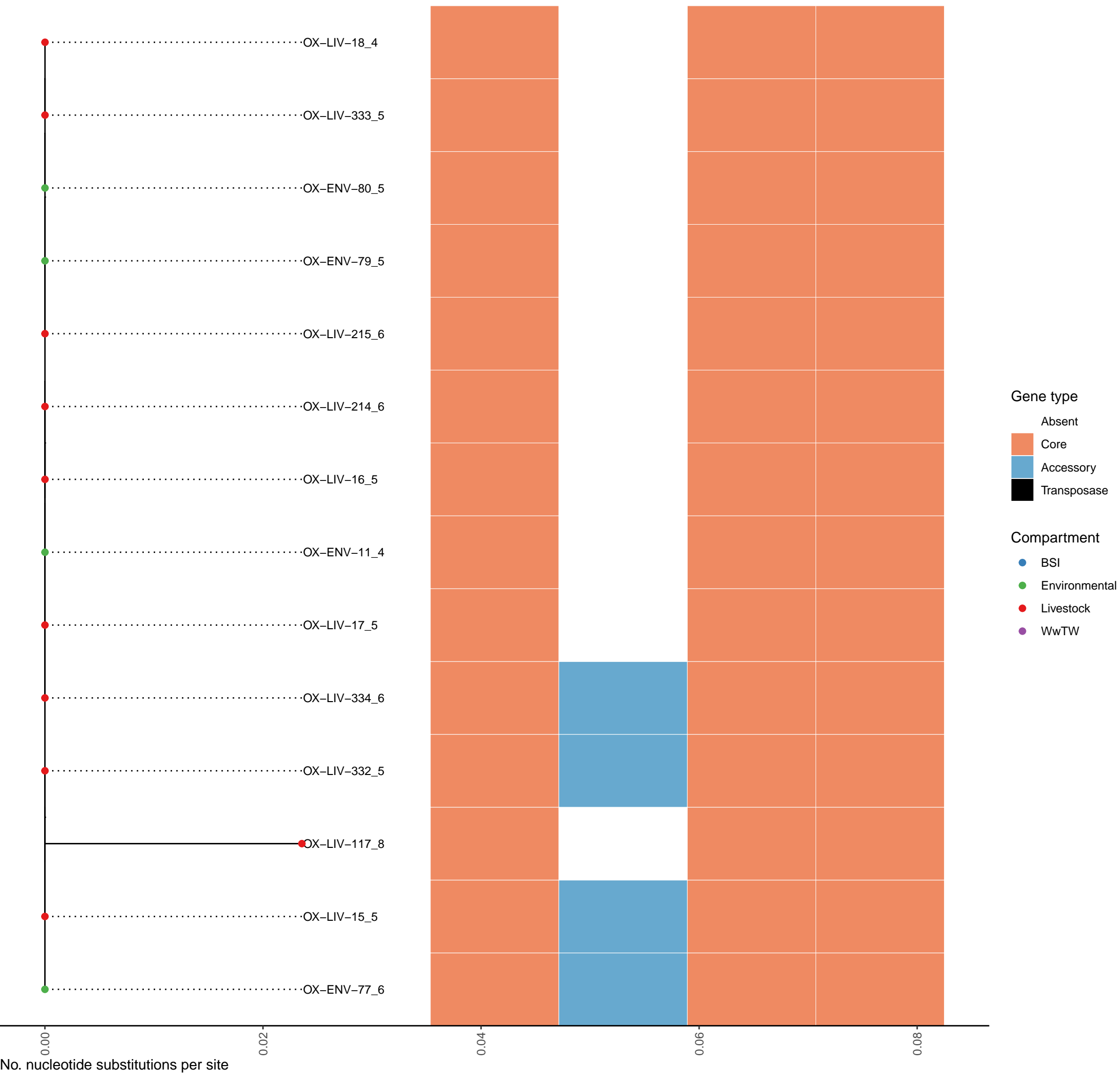
Compartment

- BSI
- Environmental
- Livestock
- WwTW

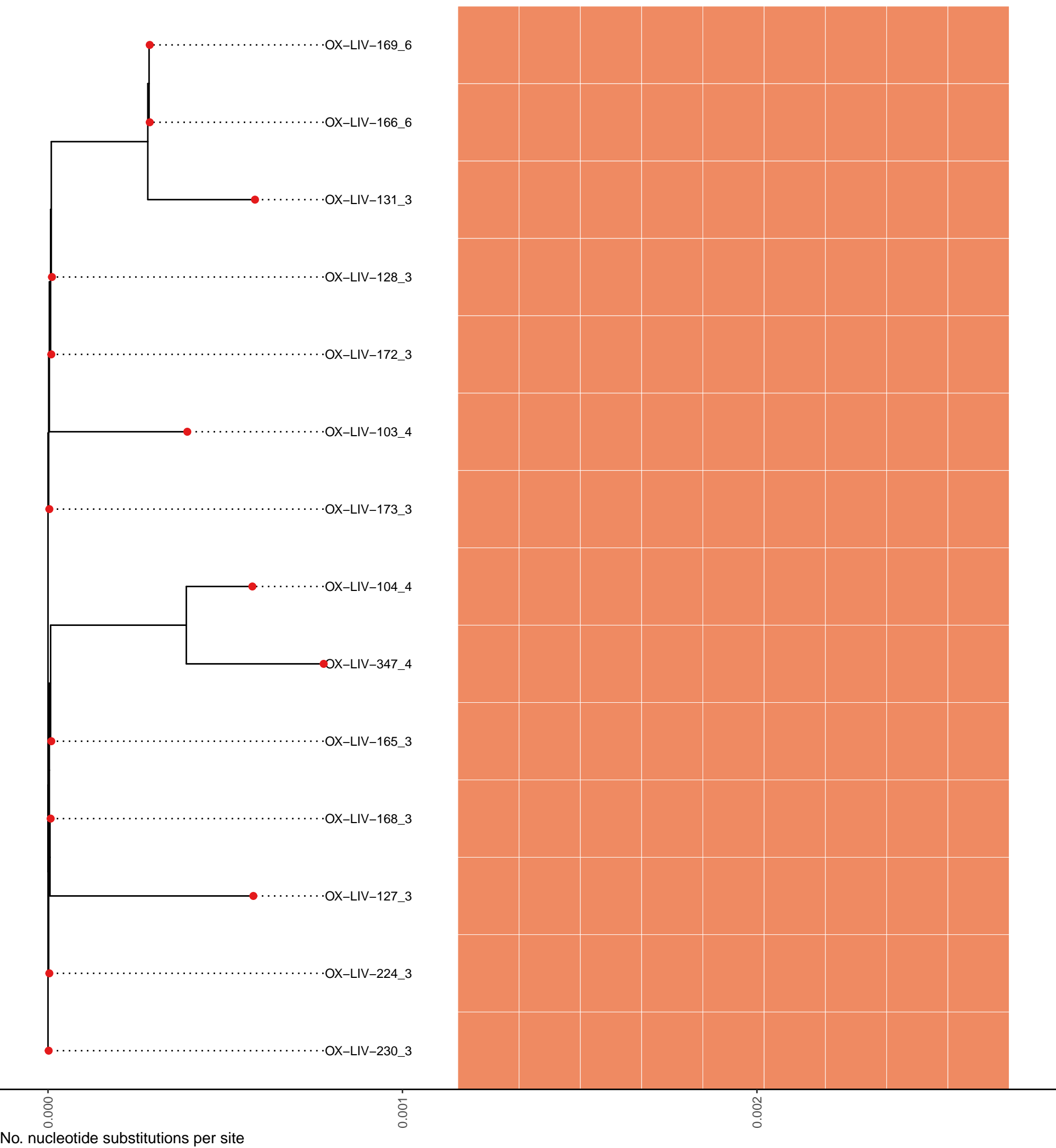
Cluster 44
8 core genes
10 accessory genes



Cluster 45
3 core genes
1 accessory genes



Cluster 46
9 core genes
0 accessory genes



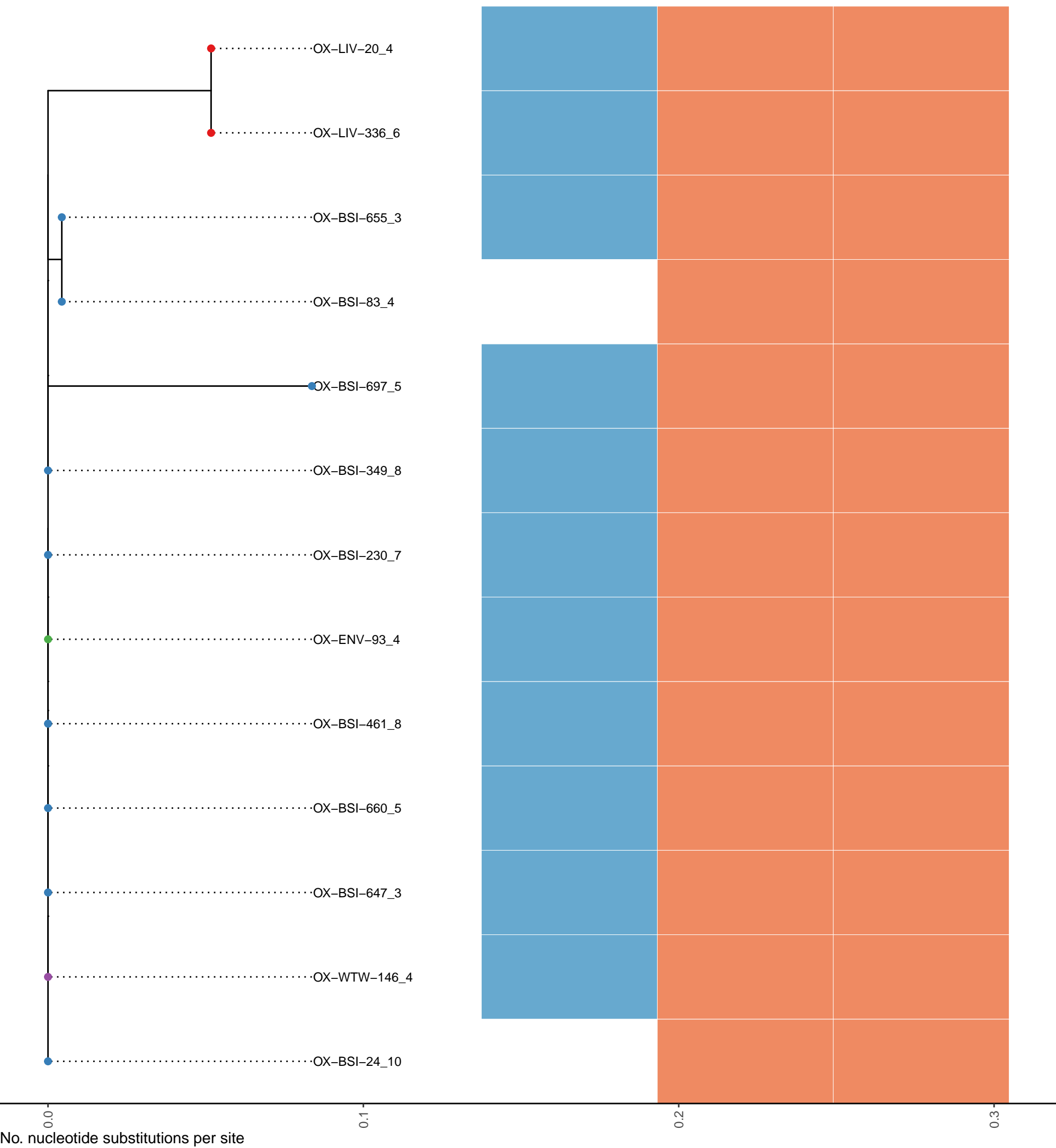
Gene type

- Absent
- Core
- Accessory
- Transposase

Compartment

- BSI
- Environmental
- Livestock
- WwTW

Cluster 47
2 core genes
1 accessory genes



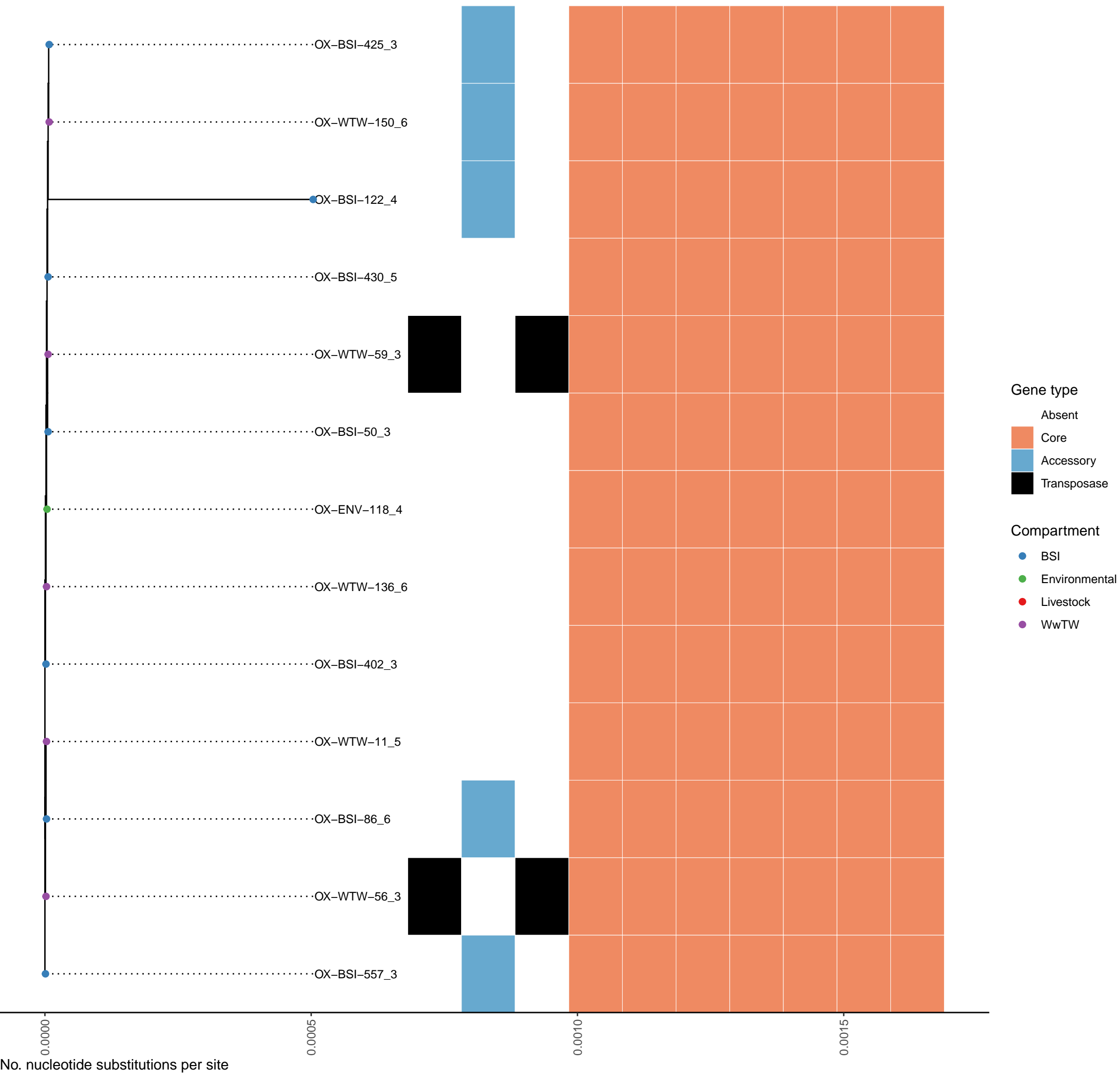
Gene type

- Absent
- Core
- Accessory
- Transposase

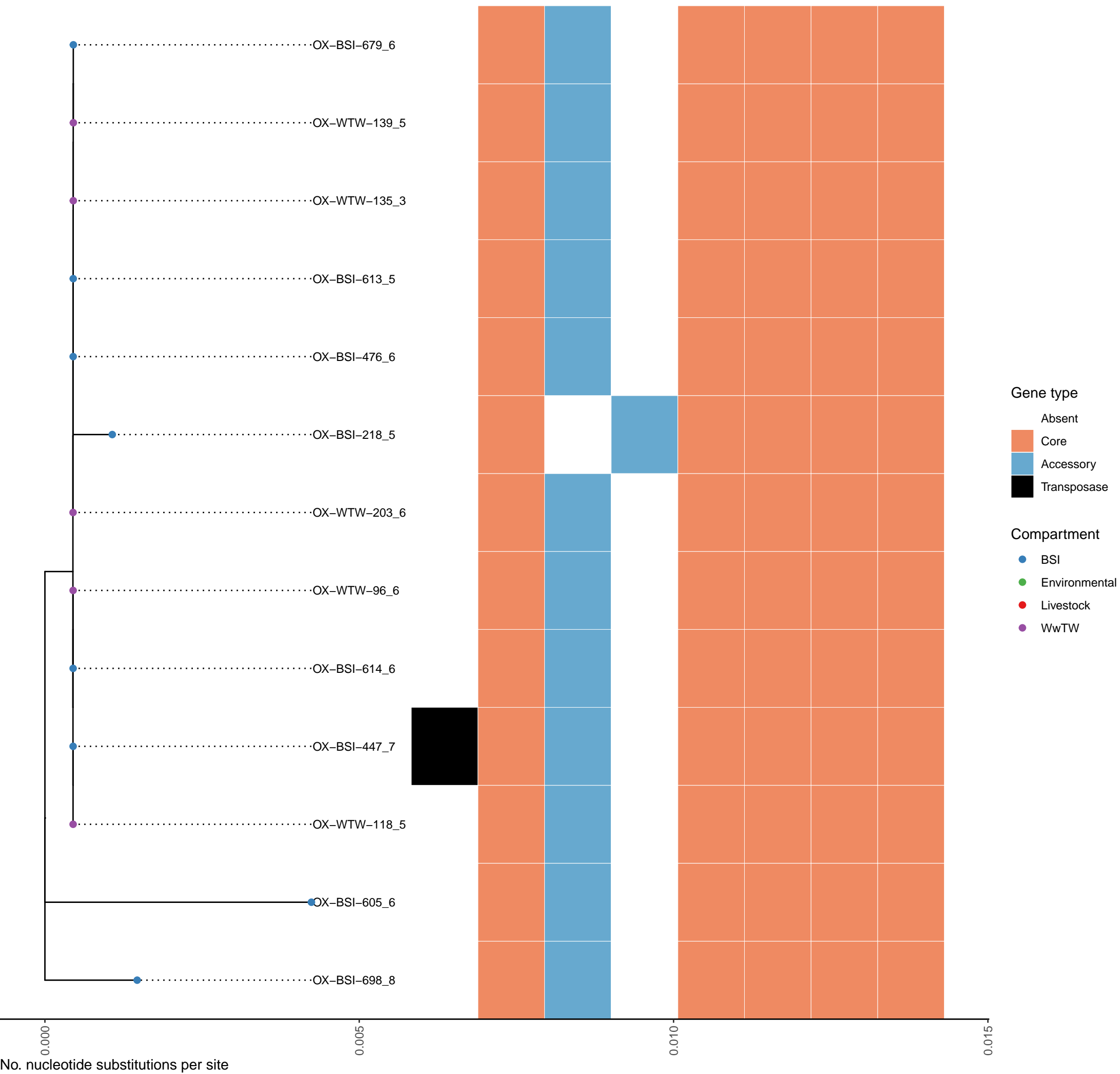
Compartment

- BSI
- Environmental
- Livestock
- WwTW

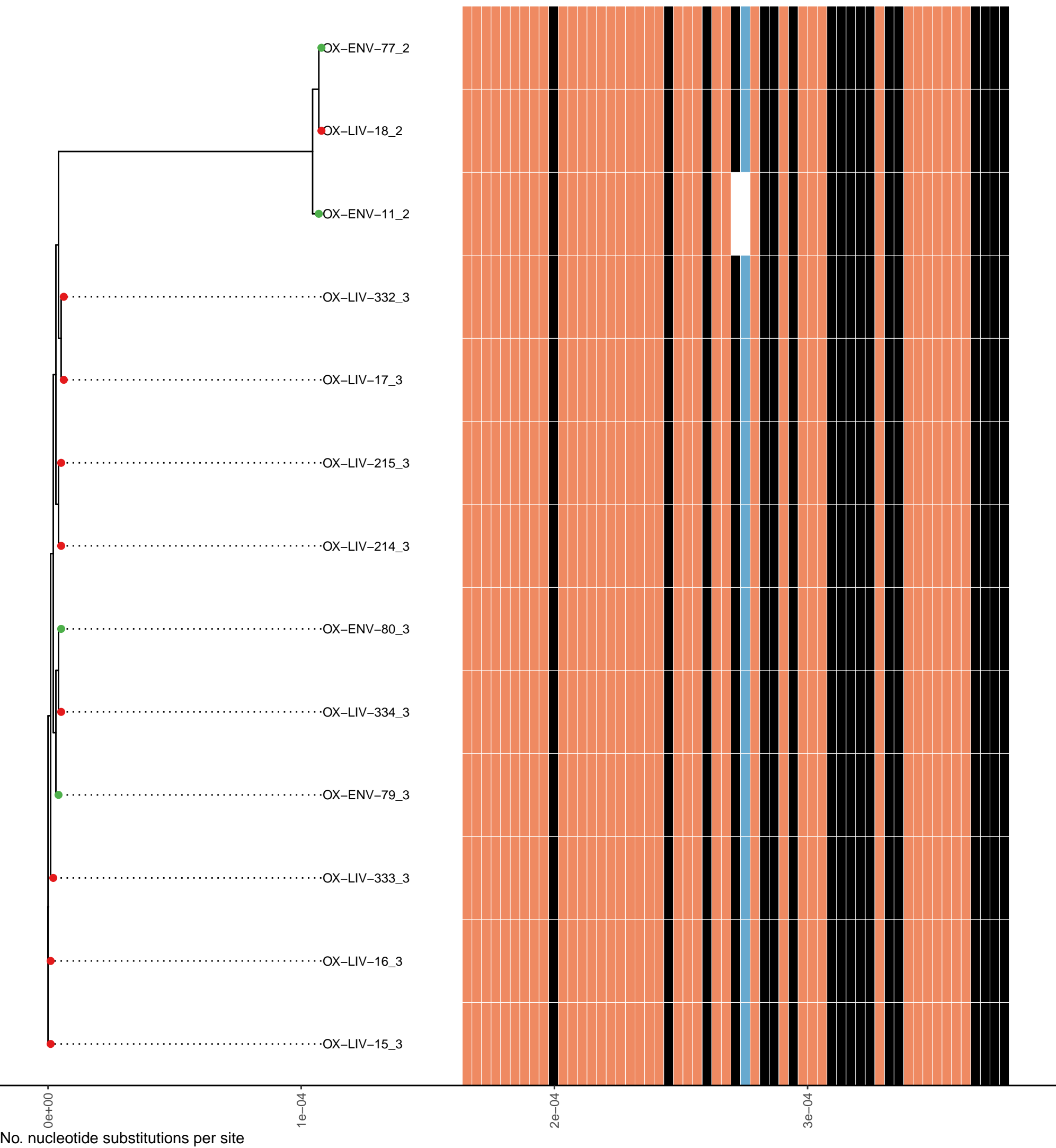
Cluster 48
7 core genes
3 accessory genes



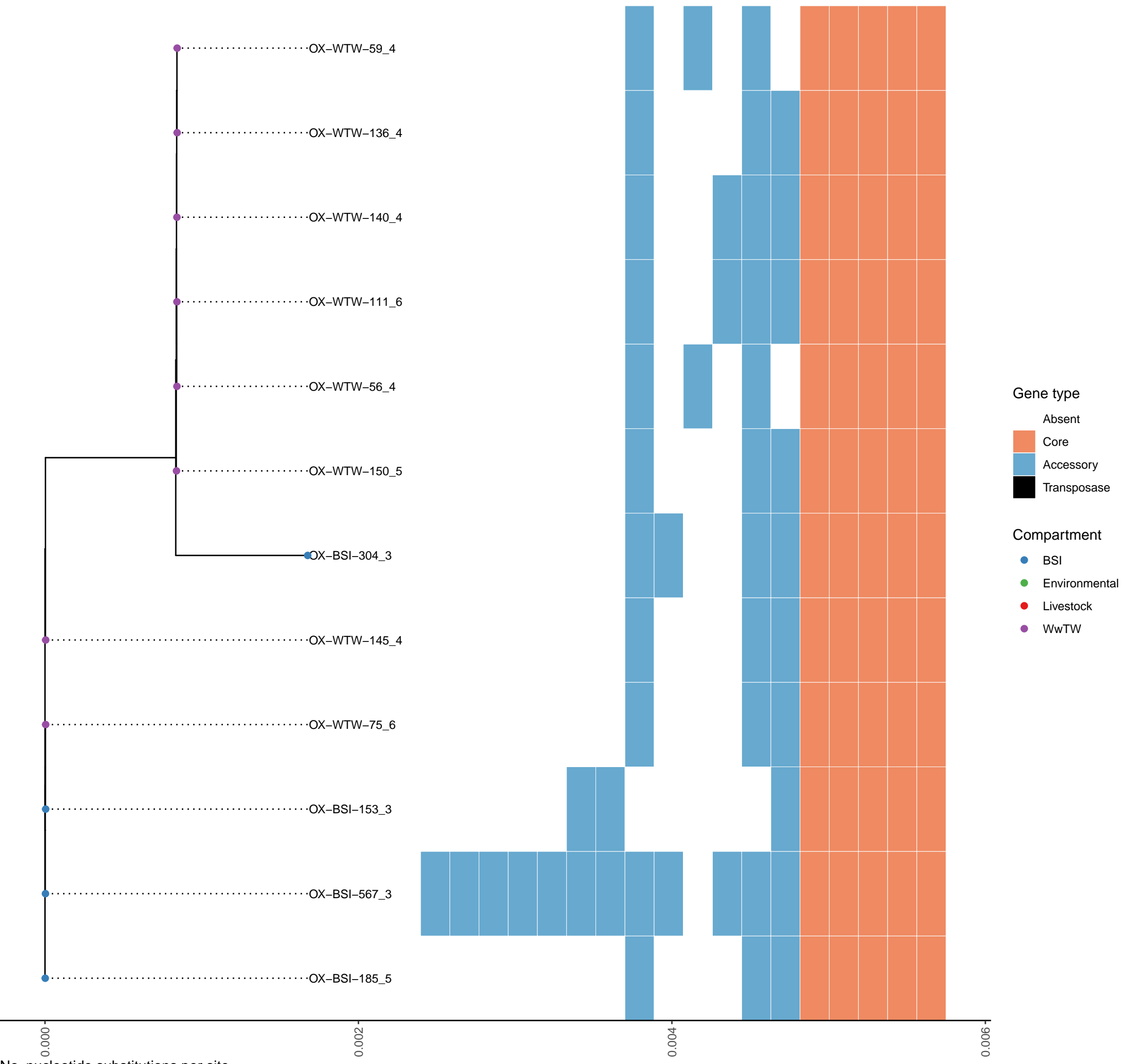
Cluster 49
5 core genes
3 accessory genes



Cluster 50
38 core genes
19 accessory genes

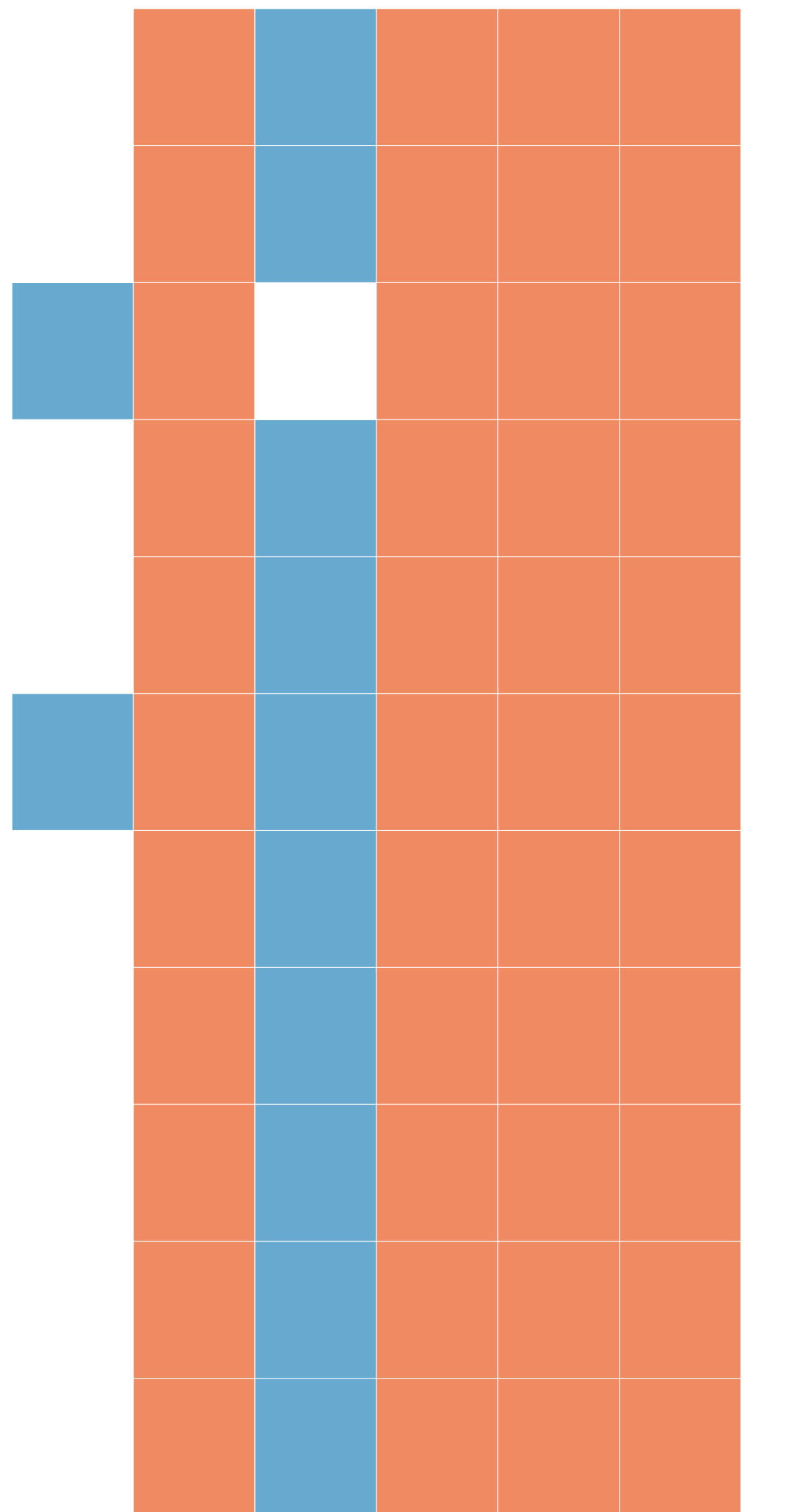
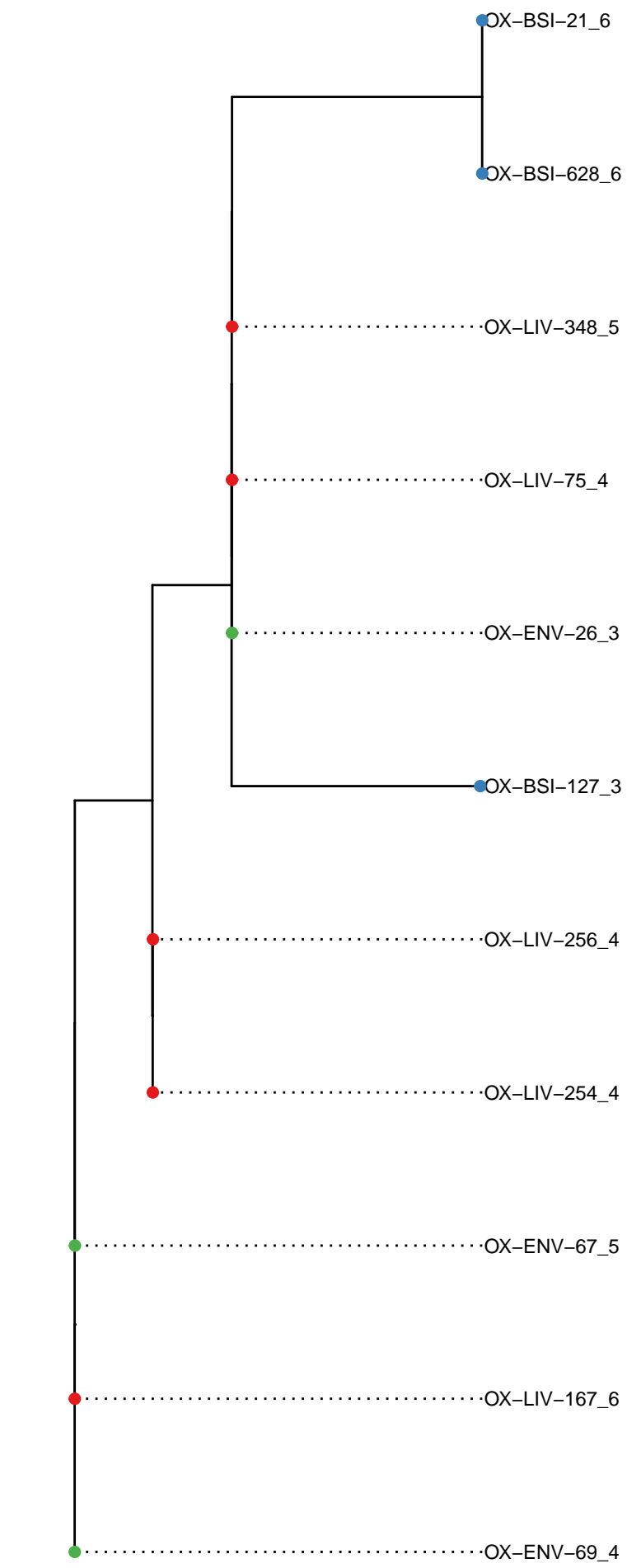


Cluster 51
5 core genes
13 accessory genes



No. nucleotide substitutions per site

Cluster 52
4 core genes
2 accessory genes



Gene type

- Absent
- Core
- Accessory
- Transposase

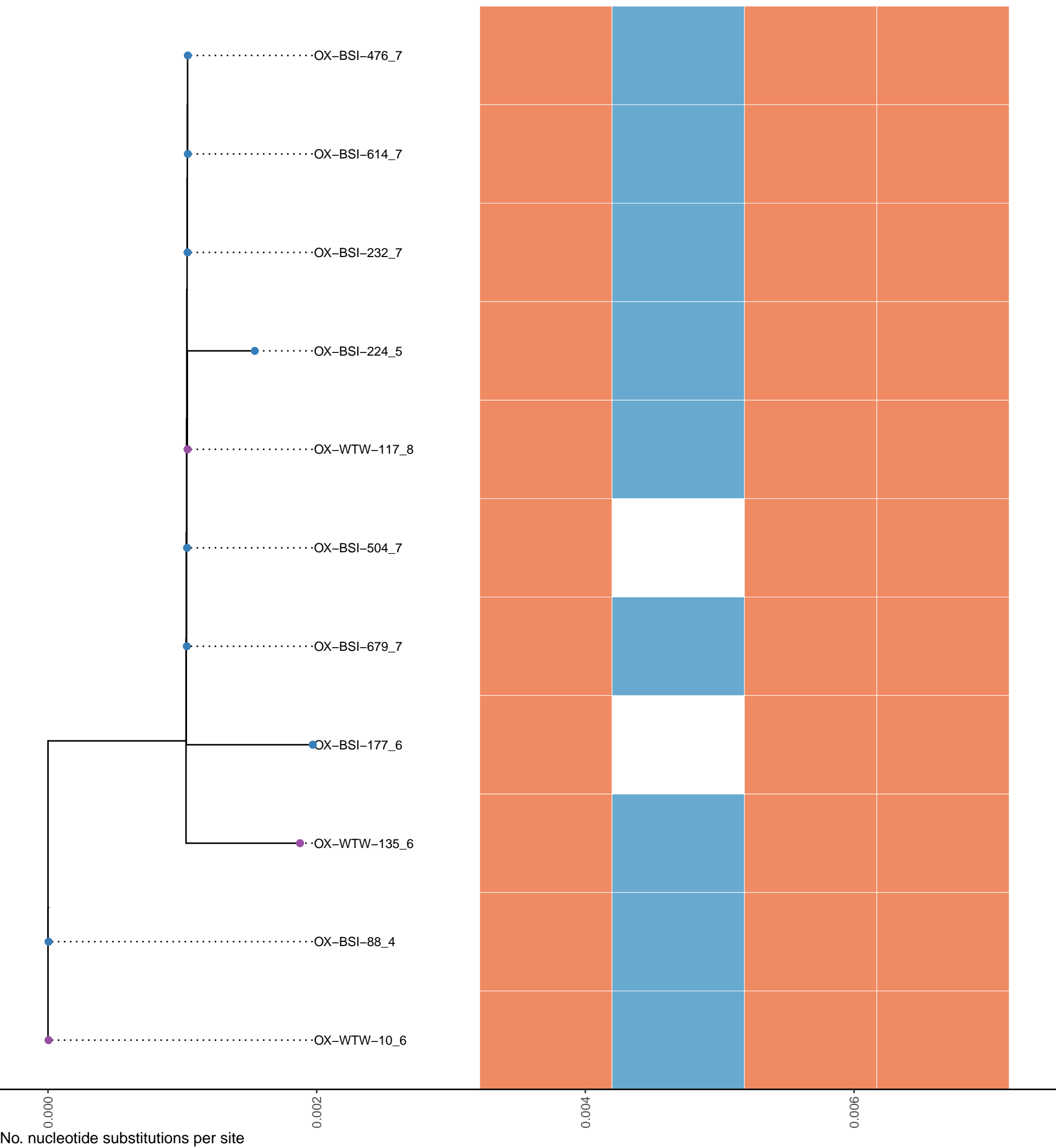
Compartment

- BSI
- Environmental
- Livestock
- WwTW

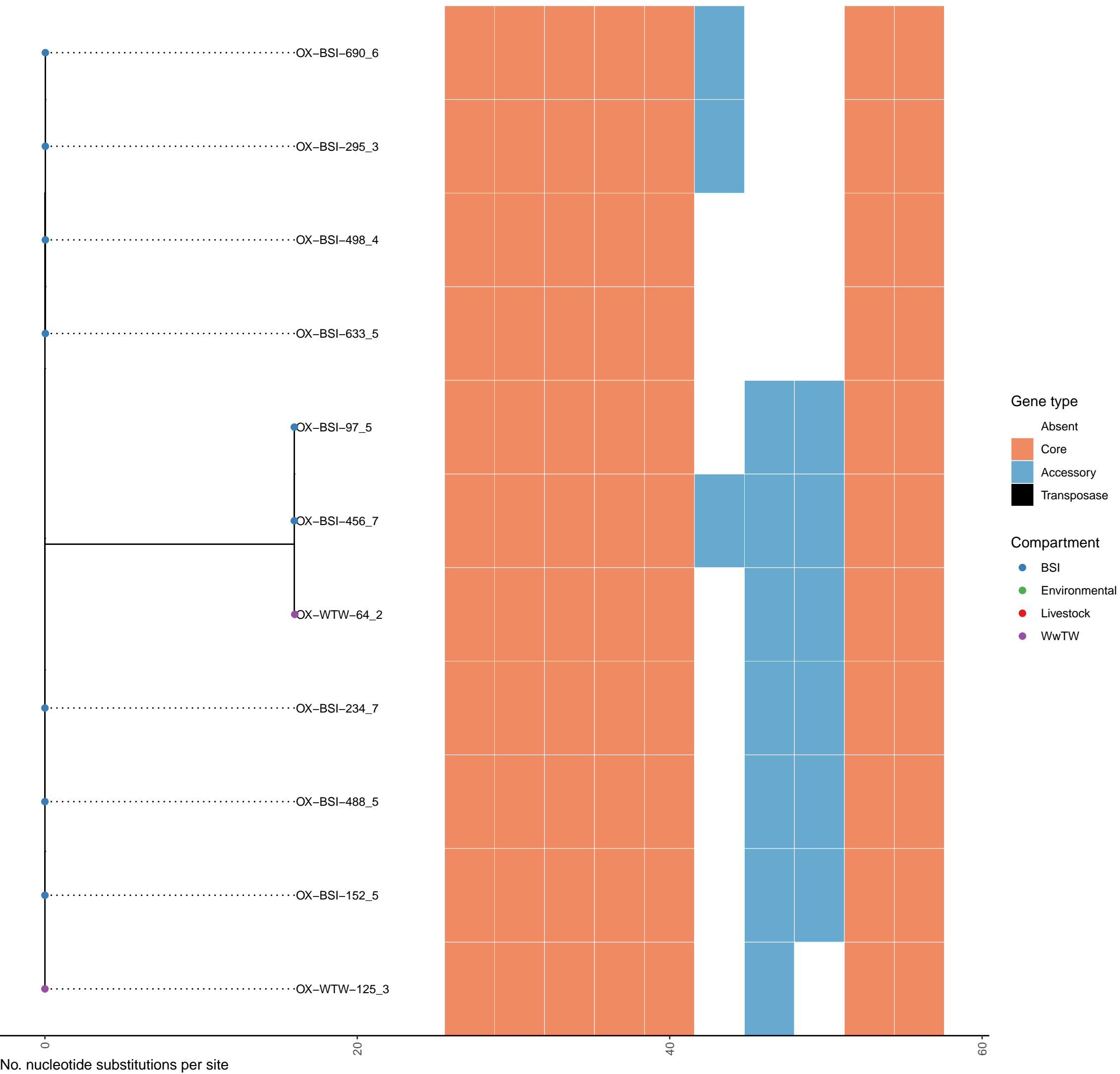
No. nucleotide substitutions per site

0.000 0.005 0.010 0.015 0.020

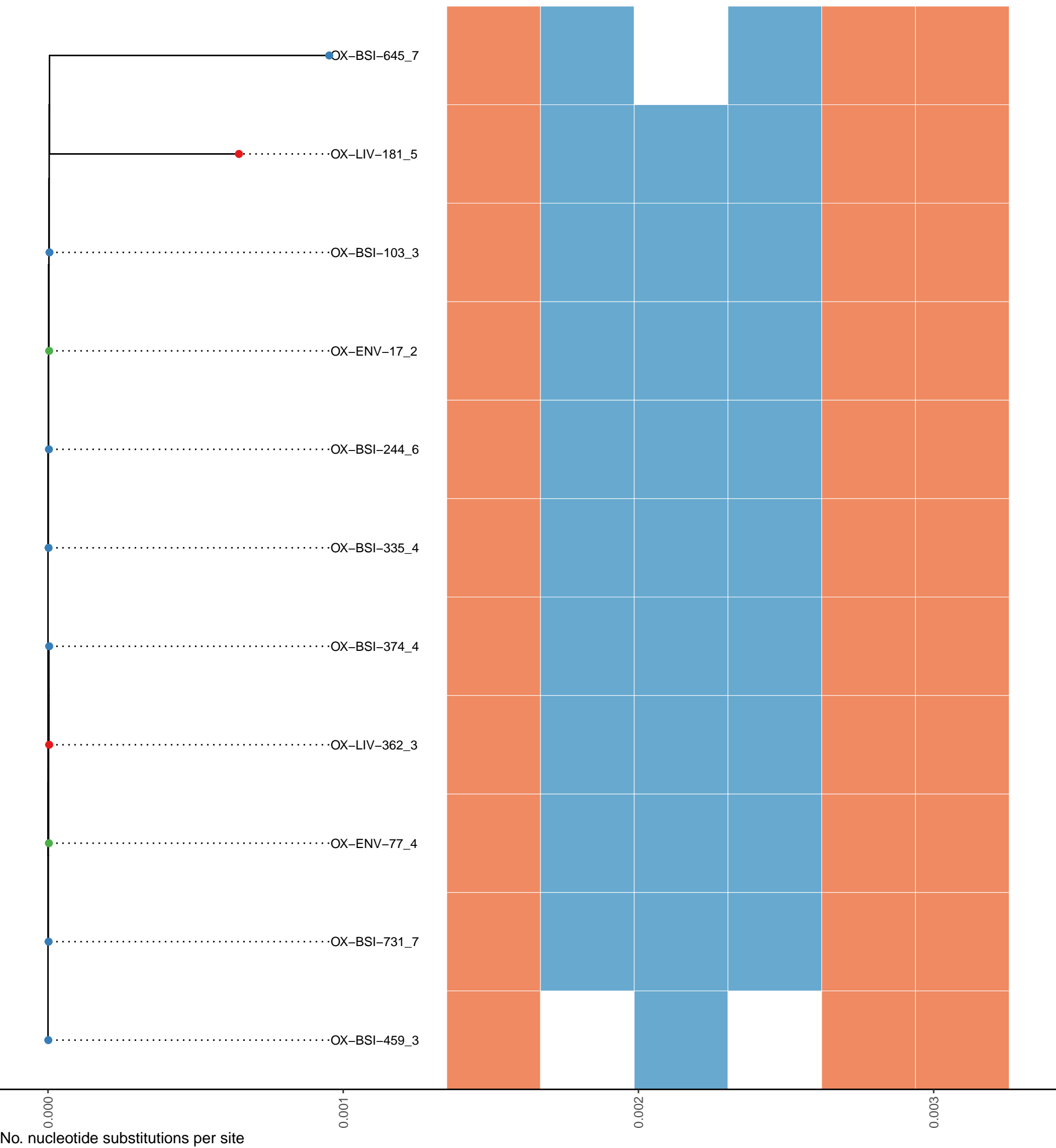
Cluster 53
3 core genes
1 accessory genes



Cluster 54
7 core genes
3 accessory genes



Cluster 55
3 core genes
3 accessory genes



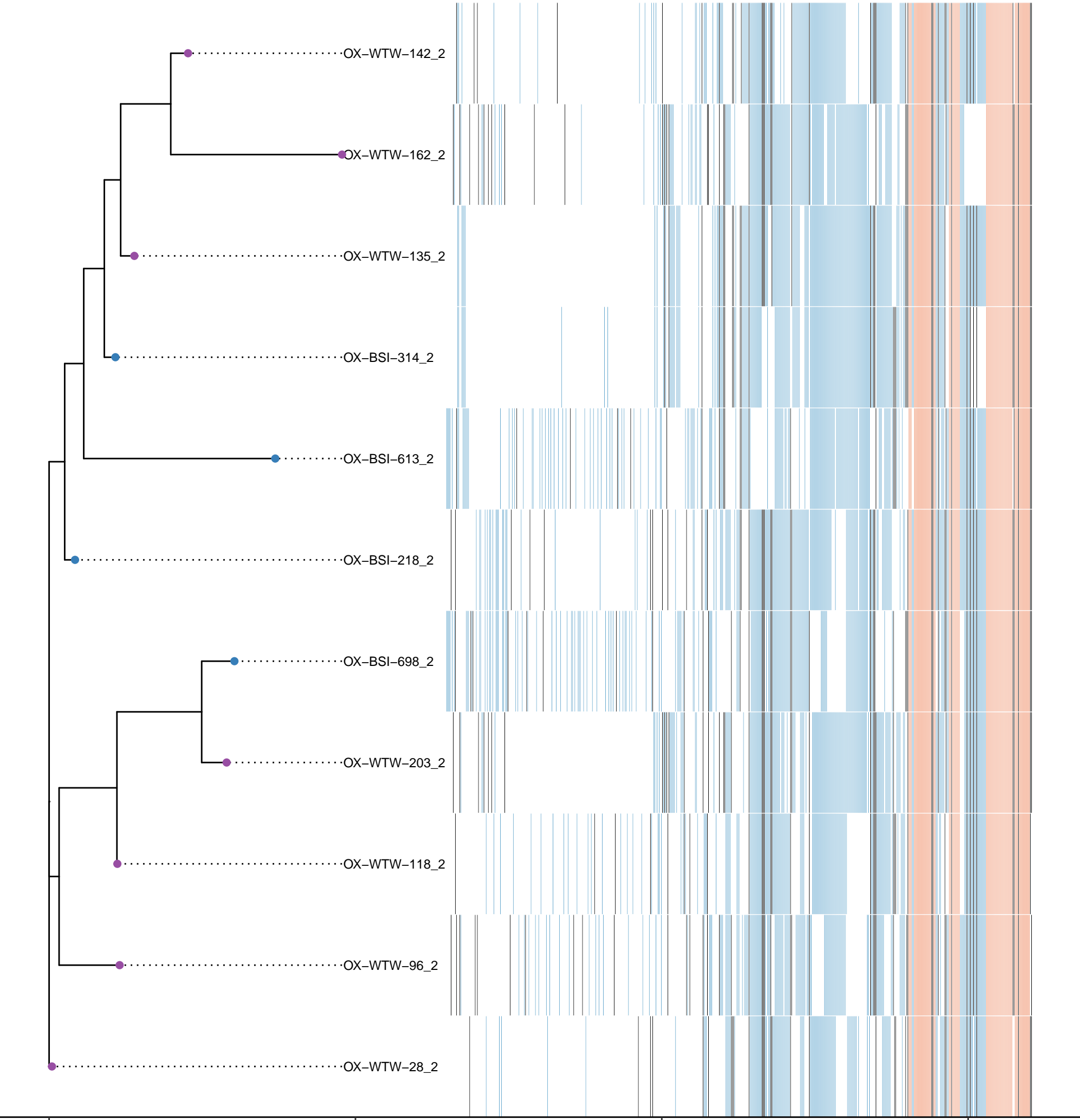
Gene type

- Absent
- Core
- Accessory
- Transposase

Compartment

- BSI
- Environmental
- Livestock
- WwTW

Cluster 56
67 core genes
468 accessory genes



Gene type

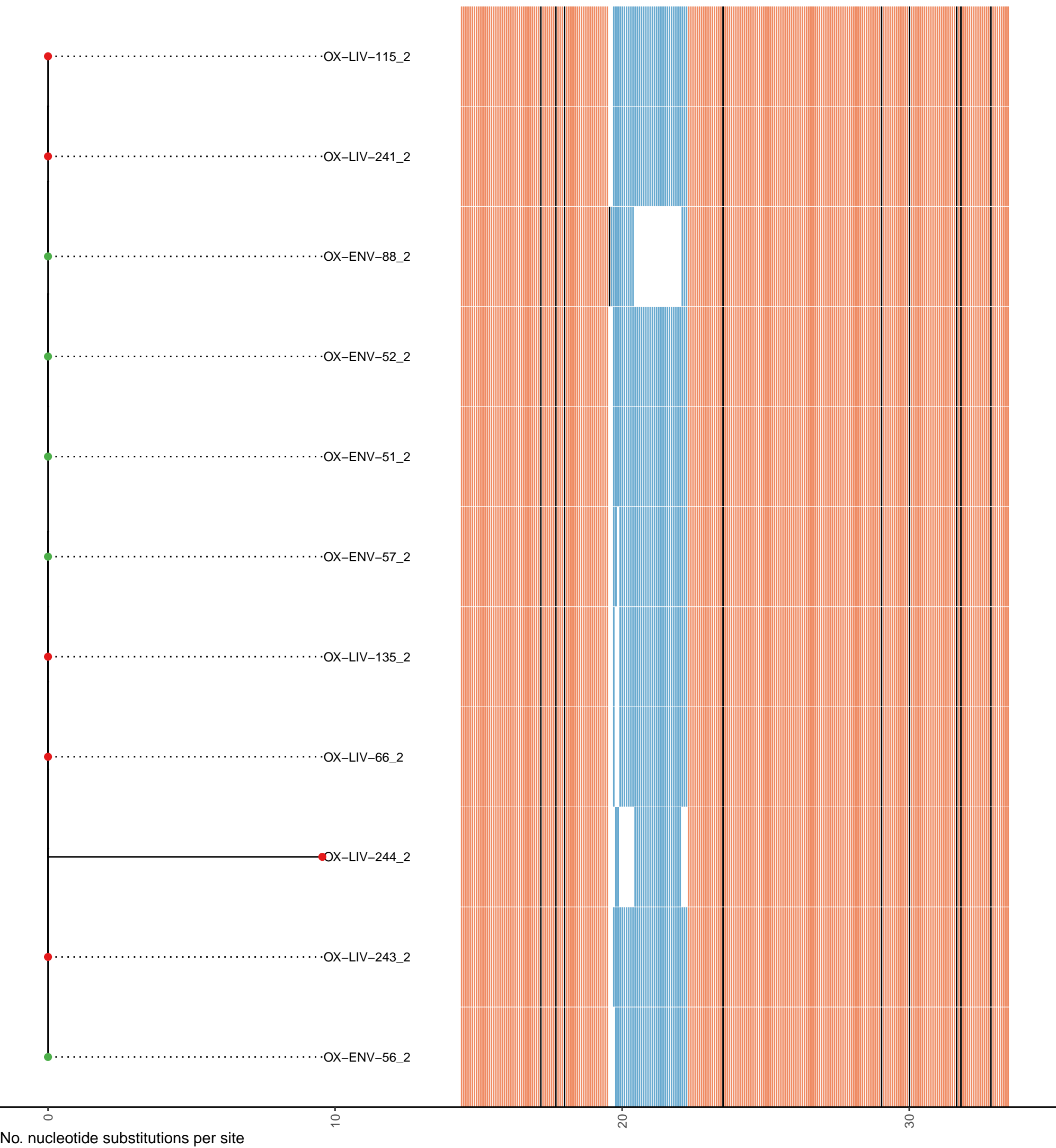
- Absent
- Core
- Accessory
- Transposase

Compartment

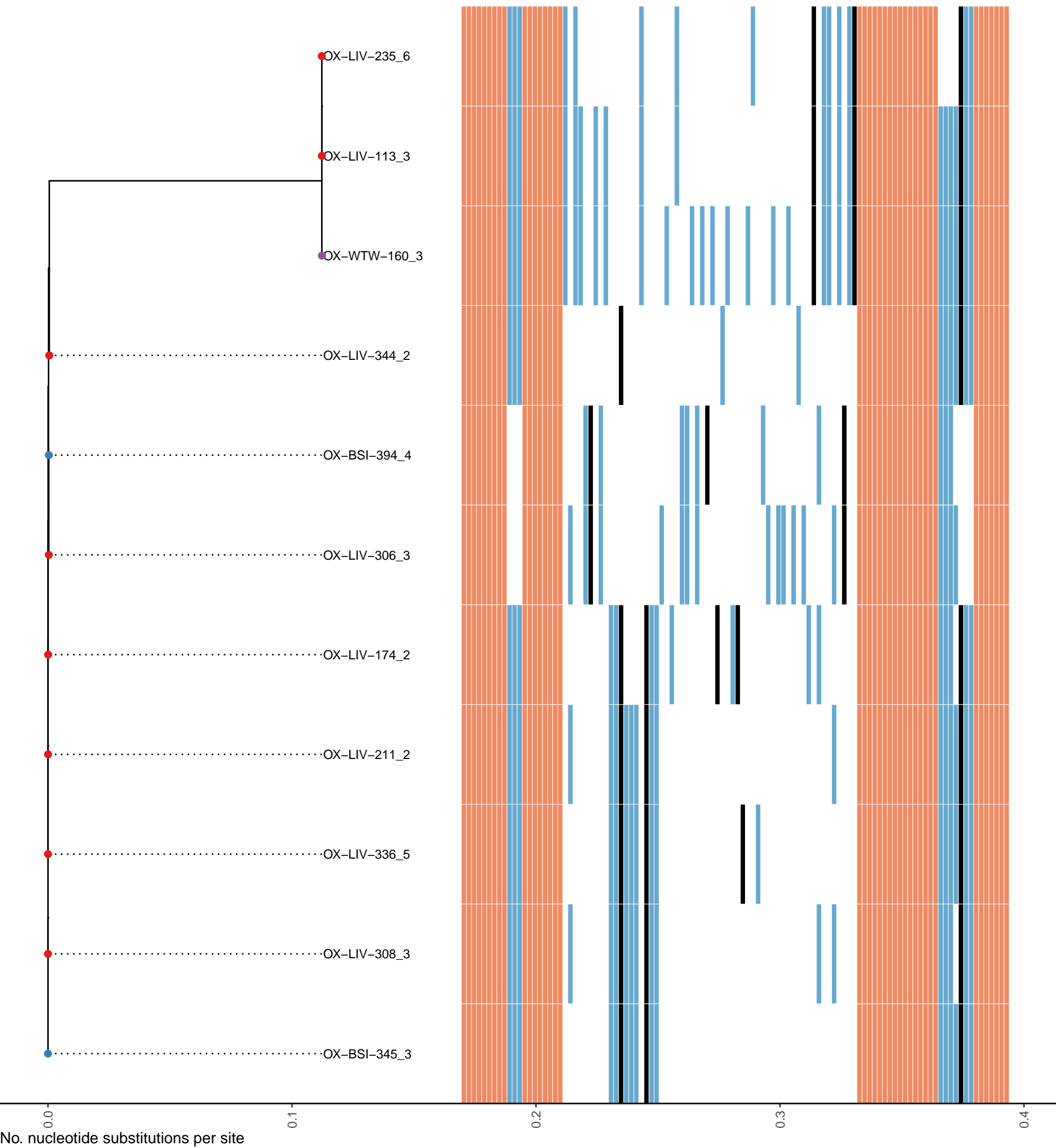
- BSI
- Environmental
- Livestock
- WwTW

No. nucleotide substitutions per site

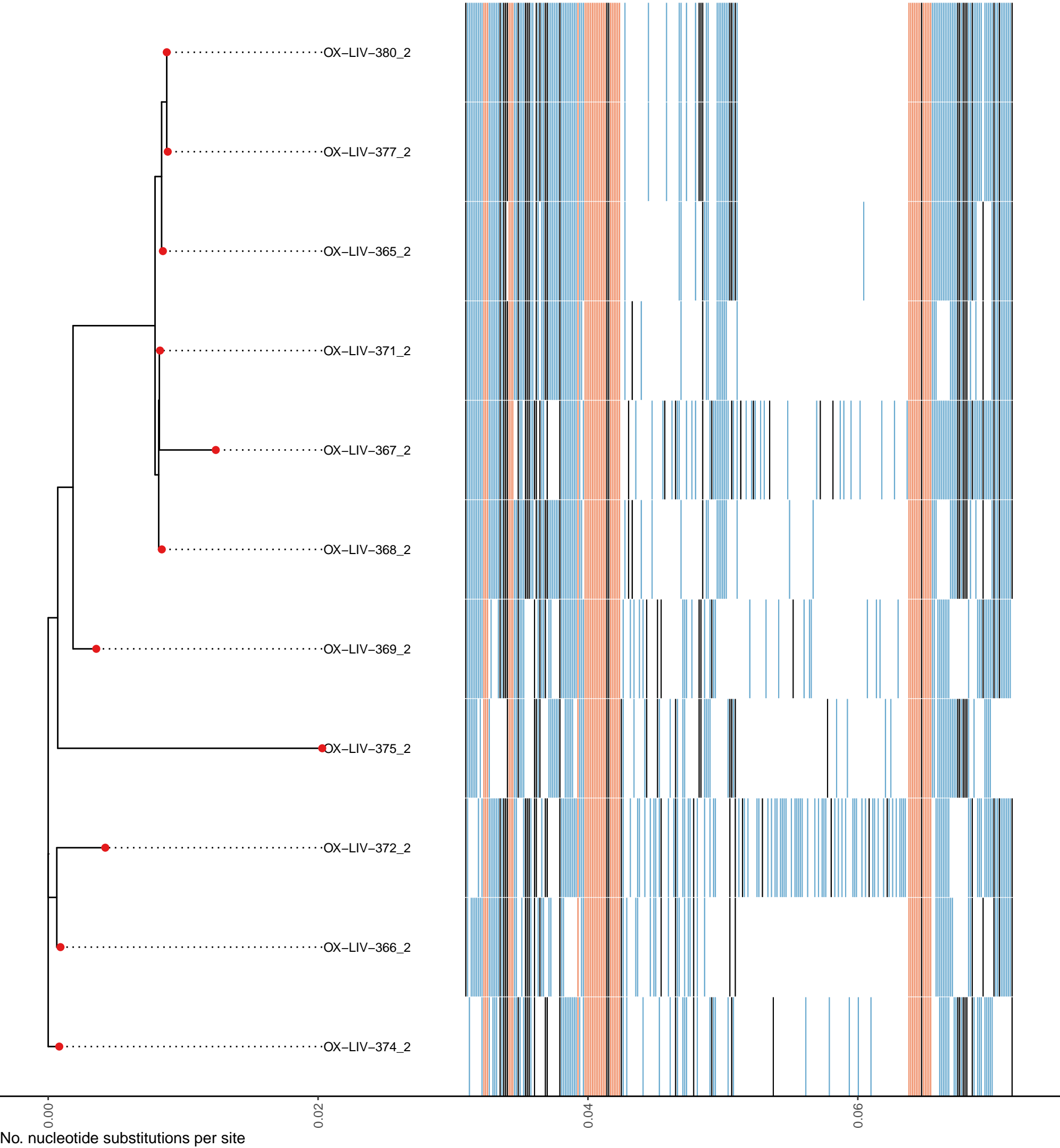
Cluster 57
210 core genes
46 accessory genes



Cluster 58
40 core genes
68 accessory genes



Cluster 59
37 core genes
266 accessory genes



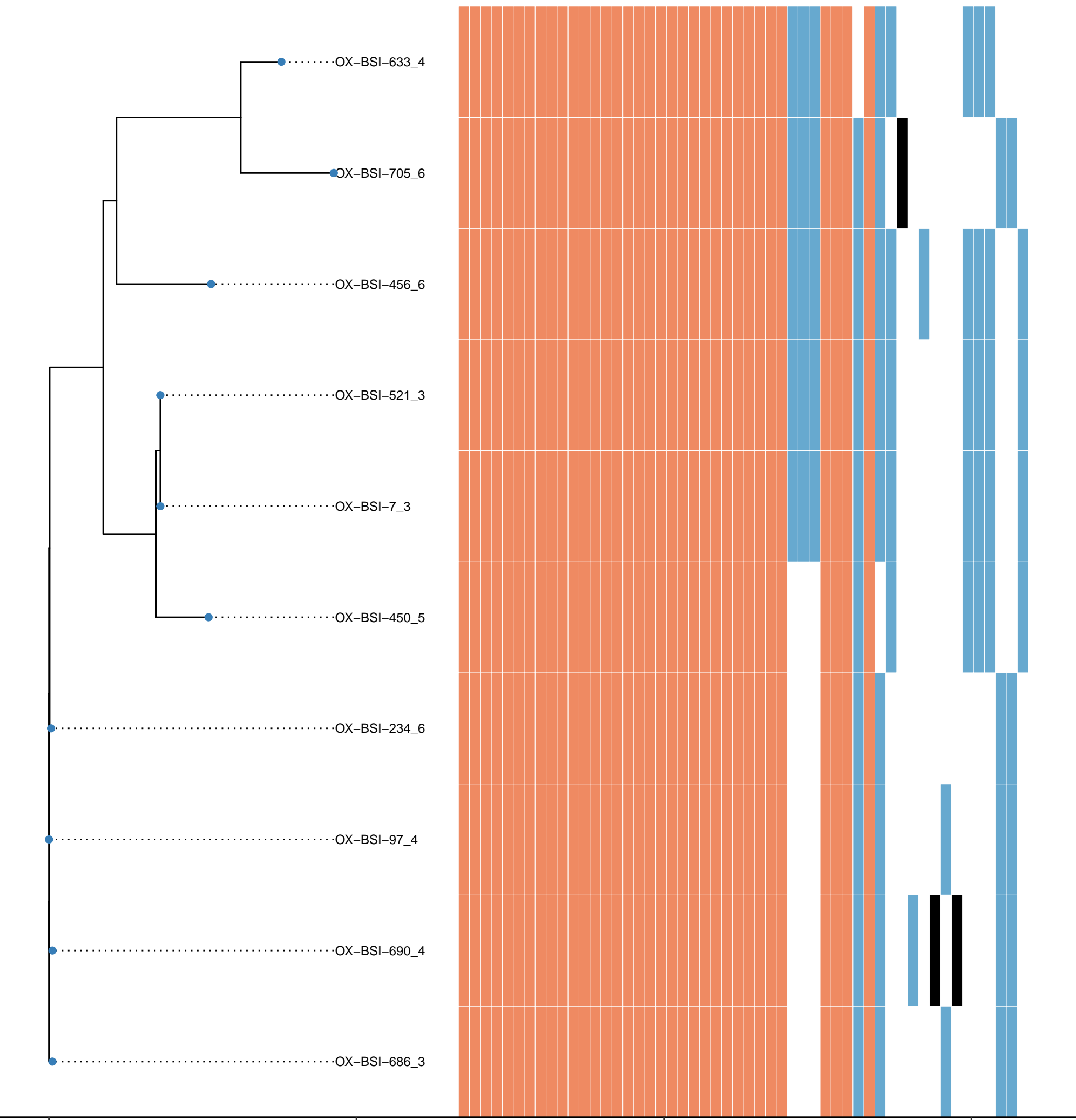
Gene type

- Absent
- Core
- Accessory
- Transposase

Compartment

- BSI
- Environmental
- Livestock
- WwTW

Cluster 60
34 core genes
18 accessory genes



Gene type

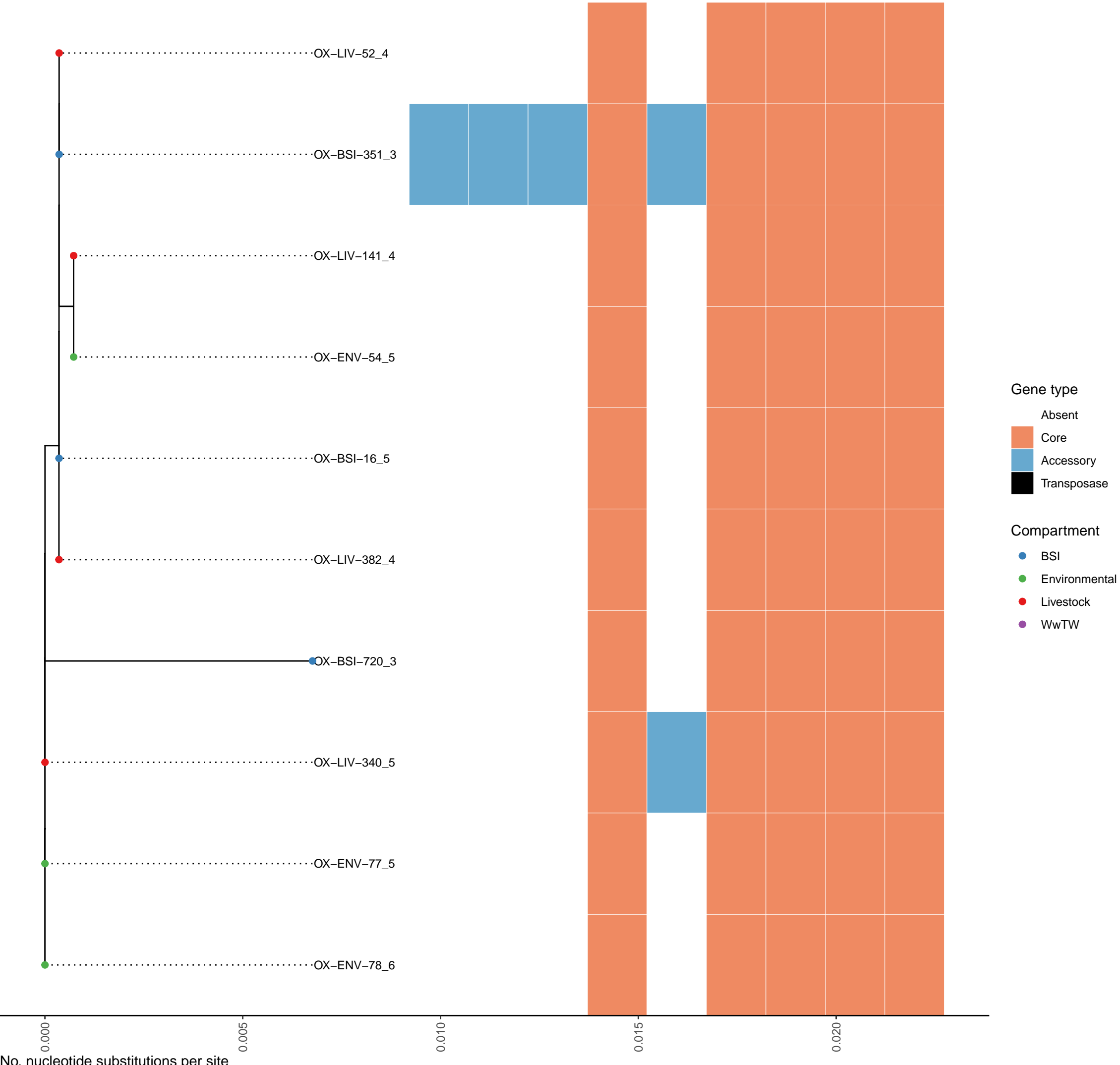
- Absent
- Core
- Accessory
- Transposase

Compartment

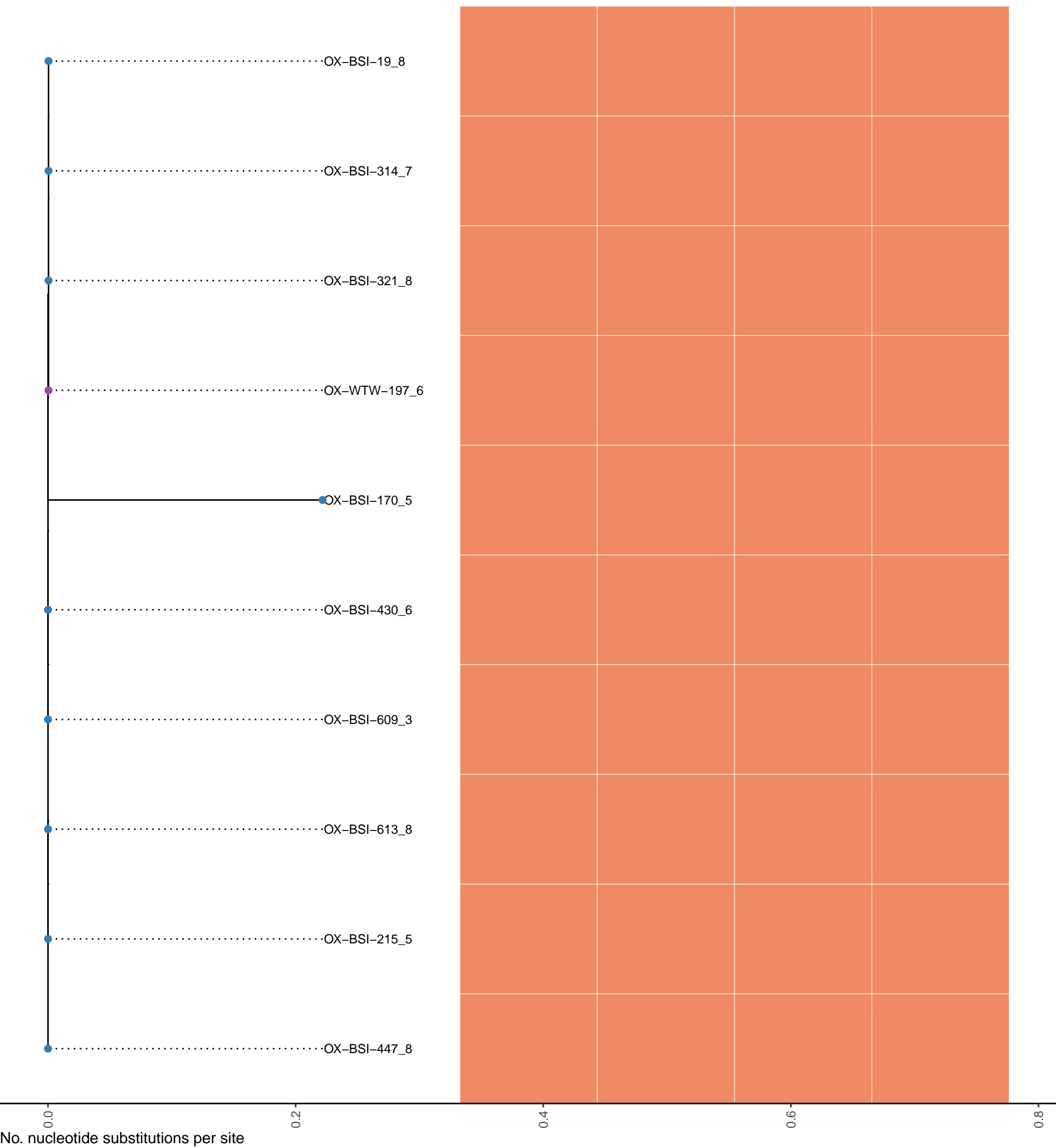
- BSI
- Environmental
- Livestock
- WwTW

No. nucleotide substitutions per site

Cluster 61
5 core genes
4 accessory genes



Cluster 62
4 core genes
0 accessory genes



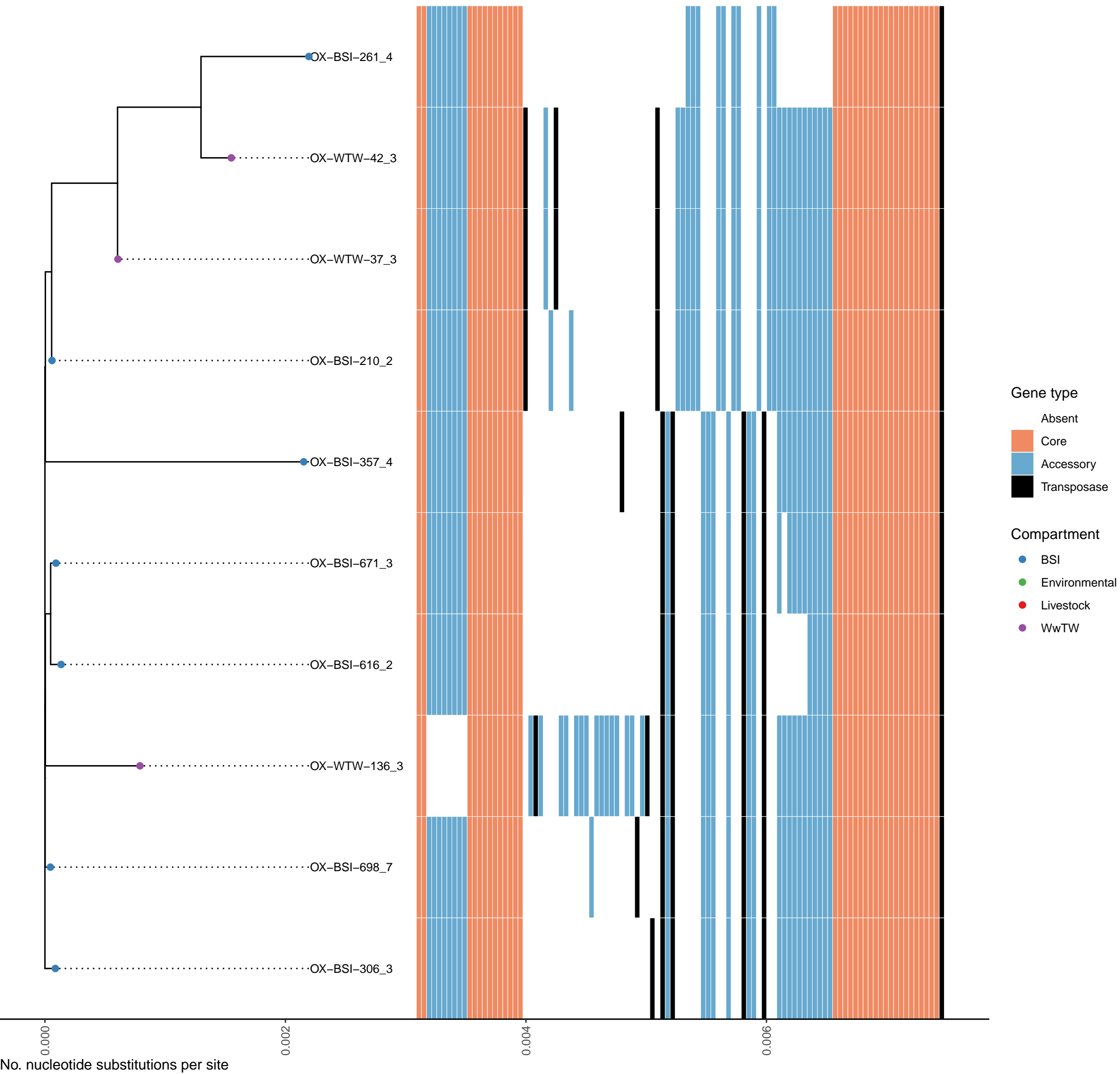
Gene type

- Absent
- Core
- Accessory
- Transposase

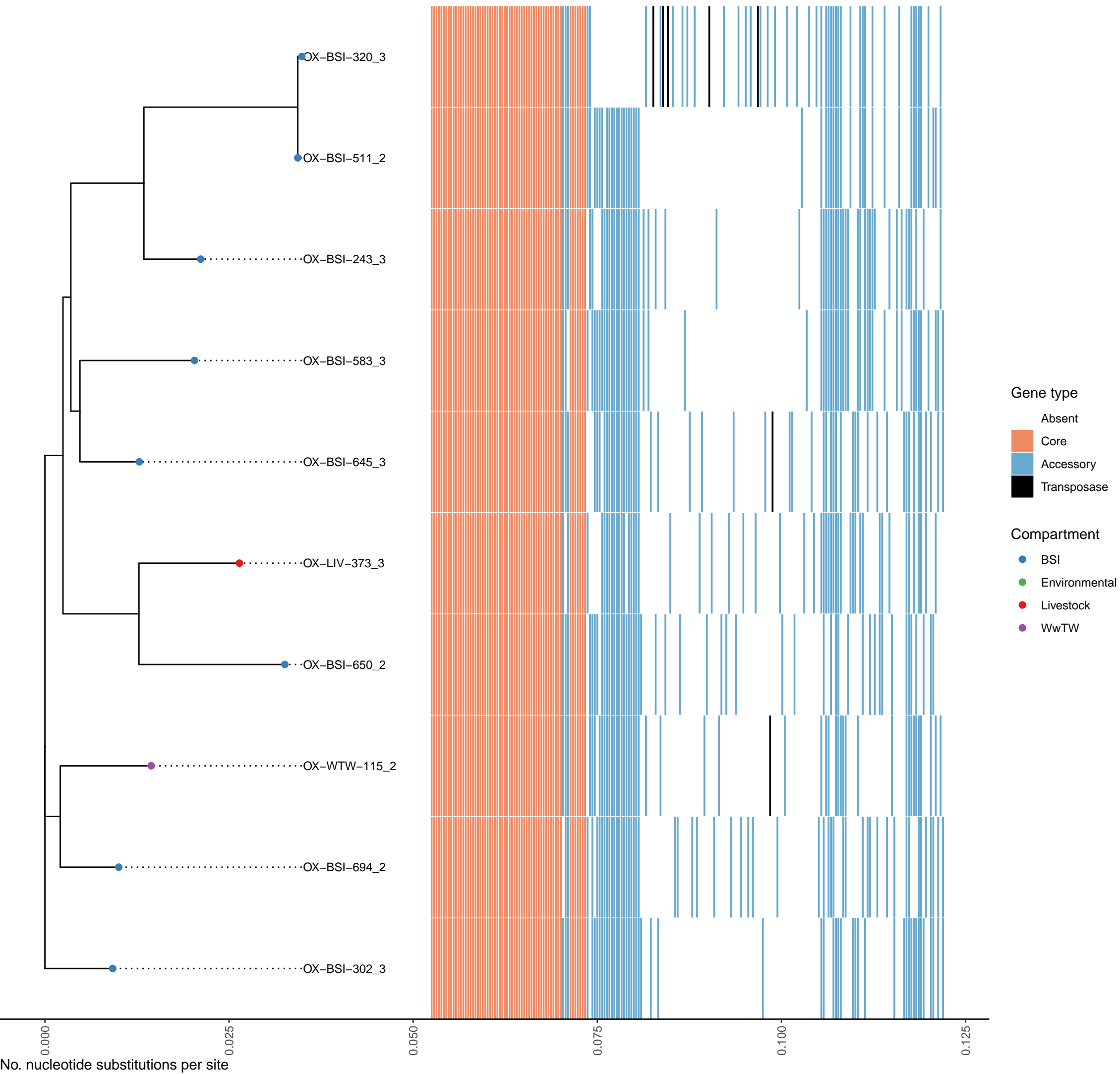
Compartment

- BSI
- Environmental
- Livestock
- WwTW

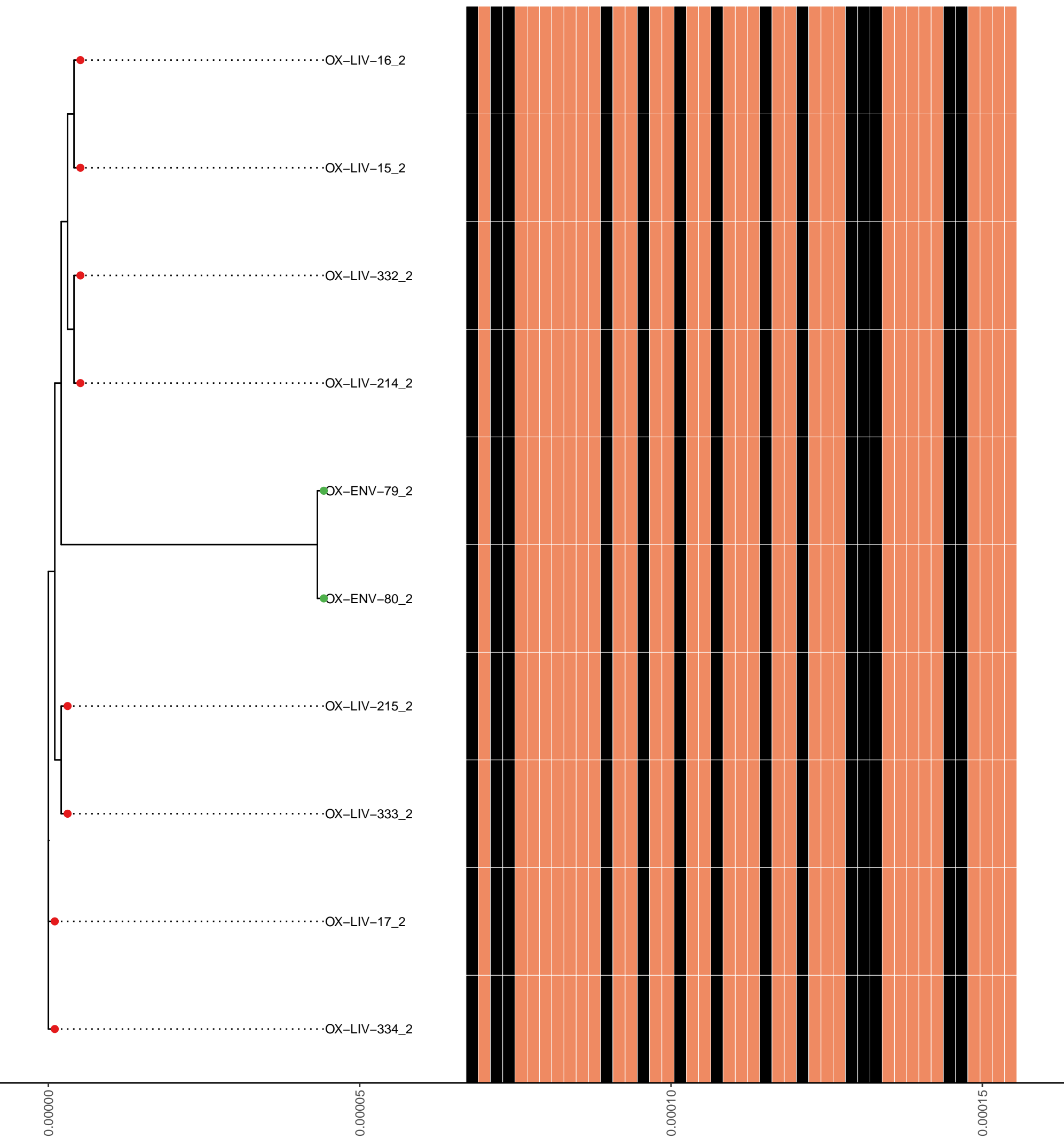
Cluster 63
34 core genes
70 accessory genes



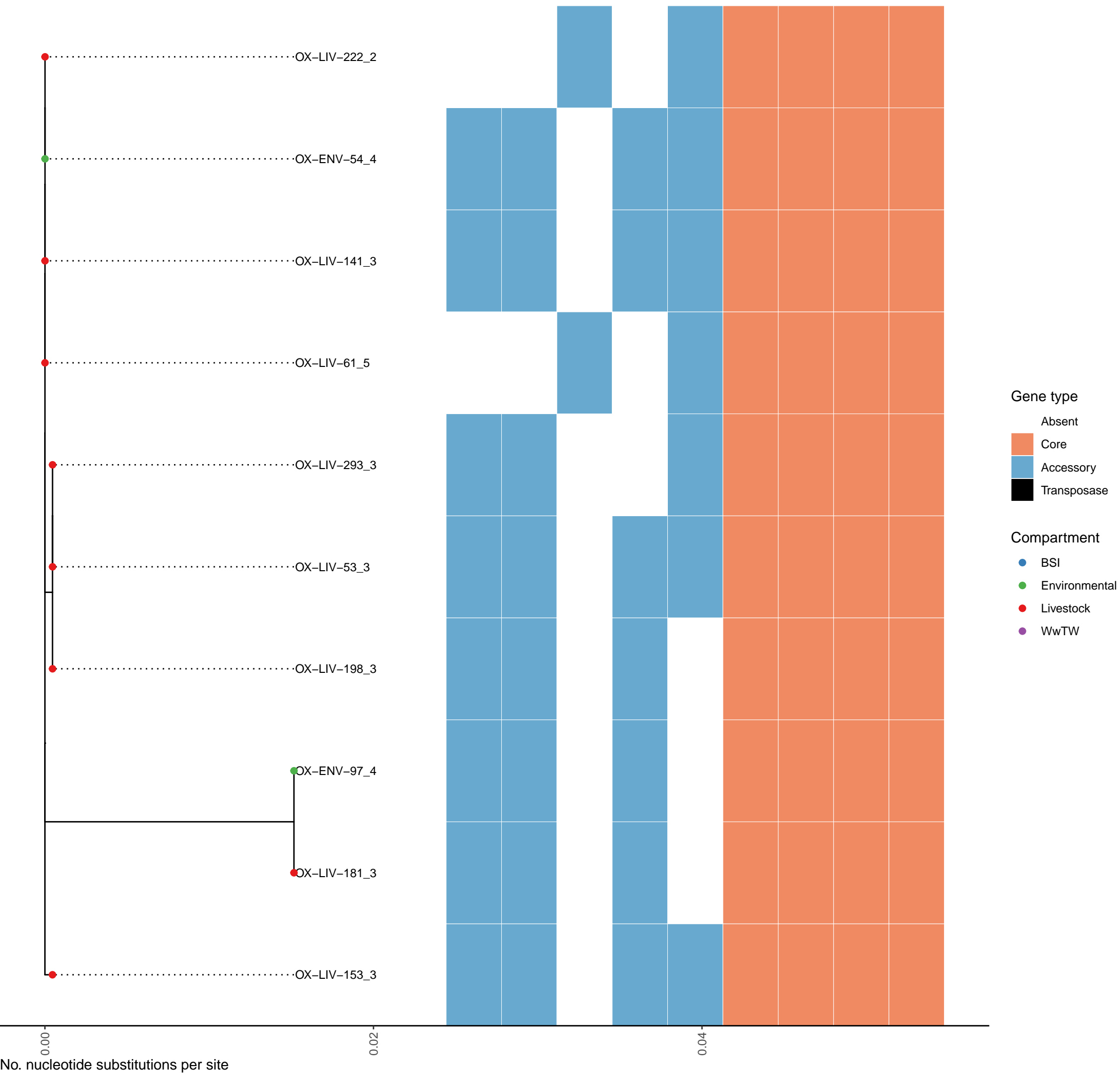
Cluster 64
61 core genes
150 accessory genes



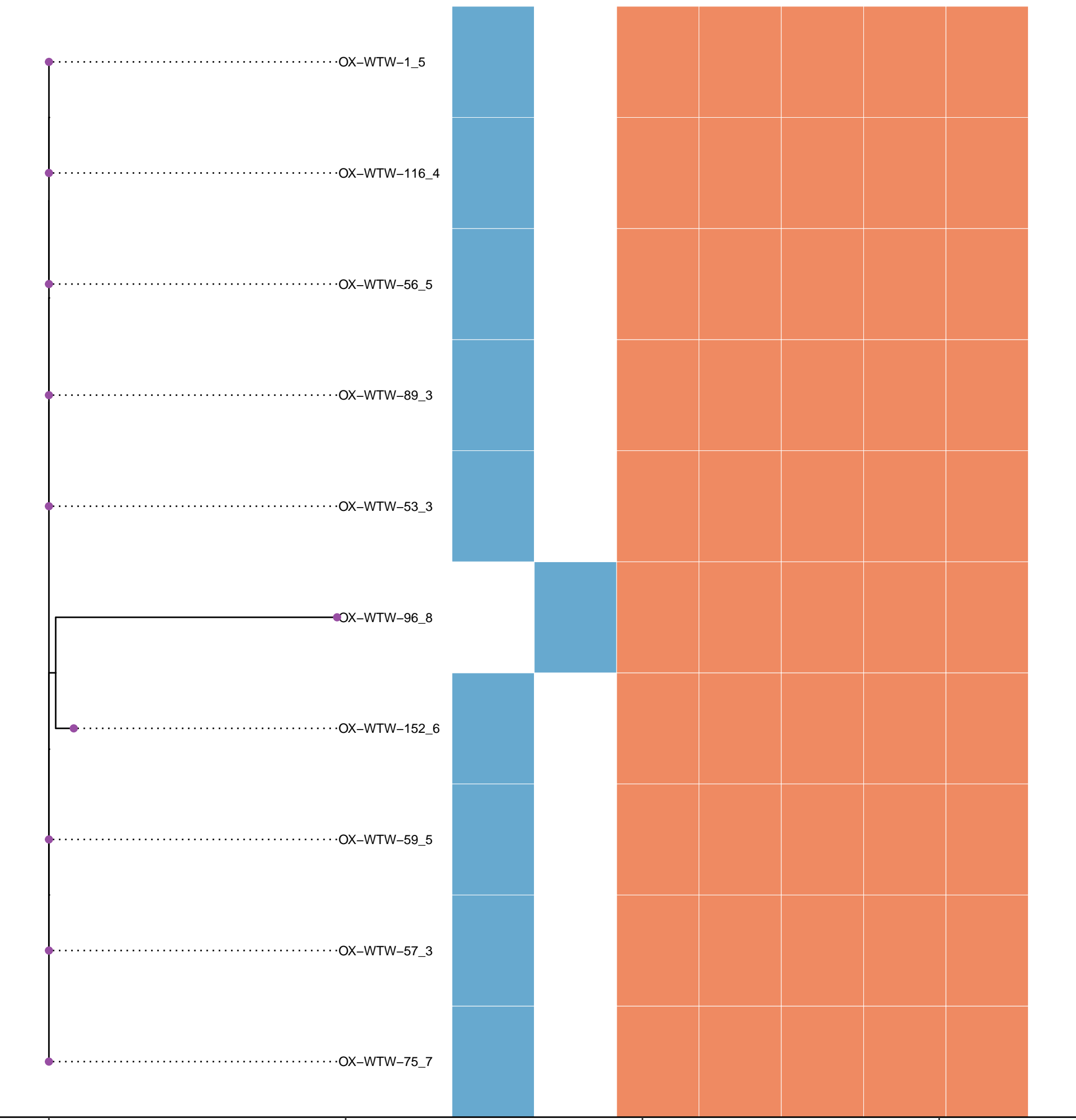
Cluster 66
31 core genes
14 accessory genes



Cluster 67
4 core genes
5 accessory genes



Cluster 68
5 core genes
2 accessory genes



Gene type

- Absent
- Core
- Accessory
- Transposase

Compartment

- BSI
- Environmental
- Livestock
- WwTW

No. nucleotide substitutions per site

Cluster 69
3 core genes
3 accessory genes

