

Supplementary data

Table S1: Data of all *C. perfringens* isolates and vaccine strains individually. *
h stands for healthy and e for enterotoxaemia affected*

isolate	toxin type	isolation date	host	$\beta 2$	<i>cpe</i>	<i>netB</i>	<i>tpeL</i>	<i>tcpH</i>	Health status*
1	C	2009	sheep	+	–	–	+	+	e
2	A	2009	sheep	+	–	–	–	+	e
3	D	2009	goat	+	–	–	–	+	e
4	D	2010	goat	+	–	–	–	+	e
5	A	2014	goat	+	–	–	+	+	h
6	A	2014	sheep	–	–	–	–	–	h
7	A	2015	sheep	+	–	–	–	+	h
8	A	2016	cattle	–	–	–	–	+	h
9	A	2016	cattle	–	–	–	–	–	h
10	A	2016	cattle	+	–	–	–	+	h
11	A	2016	sheep	–	–	–	–	+	h
12	A	2017	sheep	+	–	–	–	+	h
13	A	2017	sheep	–	–	–	+	+	h
14	A	2015	cattle	–	–	–	–	–	h
15	A	2015	sheep	+	–	–	–	+	h
16	A	2016	goat	–	–	–	–	+	h
17	A	2016	sheep	+	–	–	–	–	h
18	A	2016	sheep	+	–	–	+	+	h
19	A	2017	sheep	–	–	–	–	–	h
20	D	2015	sheep	+	–	–	–	+	h
21	A	2016	sheep	+	–	–	–	+	h
22	A	2016	goat	+	–	–	–	+	h
23	A	2016	cattle	+	–	–	–	+	h
24	D	2016	goat	+	–	–	–	+	e
25	A	2016	sheep	+	–	–	–	+	h
26	A	2016	sheep	+	–	–	–	+	h
27	A	2016	goat	–	–	–	–	+	h
28	A	2016	cattle	+	–	–	–	+	h
29	A	2016	sheep	–	–	–	–	+	h
30	A	2016	goat	–	–	–	–	–	h
31	A	2016	cattle	+	–	–	–	+	h
32	A	2017	goat	–	–	–	–	–	h

33	A	2018	goat	+	-	-	-	+	h
34	A	2018	sheep	-	-	-	-	+	h
35	A	2017	sheep	-	-	-	-	+	h
36	D	2009	cattle	+	-	-	-	+	e
37	D	2018	goat	+	-	-	-	+	e
38	A	2019	sheep	+	-	-	-	+	e
39	A	2019	sheep	+	-	-	+	+	h
40	A	2019	goat	+	-	-	-	+	h
41	A	2020	goat	+	-	-	-	+	h
42	A	2020	sheep	+	-	-	-	+	h
43	A	2020	sheep	+	-	-	-	+	h
44	A	2020	sheep	+	-	-	-	+	h
45	A	2020	sheep	-	-	-	-	+	h
46	A	2020	sheep	+	-	-	-	+	h
47	A	2020	sheep	+	-	-	-	-	h
48	A	2020	sheep	+	-	-	-	+	h
49	A	2020	goat	-	-	-	-	+	h
50	D	2020	sheep	+	-	-	-	+	e
51	A	2021	sheep	+	-	-	-	+	e
52	A	2021	sheep	-	-	-	-	+	e
53	D	2021	goat	+	-	-	-	+	e
54	A	2021	sheep	+	-	-	-	+	e
55	A	2021	sheep	+	-	-	-	+	e
56	A	2021	sheep	+	-	-	-	-	e
57	A	2021	sheep	+	-	-	-	+	e
58	A	2021	jebeer	+	-	-	-	+	e
59	A	2022	sheep	+	-	+	-	+	e
60	A	2022	sheep	+	-	+	-	+	e
61	D	2022	sheep	+	-	-	-	+	e
62	D	2022	sheep	+	-	-	-	+	e
63	D	2022	sheep	-	-	-	-	+	e
64	A	2022	sheep	+	-	-	-	+	e
65	D	2022	sheep	+	-	-	-	+	e
66	D	2022	sheep	+	-	-	-	+	e
67	D	2022	sheep	+	+	-	-	+	e
68(vaccine)	D			-	-	-	-	+	vaccine
69(vaccine)	B			+	-	-	+	+	vaccine
70(vaccine)	C			-	-	-	+	+	vaccine

71	A	2022	sheep	+	-	-	-	+	e
72	A	2022	sheep	-	-	-	-	-	h
73	A	2022	sheep	-	-	-	-	+	h

Table S2: supplementary table showing the results of determining tandem repeat sequences and copy number for one isolate in locus cp6

Indices	Period Size	Copy Number	Consensus Size	Percent Matches	Percent Indels	Score	A	C	G	T	Entropy (0-2)
1-47	18	2.6	18	79	0	58	27	27	29	14	1.96
78-103	9	2.9	9	94	0	43	11	23	34	30	1.90
11-135	9	2.8	9	81	0	32	36	24	28	12	1.91
141-170	9	3.3	9	73	17	35	16	40	30	13	1.87
158-200	18	2.4	18	84	0	59	30	25	27	16	1.97
159-259	45	2.2	45	77	6	105	22	25	29	21	1.99
237-416	18	10.5	18	67	16	87	17	31	26	25	1.97
237-422	45	4.1	45	75	5	142	17	31	26	24	1.97