

Supplementary table 1. Distribution and statistical differences of NHA isolates among clusters in different geographical region.

Geographical Region	Cluster 1 N (%)	Cluster 2 N (%)	Cluster 3 N (%)	Cluster 4 N (%)	Cluster 5 N (%)	Cluster 6 N (%)	Cluster 7 N (%)
North America	15 ^{c, d 1} (8.7)	190 ^{a, c} (36.1)	88 ^{a, d} (21.4)	46 ^a (69.6)	166 ^f (86.9)	0 ^b (0.0)	90 ^a (13.1)
Europe	8 ^c (4.7)	214 ^b (40.7)	49 ^{c, d} (11.9)	5 ^b (7.6)	0 ^{b, e} (0.0)	0 ^{a, b} (0.0)	214 ^b (31.2)
Other Asia ²	10 ^{a, d} (5.8)	48 ^{a, b, c} (9.1)	54 ^b (13.1)	0 ^b (0.0)	11 ^c (5.8)	0 ^{a, b} (0.0)	12 ^a (1.7)
China	131 ^b (76.1)	38 ^d (7.2)	201 ^b (48.8)	10 ^b (15.2)	12 ^{d, e} (6.3)	3 ^{a, b} (75)	290 ^b (42.2)
Oceania	0 ^{c, d} (0.)	16 ^c (3)	1 ^c (0.2)	0 ^{a, b} (0.0)	0 ^{a, b, c, d, e} (0.0)	0 ^{a, b} (0.0)	68 ^c (9.9)
South America	0 ^{a, b, c, d} (0.0)	5 ^{a, b, c} (0.9)	4 ^{a, b, d} (1)	0 ^{a, b} (0.0)	1 ^{a, c, d, f} (0.5)	0 ^{a, b} (0.0)	3 ^{a, b} (0.4)
Africa	8 ^{a, b} (4.7)	16 ^c (3.0)	15 ^{a, b} (3.6)	5 ^a (7.6)	1 ^{a, b, c, d, e} (0.5)	1 ^a (25)	10 ^a (1.5)
Total	172 (100)	527 (100)	412 (100)	66 (100)	191 (100)	4 (100)	687 (100)

¹ Values with different superscripts among lines statistically differ at χ^2 test or Fisher's exact test ($\alpha=0.05$).

² Other Asia includes: Saudi Arabia, Bangladesh, Cambodia, United Arab Emirates, Jordan, Hong Kong, Kazakhstan, Kuwait, Lebanon, Nepal, Oman, Pakistan, Russia, Singapore, Syria, Sri Lanka, South Korea, Thailand, Taiwan, Turkey and Viet Nam.

Supplementary table 2. Distribution and statistical differences of NHA isolates among European countries.

State	Cluster 1 N (%)	Cluster 2 N (%)	Cluster 3 N (%)	Cluster 4 N (%)	Cluster 5 N (%)	Cluster 6 N (%)	Cluster 7 N (%)
United Kingdom	1 ^{a 1} (12.5)	52 ^a (24.4)	17 ^a (34.7)	0 ^a (0.0)	-	-	3 ^d (1.4)
Other Europe ²	3 ^a (37.5)	82 ^a (38.3)	16 ^a (32.7)	4 ^a (80)	-	-	24 ^{a, d} (11.2)
Germany	4 ^a (50)	0 ^c (0.0)	0 ^b (0.0)	0 ^a (0.0)	-	-	131 ^c (61.3)
Denmark	0 ^a (0.0)	1 ^{a, b} (0.5)	0 ^{a, b} (0.0)	0 ^a (0.0)	-	-	2 ^{a, b, c} (0.9)
Netherlands	0 ^a (0.0)	8 ^a (3.7)	0 ^{a, b} (0.0)	0 ^a (0.0)	-	-	0 ^{a, b, d} (0.0)
Switzerland	0 ^a (0.0)	48 ^{a, b} (22.4)	5 ^{a, b} (10.2)	1 ^a (20)	-	-	27 ^{a, b} (12.6)
Italy	0 ^a (0.0)	23 ^b (10.7)	11 ^a (22.4)	0 ^a (0.0)	-	-	27 ^b (12.6)
Total	8 (100)	214 (100)	49 (100)	5 (100)	-	-	214 (100)

¹ Values with different superscripts among rows statistically differ at χ^2 test or Fisher's exact test ($\alpha=0.05$).

² Other Europe includes: Austria, Belgium, Belarus, Croatia, Finland, Greece, Latvia, Lithuania, Luxembourg, Poland, Portugal, Czech Republic, Romania, Serbia, Slovenia and Hungary.

Supplementary table 3. Distribution and statistical differences of NHA isolates among clusters in USA countries.

State	Cluster 1 N (%)	Cluster 2 N (%)	Cluster 3 N (%)	Cluster 4 N (%)	Cluster 5 N (%)	Cluster 6 N (%)	Cluster 7 N (%)
Other States ¹	0 ^{b, 2} (0.0)	41 ^{b, c} (73.2)	67 ^b (79.8)	17 ^{b, c} (38.6)	53 ^b (31.9)	-	65 ^b (83.4)
New York	4 ^a (26.7)	8 ^{a, c} (14.3)	9 ^{a, b} (10.7)	1 ^c (2.3)	43 ^a (25.9)	-	9 ^{a, b} (11.5)
Pennsylvania	0 ^a (0.0)	1 ^{b, c} (1.8)	0 ^{a, b} (0.0)	1 ^{a, b} (2.3)	0 ^{a, b} (0.0)	-	0 ^{a, b} (0.0)
Maryland	11 ^a (73.3)	4 ^a (7.1)	8 ^a (9.5)	25 ^a (56.8)	70 ^a (42.2)	-	3 ^a (3.8)
Michigan	0 ^{a, b} (0.0)	2 ^b (3.6)	0 ^{a, b} (0.0)	0 ^{a, b, c} (0.0)	0 ^{a, b} (0.0)	-	1 ^b (1.3)
Total	15 (100)	56 (100)	84 (100)	44 (100)	166 (100)	-	78 (100)

¹ Other states includes: Alabama, Alaska, Arizona, Arkansas, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maine, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, North Dakota, Oklahoma, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming.

² Values with different superscripts among lines statistically differ at χ^2 test or Fisher's exact test ($\alpha=0.05$).