

## HIVDB algV8\_9 => algV9\_0 Changes

At least 200 patterns were affected. Due to 58 changed rules listed below:

- Added new rule **G140R**, with scores 10 (BIC), 10 (DTG), 30 (EVG), 30 (RAL), 60 (CAB).
- Added new rule **F121C**, with scores 15 (BIC), 15 (DTG), 60 (EVG), 60 (RAL), 60 (CAB).
- Changed scores of rule **H51Y**: 0 to 15 (CAB).
- Changed scores of rule **T66I**: 0 to 10 (CAB).
- Changed scores of rule **T66K**: 0 to 20 (CAB).
- Changed scores of rule **E92G**: 0 to 10 (CAB).
- Changed scores of rule **E92Q**: 0 to 15 (CAB).
- Changed scores of rule **E92V**: 0 to 10 (CAB).
- Changed scores of rule **G118R**: 30 to 50 (DTG), 30 to 60 (EVG), 30 to 60 (RAL), 0 to 60 (CAB).
- Changed scores of rule **F121Y**: 0 to 15 (CAB).
- Changed scores of rule **E138A**: 0 to 10 (CAB).
- Changed scores of rule **E138K**: 0 to 10 (CAB).
- Changed scores of rule **E138T**: 0 to 10 (CAB).
- Changed scores of rule **G140A**: 0 to 10 (CAB).
- Changed scores of rule **G140C**: 0 to 10 (CAB).
- Changed scores of rule **G140S**: 0 to 10 (CAB).
- Changed scores of rule **Y143A**: 0 to 10 (CAB).
- Changed scores of rule **Y143C**: 0 to 10 (CAB).
- Changed scores of rule **Y143G**: 0 to 10 (CAB).
- Changed scores of rule **Y143H**: 0 to 10 (CAB).
- Changed scores of rule **Y143K**: 0 to 10 (CAB).
- Changed scores of rule **Y143R**: 0 to 10 (CAB).
- Changed scores of rule **Y143S**: 0 to 10 (CAB).
- Changed scores of rule **Q146P**: 0 to 30 (CAB).
- Changed scores of rule **S147G**: 0 to 10 (BIC), 0 to 10 (DTG), 0 to 10 (RAL), 0 to 10 (CAB).
- Changed scores of rule **Q148H**: 0 to 30 (CAB).
- Changed scores of rule **Q148K**: 0 to 50 (CAB).
- Changed scores of rule **Q148N**: 10 to 15 (RAL), 0 to 15 (CAB).
- Changed scores of rule **Q148R**: 0 to 40 (CAB).
- Changed scores of rule **V151L**: 0 to 15 (CAB).
- Changed scores of rule **S153F**: 15 to 25 (EVG), 0 to 10 (RAL), 0 to 25 (CAB).
- Changed scores of rule **S153Y**: 15 to 25 (EVG), 0 to 10 (RAL), 0 to 25 (CAB).
- Changed scores of rule **N155H**: 0 to 25 (CAB).
- Changed scores of rule **N155S**: 0 to 15 (CAB).
- Changed scores of rule **N155T**: 0 to 15 (CAB).
- Changed scores of rule **S230R**: 0 to 20 (CAB).
- Changed scores of rule **R263K**: 0 to 30 (CAB).
- Changed scores of rule **G118R + E138AKT**: 0 to 10 (CAB).
- Changed scores of rule **E138AKT + G140ACS**: 0 to 15 (CAB).
- Changed scores of rule **E138AKT + Q148HKR**: 0 to 20 (CAB).
- Changed scores of rule **G140ACS + Q148HKR**: 0 to 20 (CAB).
- Changed scores of rule **G140ACS + Q148HKR + G149A**: 0 to 10 (CAB).
- Changed scores of rule **Y143ACGHRS + G163R**: 0 to 5 (CAB).
- Changed scores of rule **Y143ACGHRS + S230R**: 0 to 5 (CAB).
- Changed scores of rule **S147G + Q148HKR**: 0 to 20 (CAB).
- Changed scores of rule **Q148HKR + N155H**: 0 to 20 (CAB).

- Changed scores of rule **Q148HKR + G163KR**: 0 to 20 (CAB).
- Changed scores of rule **S147G + N155H**: 0 to 25 (CAB).
- Changed scores of rule **N155H + R263K**: 0 to 20 (CAB).
- Changed scores of rule **E157Q + R263K**: 0 to 10 (CAB).
- Changed scores of rule **H51Y + R263K**: 0 to 10 (CAB).
- Changed scores of rule **L74FIM + G118R**: 0 to 10 (CAB).
- Changed scores of rule **L74FIM + Y143ACGHR**: 0 to 10 (CAB).
- Changed scores of rule **L74FIM + Q148HKR**: 0 to 15 (CAB).
- Changed scores of rule **E92Q + N155H**: 0 to 20 (CAB).
- Changed scores of rule **T97A + G118R**: 0 to 10 (CAB).
- Changed scores of rule **T97A + Y143ACGHR**: 0 to 5 (CAB).
- Changed scores of rule **T97A + Q148HKR**: 0 to 20 (CAB).

pattern	count	BIC	DTG	EVG	RAL	CAB
G140S + Q148H	181	45	45	90	90	0 => 60
N155H	108	10	10	60	60	0 => 25
N155H + D232N	38	10	10	70	70	0 => 25
N155H + G163R	28	10	10	75	75	0 => 25
N155H + E157Q	23	10	10	70	70	0 => 25
E138K	21	10	10	15	15	0 => 10
E138A + G140S + Q148H	19	75	75	120	120	0 => 105
T97A + Y143R	19	5	5	25	70	0 => 15
E138K + G140S + Q148H	15	75	75	120	120	0 => 105
E92Q	15	10	10	60	30	0 => 15
R263K	15	30	30	30	25	0 => 30
T97A + N155H	15	10	10	70	70	0 => 25
Y143R	15	5	5	10	60	0 => 10
E92Q + N155H	14	30	30	130	100	0 => 60
G140S + Q148R	10	45	45	90	90	0 => 70
E138K + Q148R	9	45	45	75	75	0 => 70
N155H + E157Q + D232N	9	10	10	80	80	0 => 25
Q148R	9	25	25	60	60	0 => 40
L74M + T97A + Y143R	8	10	10	30	70	0 => 25
N155H + G163K	8	10	10	75	75	0 => 25
T66I	8	5	5	60	15	0 => 10
G140S + Q148H + D232N	7	45	45	100	100	0 => 60
L74I + G140S + Q148H	7	60	60	105	105	0 => 75
L74M + Y143R	7	10	10	15	60	0 => 20
E138K + S147G + Q148R	6	60 => 70	60 => 70	135	75 => 85	0 => 100
G140A + Q148R	6	45	45	90	90	0 => 70
S153F	6	15	15	15 => 25	0 => 10	0 => 25
T97A + Y143C + S230R	6	20	30	50	90	0 => 40
T97A + Y143R + G163R	6	10	10	45	85	0 => 20
E138T + G140S + Q148H	5	75	75	120	120	0 => 105
L74M + G140S + Q148H	5	60	60	105	105	0 => 75
L74M + Q95K + T97A + Y143R	5	10	10	40	80	0 => 25
N155H + E157Q + G163K	5	10	10	85	85	0 => 25
N155H + G163R + D232N	5	10	10	85	85	0 => 25
Y143C + N155H + S230R	5	30	40	95	140	0 => 60
E138A + G140A + Q148R	4	75	75	120	120	0 => 115
E92Q + T97A	4	10	10	70	40	0 => 15
H51Y	4	10	10	15	15	0 => 15
L74M + T97A + Y143C + S230R	4	25	35	55	90	0 => 50
N155H + S230R	4	20	30	80	80	0 => 45
S230R	4	10	20	20	20	0 => 20
E138A	3	10	10	15	15	0 => 10
E138K + G140C + Q148R	3	75	75	120	120	0 => 115
E92G	3	0	0	30	15	0 => 10
G140S + Q148H + G163R	3	50	50	105	105	0 => 80
G140S + Q148H + N155H	3	75	75	150	150	0 => 105
G140S + Y143H + Q148H	3	50	50	100	150	0 => 70
L74I + G140S + Q148R	3	60	60	105	105	0 => 85
L74I + T97A + Y143R	3	10	10	30	70	0 => 25
L74I + T97A + Y143R + E157Q	3	10	10	40	80	0 => 25
L74M + T97A + Y143G	3	10	10	30	70	0 => 25
L74M + T97A + Y143R + E157Q	3	10	10	40	80	0 => 25

Q148H	3	25	25	60	60	0 => 30
Q148R + N155H	3	55	55	120	120	0 => 85
S147G	3	0 => 10	0 => 10	60	0 => 10	0 => 10
T97A + E138K	3	10	10	25	25	0 => 10
T97A + E138K + S147G + N155H + E157Q	3	30 => 40	30 => 40	165	95 => 105	0 => 70
T97A + N155H + D232N	3	10	10	80	80	0 => 25
T97A + N155H + G163R	3	10	10	85	85	0 => 25
Y143C + S230R	3	20	30	35	80	0 => 35
D232N + R263K	2	30	30	40	35	0 => 30
E138K + G140A + Q148K	2	80	80	120	120	0 => 125
E138K + G140A + Q148R + N155H	2	105	105	180	180	0 => 160
E92Q + G140S + Q148K + N155H	2	100	100	220	190	0 => 160
E92Q + G140S + Q148R + N155H	2	95	95	220	190	0 => 150
E92Q + N155H + D232N	2	30	30	140	110	0 => 60
E92Q + N155H + E157Q	2	30	30	140	110	0 => 60
E92Q + T97A + E157Q	2	10	10	80	50	0 => 15
F121Y	2	10	10	60	60	0 => 15
G140S + Q148H + E157Q	2	45	45	100	100	0 => 60
G140S + Q148N	2	10	10	45	40 => 45	0 => 25
H51Y + E92Q + G140S + Q148K + N155H	2	110	110	235	205	0 => 175
L74I + T97A + Y143C + S230R	2	25	35	55	90	0 => 50
L74M + T97A + Y143R + G163K	2	10	10	45	85	0 => 25
L74M + T97A + Y143S + S230R	2	25	35	55	90	0 => 50
Q95K + E138K + S147G + Q148R	2	60 => 70	60 => 70	145	85 => 95	0 => 100
Q95K + N155H	2	10	10	70	70	0 => 25
T66A + E92Q	2	10	10	120	45	0 => 15
T97A + F121Y	2	10	10	70	70	0 => 15
T97A + G140S + Q148H	2	60	60	100	100	0 => 80
T97A + Y143C	2	5	5	25	70	0 => 15
T97A + Y143C + G163R + S230R	2	25	35	70	105	0 => 45
V151L	2	15	15	60	30	0 => 15
Y143C	2	5	5	10	60	0 => 10
Y143C + G163R + S230R	2	25	35	55	95	0 => 40
Y143R + N155H	2	15	15	70	120	0 => 35
Y143S	2	5	5	10	60	0 => 10
E138A + G140S + Q148H + E157Q	1	75	75	130	130	0 => 105
E138A + G140S + Y143H + Q148H	1	80	80	130	180	0 => 115
E138A + Q148H + D232N	1	45	45	85	85	0 => 60
E138A + S147G + Q148R + N155H	1	100 => 110	100 => 110	205	135 => 145	0 => 170
E138K + G140A + Q148K + D232N	1	80	80	130	130	0 => 125
E138K + G140A + Q148K + N155H	1	110	110	180	180	0 => 170
E138K + G140S + Q148R	1	75	75	120	120	0 => 115
E138K + G140S + Q148R + G163R + D232N	1	80	80	145	145	0 => 135
E138K + G140S + S147G + Q148R	1	90 => 100	90 => 100	180	120 => 130	0 => 145
E138K + Q148R + N155H + G163K + D232N	1	80	80	160	160	0 => 135
E138K + S147G + Q148R + G163R	1	65 => 75	65 => 75	150	90 => 100	0 => 120
E138K + Y143C + N155H + G163R + S230R + D232N	1	45	55	140	180	0 => 75
E138K + Y143R + Q148R	1	50	50	85	135	0 => 80
E138T	1	10	10	15	15	0 => 10
E157Q + R263K	1	40	40	40	35	0 => 40
E92G + N155H	1	10	10	90	75	0 => 35
E92G + T97A + N155H + G163R	1	10	10	115	100	0 => 35
E92Q + E138K + N155H + D232N	1	40	40	155	125	0 => 70
E92Q + E138K + Y143C + N155H + S230R	1	60	70	180	195	0 => 105
E92Q + N155H + G163R + D232N	1	30	30	155	125	0 => 60
E92Q + Q95K + N155H	1	30	30	140	110	0 => 60
E92Q + T97A + N155H + D232N	1	30	30	150	120	0 => 60
E92Q + T97A + Y143H + N155H	1	35	35	155	170	0 => 75
E92Q + T97A + Y143R	1	15	15	85	100	0 => 30
E92Q + Y143H	1	15	15	70	90	0 => 25
E92V + N155H	1	10	10	120	90	0 => 35
F121Y + N155H + G163R + D232N	1	20	20	145	145	0 => 40
G140A + Q148K	1	50	50	90	90	0 => 80
G140A + Q148R + E157Q	1	45	45	100	100	0 => 70
G140A + Q148R + G163K	1	50	50	105	105	0 => 90
G140A + Q148R + G163R + D232N	1	50	50	115	115	0 => 90
G140S	1	10	10	30	30	0 => 10
G140S + N155H	1	20	20	90	90	0 => 35
G140S + Q148H + E157Q + D232N	1	45	45	110	110	0 => 60
G140S + Q148H + E157Q + G163K	1	50	50	115	115	0 => 80
G140S + Q148H + G163K	1	50	50	105	105	0 => 80

G140S + Q148H + N155H + E157Q	1	75	75	160	160	0 => 105
G140S + Q148H + V151A	1	45	45	120	105	0 => 60
G140S + Q148K + N155H + D232N	1	80	80	160	160	0 => 125
G140S + Q148K + N155H + G163R	1	85	85	165	165	0 => 145
G140S + Q148N + G163R	1	10	10	60	55 => 60	0 => 25
G140S + Q148R + G163K	1	50	50	105	105	0 => 90
G140S + Q148R + G163R	1	50	50	105	105	0 => 90
G140S + Q148R + N155H + E157Q	1	75	75	160	160	0 => 115
G140S + Y143H + Q148H + D232N	1	50	50	110	160	0 => 70
G140S + Y143H + Q148H + G163R	1	60	60	120	165	0 => 95
G140S + Y143R + Q148H	1	50	50	100	150	0 => 70
H51Y + E92Q + G140S + Q148K + N155H + G163R	1	115	115	250	220	0 => 195
H51Y + G140S + Q148K	1	60	60	105	105	0 => 95
H51Y + T66A + N155H	1	20	20	135	90	0 => 40
L74I + E138K + Q148R	1	60	60	90	90	0 => 85
L74I + E138K + S147G + Q148R	1	75 => 85	75 => 85	150	90 => 100	0 => 115
L74I + E138K + S147G + Q148R + G163R	1	80 => 90	80 => 90	165	105 => 115	0 => 135
L74I + E138T + G140S + Q148H	1	90	90	135	135	0 => 120
L74I + G140S + Q148R + E157Q	1	60	60	115	115	0 => 85
L74I + G140S + Q148R + G163R	1	65	65	120	120	0 => 105
L74I + G140S + Q148R + R263K	1	90	90	135	130	0 => 115
L74I + Q148R	1	40	40	75	75	0 => 55
L74I + T97A + Y143G	1	10	10	30	70	0 => 25
L74I + T97A + Y143S	1	10	10	30	70	0 => 25
L74I + Y143R	1	10	10	15	60	0 => 20
L74M + E138K + G140C + Q148R + E157Q	1	90	90	145	145	0 => 130
L74M + E138T + G140S + Q148H	1	90	90	135	135	0 => 120
L74M + E92Q + Q148R	1	50	50	135	105	0 => 70
L74M + G140A + Q148R	1	60	60	105	105	0 => 85
L74M + G140C + Q148R	1	60	60	105	105	0 => 85
L74M + G140C + Q148R + G163R	1	65	65	120	120	0 => 105
L74M + G140S + Q148R	1	60	60	105	105	0 => 85
L74M + G140S + Q148R + E157Q	1	60	60	115	115	0 => 85
L74M + Q95K + T97A + Y143C + S230R	1	25	35	65	100	0 => 50
L74M + Q95K + Y143C + S230R	1	25	35	50	90	0 => 45
L74M + T97A + E138A + Y143C	1	20	20	45	85	0 => 35
L74M + T97A + E138K + Y143C + S230R	1	35	45	70	105	0 => 60
L74M + T97A + E138K + Y143R	1	20	20	45	85	0 => 35
L74M + T97A + Y143C + G163R + S230R	1	30	40	75	105	0 => 55
L74M + T97A + Y143G + G163R	1	15	15	50	85	0 => 30
L74M + T97A + Y143H + G163R	1	15	15	50	85	0 => 30
L74M + Y143C	1	10	10	15	60	0 => 20
L74M + Y143C + N155H + S230R	1	35	45	100	140	0 => 70
L74M + Y143R + E157Q	1	10	10	25	70	0 => 20
N155H + D232N + R263K	1	60	60	100	95	0 => 75
N155H + E157Q + G163R	1	10	10	85	85	0 => 25
N155T	1	0	0	30	30	0 => 15
Q146P	1	0	0	60	0	0 => 30
Q148R + D232N	1	25	25	70	70	0 => 40
Q148R + E157Q	1	25	25	70	70	0 => 40
Q95K + T97A + N155H	1	10	10	80	80	0 => 25
Q95K + T97A + Y143C	1	5	5	35	80	0 => 15
Q95K + Y143R + N155H	1	15	15	80	130	0 => 35
S147G + Q148R	1	40 => 50	40 => 50	120	60 => 70	0 => 70
T66I + T97A + G163R	1	5	5	85	40	0 => 10
T66I + T97A + N155H	1	15	15	130	85	0 => 35
T66I + Y143C	1	10	10	70	75	0 => 20
T66K + D232N	1	15	15	70	70	0 => 20
T66K + L74M + G140S + Q148R + E157Q	1	75	75	175	175	0 => 105
T97A + E138A + G140S + Q148H	1	90	90	130	130	0 => 125
T97A + E138A + Y143K	1	15	15	35	85	0 => 20
T97A + E138K + E157Q	1	10	10	35	35	0 => 10
T97A + E138K + Q148R + N155H + G163K	1	95	95	160	160	0 => 155
T97A + G140S + Q148H + D232N	1	60	60	110	110	0 => 80
T97A + G140S + Q148R + N155H + G163R	1	95	95	175	175	0 => 155
T97A + N155H + G163K	1	10	10	85	85	0 => 25
T97A + Y143C + D232N	1	5	5	35	80	0 => 15
T97A + Y143C + N155H	1	15	15	85	130	0 => 40
T97A + Y143H + N155H + E157Q	1	15	15	95	140	0 => 40
T97A + Y143H + N155H + G163R	1	20	20	105	145	0 => 45
T97A + Y143R + D232N	1	5	5	35	80	0 => 15

T97A + Y143R + G163K	1	5	5	40	85	0 => 15
T97A + Y143R + N155H	1	15	15	85	130	0 => 40
T97A + Y143S + S230R	1	20	30	50	90	0 => 40
Y143C + E157Q + S230R	1	20	30	45	90	0 => 35
Y143C + G163K + S230R	1	20	30	50	95	0 => 35
Y143C + G163R	1	10	10	30	75	0 => 15