



Supplementary figure S1. Temporal signal linear regression graph for HBV 640 nt fragment

Supplementary Table S1. HBsAg detection rates in healthy volunteers

Region	Age groups, years N HBsAg positive/N tested (% [95% CI]) in age cohorts								
	0-9	10-14	15-19	20-29	30-39	40-49	50-59	≥60	All age groups
Kaliningrad Region	0/298 (0%)	0/101 (0%)	0/104 (0%)	1/103 (1.0 [0.0-5.8]%)	2/129 (1.6 [0.1-5.8]%)	0/116 (0%)	1/99 (1.0 [0.0-6.0]%)	0/100 (0%)	4/1050 (0.4 [0.1-1.0]%)
St. Petersburg and Leningrad region	1/353 (0.3 [0.0-1.8]%)	0/113 (0%)	0/129 (0%)	4/1454 (0.3 [0.1-0.7]%)	11/1961 (0.6 [0.3-1.0]%) **	1/668 (0.1 [0.0-0.9]%) **	3/401 (0.7 [0.2-2.3]%)	1/246 (0.4 [0.0-2.5]%)	21/5325 (0.4 [0.2-0.6]%) **
Dagestan Republic	6/1254 (0.5 [0.2-1.1]%) *	4/639 (0.6 [0.2-1.7]%) *	7/545 (1.3 [0.6-2.7]%) **	16/755 (2.1 [1.3-3.4]%) **	38/550 (6.9 [5.1-9.4]%) *,**	11/277 (4 [2.1-7.0]%) **	17/307 (5.5 [3.4-8.7]%) *,**	18/530 (3.4 [2.1-5.3]%) **	117/4857 (2.4 [2.0-2.9]%) **
Moscow and Moscow Region	0/563 (0%)	0/184 (0%)	0/255 (0%)	8/2273 (0.4 [0.2-0.7]%)	12/3106 (0.4 [0.2-0.7]%) **	5/1226 (0.4 [0.1-1.0]%)	4/592 (0.7 [0.2-1.8]%)	2/281 (0.7 [0.0-2.7]%)	31/8480 (0.4 [0.3-0.5]%) **37
Tatarstan Republic	0/133 (0%)	0/58 (0%)	0/86 (0%)	0/103 (0%)	0/110 (0%)	2/107 (1.9 [0.1-7]%)	0/110 (0%)	0/116 (0%)	2/823 (0.24 [0.1-0.94]%)
Sverdlovsk Region	0/172 (0%)	0/61 (0%)	0/204 (0%)	0/51 (0%)	1/147 (0.7 [0.0-4.1]%)	2/102 (2 [0.0-7.3]%)	1/99 (1 [0.0-6.0]%)	2/99 (2 [0.1-7.5]%)	6/935 (0.6 [0.3-1.4]%)
Tuva Republic	1/239 (0.4 [0.0-2.6]%)	0/97 (0%)	0/158 (0%)	0/142 (0%)	2/166 (1.2 [0.0-4.6]%)	1/111 (0.9 [0.0-5.4]%)	8/108 (7.4 [3.6-14.1]%) *,**	2/98 (2 [0.1-7.6]%)	14/1119 (1.2 [0.7-2.1]%)
Novosibirsk Region	1/1395 (0.1 [0.0-0.4]%) *	1/698 (0.1 [0.0-0.9]%)	2/1177 (0.2 [0.0-0.7]%) *	7/1337 (0.5 [0.2-1.1]%)	16/1613 (1.0 [0.6-1.6]%)	12/828 (1.4 [0.8-2.5]%)	9/519 (1.7 [0.9-3.3]%) *	15/756 (2.0 [1.2-3.3]%) *	63/8323 (0.8 [0.6-1.0]%)
Khabarovsk Region	2/1286 (0.2 [0.0-0.6]%) *	1/537 (0.2 [0.0-1.2]%)	0/548 (0%)	1/765 (0.1 [0.0-0.8]%)	14/743 (1.9 [1.1-3.2]%) *	4/391 (1.0 [0.3-2.7]%)	6/394 (1.5 [0.6-3.4]%)	8/573 (1.4 [0.7-2.8]%)	36/5237 (0.7% [0.5-0.9]%)
National average	11/5693 (0.2 [0.1-0.4]%)	6/2488 (0.24 [0.1-0.5]%)	9/3206 (0.28 [0.1-0.5]%)	37/6983 (0.53 [0.4-0.7]%)	96/8525 (1.13 [0.9-1.4]%)	38/3826 (1.0 [0.72-1.4]%)	49/2629 (1.9 [1.4-2.5]%)	48/2799 (1.7 [1.3-2.3]%)	294/36,149 (0.8 [0.7-0.9]%)

* p<0.05 (Chi-square with Yates' correction) when compared age-specific values with average value for each region

** p<0.05 (Chi-square with Yates' correction) when compared age-specific values with national average age-specific value

Supplementary Table S2. Anti-HBc antibody detection rates in healthy volunteers

Region	Age groups, years N anti-HBc antibody positive/N tested [% [95% CI]] in age cohorts								
	0-9	10-14	15-19	20-29	30-39	40-49	50-59	≥60	All age groups
Kaliningrad Region	37/298 (12.4 [9.1-16.7]%) **	19/101 (18.8 [12.3-27.6]%) **	13/104 (12.5 [7.3-20.3]%) **	13/103 (12.6 [7.4-20.5]%)	20/129 (15.5 [10.2-22.8]%)	21/116 (18.1 [12.1-26.2]%)	27/99 (27.3 [19.4-36.8]%) *	30/100 (30.0 [21.9-39.6]%) *	180/1050 (17.1 [15.0-19.5]%)**
St. Petersburg and Leningrad region	22/353 (6.2 [4.1-9.3]%) *	9/113 (8.0 [4.1-14.6]%)	4/129 (3.1 [1-8]%) *	90/1454 (6.2 [5.1-7.6]%) *,**	163/1961 (8.3 [7.2-9.6]%) *,**	109/668 (16.3 [13.7-19.3]%) *,**	79/401 (19.7 [16.1-23.9]%) *,**	68/246 (27.6 [22.4-33.6]%) *	544/5325 (10.2 [9.4-11.1]%) **
Dagestan Republic	149/1254 (11.9 [10.2-13.8]%) *,**	70/639 (11.0 [8.8-13.6]%) *,**	63/545 (11.6 [9.1-14.5]%) *,**	127/755 (16.8 [14.3-19.7]%) *,**	207/550 (37.6 [33.7-41.8]%) *,**	128/277 (46.2 [40.4-52.1]%) *,**	139/307 (45.3 [39.9-50.9]%) *,**	237/530 (44.7 [40.5-49]%) *,**	1120/4857 (23.1 [21.9-24.3]%)**
Moscow and Moscow Region	44/563 (7.8 [5.9-10.4]%) *	8/184 (4.3 [2.1-8.5]%) *	15/255 (5.9 [3.5-9.6]%) *	176/2279 (7.7 [6.7-8.9]%) *	328/3116 (10.5 [9.5-11.7]%) **	197/1239 (15.9 [14-18]%) *,**	122/594 (20.5 [17.5-24]%) *,**	65/281 (23.1 [18.6-28.4]%) *,**	955/8480 (11.3 [10.6-12.0]%) **
Tatarstan Republic	12/133 (9 [5.1-15.2]%)	3/58 (5.2 [1.2-14.7]%)	2/86 (2.3 [0.1-8.6]%) *	4/103 (3.9 [1.2-10]%) *	20/110 (18.2 [12-26.5]%)	18/107 (16.8 [10.8-20.1]%)	12/110 (10.9 [6.2-18.3]%) **	24/116 (20.7 [14.3-29]%) *,**	95/823 (11.5 [9.5-13.9]%) **
Sverdlovsk Region	14/172 (8.1 [4.8-13.3]%) *	10/61 (16.4 [9-27.9]%) **	16/204 (7.8 [4.8-12.4]%) *	10/51 (19.6 [10.8-32.7]%) **	18/147 (12.2 [7.8-18.6]%)	26/102 (25.5 [18-34.8]%) *	29/99 (29.3 [21.2-38.9]%) *	31/99 (31.3 [23-41]%) *	154/935 (16.5 [14.2-19.0]%) **
Tuva Republic	43/239 (18.0 [13.6-23.4]%) *,**	15/97 (15.5 [9.5-24.1]%) *,**	16/158 (10.1 [6.2-15.9]%) *	25/142 (17.6 [12.2-24.8]%) *,**	67/166 (40.4 [33.2-48]%) *,**	65/111 (58.6 [49.3-67.3]%) *,**	66/108 (61.1 [51.7-69.8]%) *,**	58/98 (59.2 [49.3-68.4]%) *,**	355/1119 (31.7 [29.1-34.5]%) **
Novosibirsk Region	72/1395 (5.2 [4.1-6.5]%) *,**	21/698 (3.0 [2-4.6]%) *,**	45/1177 (3.8 [2.9-5.1]%) *,**	118/1337 (8.8 [7.4-10.5]%) *	193/1613 (12.0 [10.5-13.6]%)	184/828 (22.2163 [19.5-25.2]%) *	111/519 (21.4 [18.1-25.1]%) *,**	234/756 (31.0 [27.8-34.3]%) *	978/8323 (11.8 [11.1-12.5]%) **117
Khabarovsk Region	67/1286 (5.2 [4.1-6.6]%) *,**	18/537 (3.4 [2.1-5.3]%) *,**	38/548 (6.9 [5.1-9.4]%) *	57/765 (7.5 [5.8-9.5]%) *	137/743 (18.4 [15.8-21.4]%) *,**	104/391 (26.6 [22.5-31.2]%) *	120/394 (30.5 [26.1-35.2]%) *	196/573 (34.2 [30.4-38.2]%) *	737/5237 (14.1 [13.2-15.0]%)
National average	460/5693 (8.1 [7.4-8.8]%)	173/2488 (7.0 [6.0-8.0]%)	212/3206 (6.6 [5.8-7.5]%)	620/6983 (8.9 [8.2-9.6]%)	1153/8525 (13.5 [12.8-14.3]%)	852/3826 (22.3 [21-23.6]%)	705/2629 (26.8 [25.2-28.5]%)	943/2799 (33.7 [32-35.5]%)	5118/36,149 (14.2 [13.8-14.5]%)

* p<0.05 (Chi-square with Yates' correction) when compared age-specific values with average value for each region

** p<0.05 (Chi-square with Yates' correction) when compared age-specific values with national average age-specific value

Supplementary Table S3. Proportion of healthy volunteers reactive for anti-HBs, but non-reactive for anti-HBc

Region	Age groups, years								
	N reactive for anti-HBs, but non-reactive for anti-HBc/N tested (% [95% CI]) in age cohorts								
	0-9	10-14	15-19	20-29	30-39	40-49	50-59	≥60	All age groups
Kaliningrad Region	117/298 (39.3 [33.9-44.9]%) *,**	18/101 (17.8 [11.5-26.5]%) **	23/104 (22.1 [15.2-31.1]%) **	50/103 (48.5 [39.1-58.1]%) *,**	38/129 (29.5 [22.3-37.9]%)	19/116 (16.4 [10.7-24.3]%) *	15/99 (15.2 [9.3-23.6]%) *	3/100 (3.0 [0.6-8.8]%) *,**	283/1050 (27.0 [24.4-29.7]%) **
St. Petersburg and Leningrad region	185/353 (52.4 [47.2-57.6]%) *	46/113 (40.7 [32.1-49.9]%) **	58/129 (45.0 [36.7-53.6]%) **	963/1454 (66.2 [63.8-68.6]%) *	668/1961 (34.1 [32-36.2]%) *	136/668 (20.4 [17.5-23.6]%) *	66/401 (16.5 [13.1-20.4]%) *	27/246 (11 [7.6-15.5]%) *	2149/5325 (40.4 [39.1-41.7]%)
Dagestan Republic	436/1254 (34.8 [32.2-37.5]%) *,**	174/639 (27.2 [23.9-30.8]%) **	175/545 (32.1 [28.3-36.2]%)	374/755 (49.5 [46-53.1]%) *,**	126/550 (22.9 [19.6-26.6]%) *,**	42/277 (15.2 [11.4-19.9]%) *,**	50/307 (16.3 [12.6-20.9]%) *	70/530 (13.2 [10.6-16.4]%) *	1447/4857 (29.8 [28.5-31.1]%) **
Moscow and Moscow Region	221/563 (39.3 [35.3-43.4]%) **	55/184 (29.9 [23.7-36.9]%) *	113/255 (44.3 [38.4-50.5]%) *,**	1467/2273 (64.5 [62.6-66.5]%) *,**	1009/3106 (32.5 [30.9-34.2]%) *,**	204/1226 (16.6 [14.7-18.8]%) *,**	92/592 (15.5 [12.8-18.7]%) *	21/281 (7.5 [4.9-11.2]%) *,**	3182/8480 (37.5 [36.5-38.5]%) **
Tatarstan Republic	58/133 (43.6 [35.5-52.1]%)	24/58 (41.4 [29.6-54.2]%) *	22/86 (25.6 [17.5-35.8]%) *	56/103 (54.4 [44.8-63.7]%) *,**	39/110 (35.5 [27.1-44.8]%) **	41/107 (38.3 [29.7-47.8]%) **	39/110 (35.5 [27.1-44.8]%) **	26/116 (22.4 [15.7-30.9]%) *,**	305/823 (37.1 [33.8-40.4]%)
Sverdlovsk Region	86/172 (50.0 [42.6-57.4]%) *	12/61 (19.7 [11.5-31.5]%) **	32/204 (15.7 [11.3-21.3]%) *,**	26/51 (51.0 [37.7-64.1]%) *,**	81/147 (55.1 [47-62.9]%) *,**	6/102 (5.9 [2.5-12.5]%) *,**	9/99 (9.1 [4.7-16.6]%) *,**	7/99 (7.1 [3.2-14.1]%) *	259/935 (27.7 [24.9-30.7]%) **
Tuva Republic	65/227 (28.6 [23.1-34.8]%) *,**	9/96 (9.4 [4.8-17.1]%) *,**	12/159 (7.5 [4.3-12.8]%) *,**	70/141 (49.6 [41.5-57.8]%) *,**	57/166 (34.3 [27.5-41.9]%) *	14/112 (12.5 [7.5-20]%) *,**	10/108 (9.3 [5-16.4]%) *,**	9/98 (9.2 [4.7-16.7]%) *	246/1119 (22.0 [19.6-24.5]%) **
Novosibirsk Region	772/1395 (55.3 [52.7-57.9]%) *,**	349/698 (50.0 [46.3-53.7]%) **	436/1177 (37.0 [34.3-39.8]%) *	1145/1337 (85.6 [83.7-87.4]%) *,**	732/1613 (45.4 [43-47.8]%) **	228/828 (27.5 [24.6-30.7]%) *,**	111/519 (21.4 [18.1-25.1]%) *	117/756 (15.5 [13.1-18.2]%) *	3890/8323 (46.7 [45.6-47.8]%) **
Khabarovsk Region	763/1286 (59.3 [56.6-62%]) *,**	233/537 (43.4 [39.3-47.6]%) **	252/548 (46.0 [41.9-50.2]%) **	572/765 (74.8 [71.6-77.7]%) *,**	320/743 (43.1 [39.6-46.7]%) *,**	124/391 (31.7 [27.3-36.5]%) *,**	104/394 (26.4 [22.3-31]%) *,**	107/573 (18.7 [15.7-22.1]%) *,**	2475/5237 (47.3 [45.9-48.7]%) **
National average	2703/5693 (47.5 [46.2-48.8]%)	920/2488 (37.0 [35.1-38.9]%)	1123/3206 (35.0 [33.4-36.7]%)	4723/6983 (67.6 [66.5-68.7]%)	3070/8525 (36.0 [35-37]%)	814/3826 (21.3 [20.0-22.6]%)	496/2629 (18.9 [17.4-20.4]%)	387/2799 (13.8 [12.6-15.2]%)	14,236/36,149 (39.4 [38.9-39.9]%)

* p<0.05 (Chi-square with Yates' correction) when compared age-specific values with average value for each region

** p<0.05 (Chi-square with Yates' correction) when compared age-specific values with national average age-specific value

Supplementary Table S4. Proportion of healthy volunteers non-reactive for either anti-HBs, or anti-HBc

Region	Age groups, years N non-reactive for either anti-HBs, or anti-HBc/N tested (% [95% CI]) in age cohorts								
	0-9	10-14	15-19	20-29	30-39	40-49	50-59	≥60	All age groups
Kalininograd Region	143/298 (48 [42.4-53.7]%) *	64/101 (63.4 [53.6-72.1]%) *	68/104 (65.4 [55.8-73.9]%) *,**	40/103 (38.8 [30.0-48.5]%) **,**	71/129 (55.0 [46.4-63.4]%) *	76/116 (65.5 [56.5-73.6]%) *	72/99 (72.7 [63.2-80.6]%) *,**	70/100 (70. [60.4-78.1]%) *,**	604/1050 (57.5 [54.5-60.5]%) **
St. Petersburg and Leningrad region	146/353 (41.4 [36.3-46.6]%) *	58/113 (51.3 [42.2-60.4]%)	67/129 (51.9 [43.4-60.4]%)	401/1454 (27.6 [25.3-29.9]%) *,**	1130/1961 (57.6 [55.4-59.8]%) *,**	423/668 (63.3 [59.6-66.9]%) *,**	256/401 (63.8 [59.0-68.4]%) *,**	151/246 (61.4 [55.2-67.3]%) *,**	2632/5325 (49.4 [48.1-50.7]%) **
Dagestan Republic	669/1254 (53.3 [50.6-56.1]%) *,**	395/639 (61.8 [58.0-65.5]%) *,**	307/545 (56.3 [52.1-60.4]%) *,**	254/755 (33.6 [30.4-37.1]%) *,**	217/550 (39.5 [35.5-43.6]%) *,**	107/277 (38.6 [33.1-44.5]%) *,**	118/307 (38.4 [33.2-44.0]%) *,**	223/530 (42.1 [37.9-46.3]%) *,**	2290/4857 (47.1 [45.7-48.5]%)
Moscow and Moscow Region	287/563 (51 [46.9-55.1]%) **	121/184 (65.8 [58.6-72.2]%) *,**	127/255 (49.8 [43.7-55.9]%)	632/2279 (27.7 [25.9-29.6]%) *,**	1775/3116 (57.0 [55.2-58.7]%) *,**	829/1239 (66.9 [64.2-69.5]%) *,**	381/594 (64.1 [60.2-67.9]%) *,**	195/281 (69.4 [63.8-74.5]%) *,**	4347/8480 (51.1 [50.0-52.2]%) **
Tatarstan Republic	62/133 (46.6 [38.4-55.1]%)	31/58 (53.5 [40.8-65.7]%) *	62/86 (72.1 [61.8-80.5]%) *,**	43/103 (41.8 [32.7-51.4]%) **	50/110 (45.5 [36.5-54.8]%)	47/107 (43.9 [34.9-53.4]%) **	59/110 (53.6 [44.4-62.7]%)	66/116 (56.9 [47.8-65.6]%)	420/823 (51.0 [47.6-54.4]%) **
Sverdlovsk Region	72/172 (41.9 [34.7-49.3]%) *	39/61 (63.9 [51.4-74.9]%)	156/204 (76.5 [70.2-81.8]%) *,**	15/51 (29.4 [18.6-43.1]%) *	48/147 (32.7 [25.6-40.6]%) *,**	70/102 (68.6 [59.1-76.8]%) *,**	62/99 (62.6 [52.8-71.5]%)	61/99 (61.6 [51.8-70.6]%)	523/935 (55.9 [52.7-59.1]%) **
Tuva Republic	119/239 (49.8 [3.5-56.1]%)	73/97 (75.3 [65.8-82.8]%) *,**	140/158 (88.6 [82.6-92.8]%) *,**	46/142 (32.4 [25.2-40.5]%) *	43/166 (25.9 [19.8-33.1]%) *,**	32/111 (28.8 [21.2-37.9]%) *,**	32/108 (29.6 [21.8-38.9]%) *,**	30/98 (30.6 [22.3-40.4]%) *,**	515/1119 (46.0 [43.1-49.0]%)
Novosibirsk Region	551/1395 (39.5 [37.0-42.1]%) **	328/698 (47.0 [43.3-50.7]%) *,**	431/1177 (36.6 [33.9-39.4]%) *,**	339/1337 (25.4 [23.1-27.8]%) *,**	688/1613 (42.7 [40.3-45.1]%) **,**	416/828 (50.2 [46.8-53.6]%) *,**	297/519 (57.2 [52.9-61.4]%) *	405/756 (53.6 [50.0-57.1]%) *	3455/8323 (41.5 [40.4-42.6]%) **
Khabarovsk Region	457/1286 (35.5 [33.0-38.2]%) *,**	286/537 (53.3 [49.0-57.4]%) *	259/548 (47.3 [43.1-51.5]%) *	136/765 (17.8 [15.2-20.7]%) *,**	286/743 (38.5 [35.1-42.0]%) **,**	163/391 (41.7 [36.9-46.6]%) **	170/394 (43.1 [38.4-48.1]%) **,**	270/573 (47.1 [43.1-51.2]%) *,**	2027/5237 (38.7 [37.4-40.0]%) **

National average	2506/5693 (44.0 [42.7-45.3]%)	1395/2488 (56.1 [54.1-58.0]%)	1617/3206 (50.4 [48.7-52.2]%)	1906/6983 (27.3 [26.3-28.4]%)	4308/8525 (50.5 [49.5-51.6]%)	2163/3826 (56.5 [55.0-58.1]%)	1447/2629 (55.0 [53.1-56.9]%)	1471/2799 (52.6 [50.7-54.4]%)	16,813/36,149 (46.5 [46.0-47.0]%)
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* p<0.05 (Chi-square with Yates' correction) when compared age-specific values with average value for each region

** p<0.05 (Chi-square with Yates' correction) when compared age-specific values with national average age-specific value