Supplementary Table 1. Baseline characteristics in one-dose and two-dose trial of Ad5-nCoV.

	Low-dose group			High-dose group		
	One-dose regimen	Two-dose regimen	p value	One-dose regimen	Two-dose regimen	p value
N	129	118	/	253	100	/
Age, years						
18-55	116 (89.9%)	20 (16.9%)	**<0.001**	223 (88.1%)	/	**<0.001**
≥56	13 (10.1%)	98 (83.1%)		30 (11.9%)	100 (100%)	
mean(SD)	39.71 (12.13)	60.51 (8.58)	**<0.001**	39.98 (12.78)	63.76 (5.10)	**<0.001**
Sex						
male	64 (49.6%)	64 (54.2%)	0.4675	126 (49.8%)	66 (66%)	0.0059
female	65 (50.4%)	54 (45.8%)		127 (50.2%)	34 (34%)	
BMI	24.23 (2.67)	25.08 (3.90)	0.0498	24.22 (2.77)	24.32 (2.99)	0.7776
Pre-existing adenovirus type-5 neutralizing antibody						
≤1:200, titer	54 (41.9%)	46 (39.0%)	0.6454	127 (50.2%)	42 (42%)	0.1648
>1:200, titer	75 (58.1%)	72 (61.0%)		126 (49.8%)	58 (58%)	

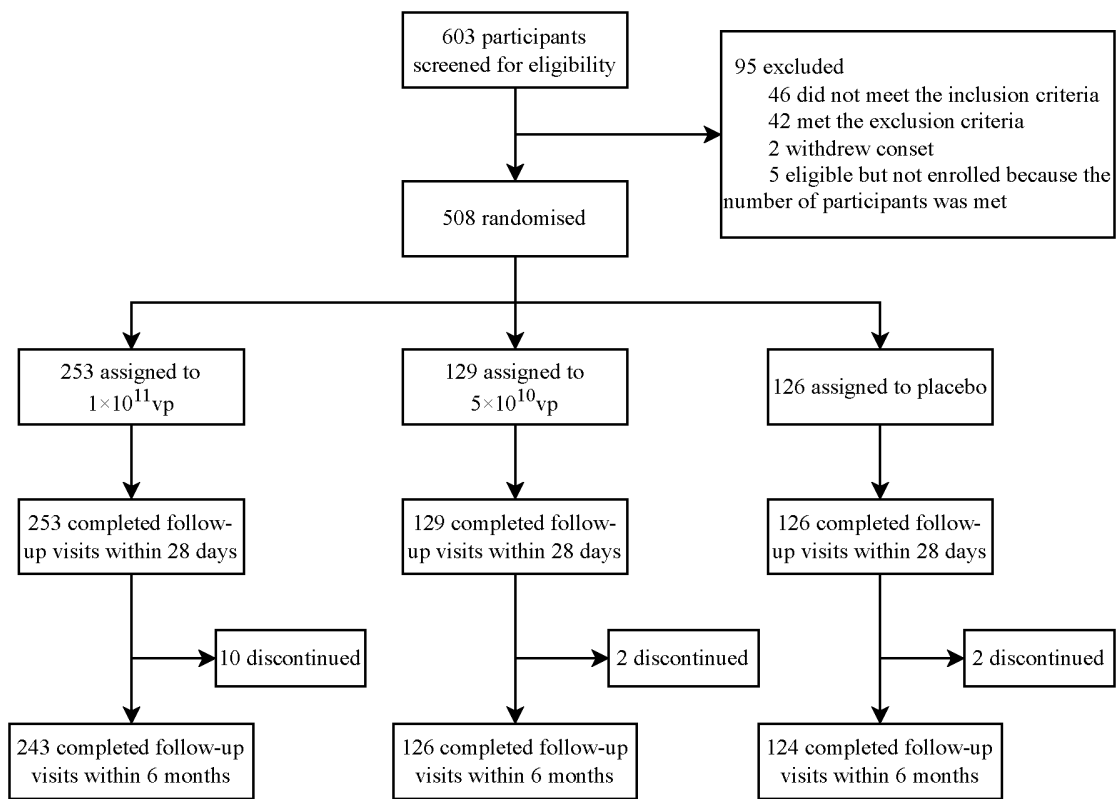Data are mean (SD), number of participants (%) and p value.

SD=standard deviation. BMI=body-mass index. GMT=geometric mean titer.

Supplementary Table 2. Correlation results by multiple linear regression using data at day 28 after the first Ad5-nCoV vaccination.

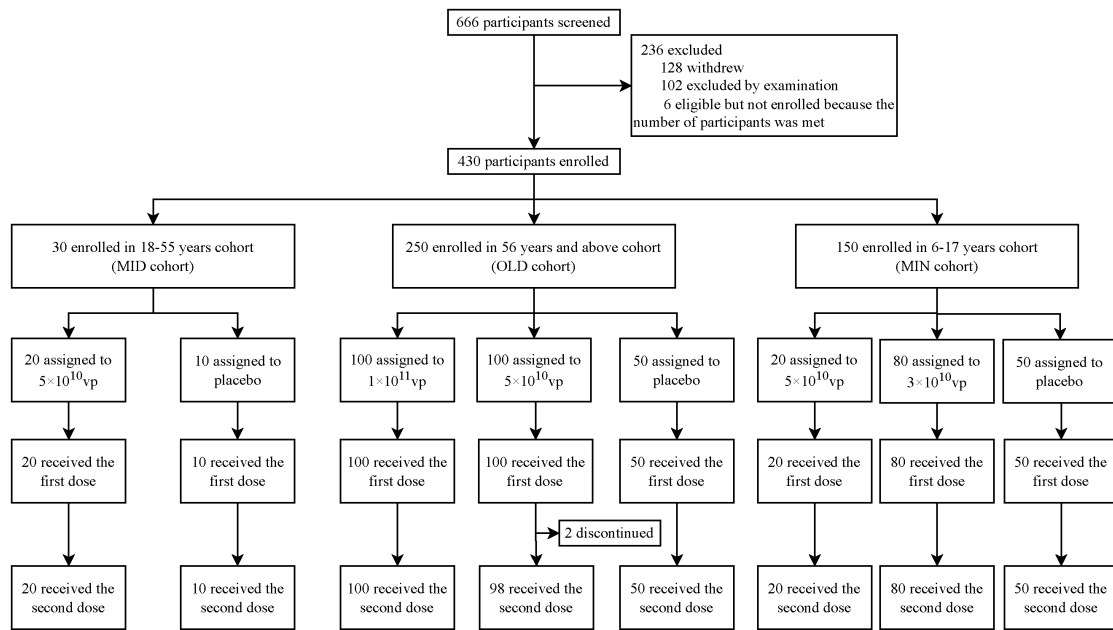| One-dose regimen	High-dose group N=253				Low-dose group N=129			
	RBD-binding antibody		pseudovirus neutralizing antibody		RBD-binding antibody		pseudovirus neutralizing antibody	
Independent variable	correlation	p value	correlation	p value	correlation	p value	correlation	p value
BMI	0.042	0.252	0.084	0.09	0.018	0.418	0.047	0.297
Sex	-0.028	0.329	-0.126	0.022	0.121	0.086	0.045	0.306
Age	-0.278	<0.001	-0.154	0.007	-0.316	<0.001	-0.084	0.171
Pre-existing adenovirus type-5 neutralizing antibody	-0.392	<0.001	-0.284	<0.001	-0.275	0.0008	-0.179	0.021
Two-dose regimen	high-dose group N=100				low-dose group N=120			
	RBD-binding antibody		pseudovirus neutralizing antibody		RBD-binding antibody		pseudovirus neutralizing antibody	
Independent variable	correlation	p value	correlation	p value	correlation	p value	correlation	p value
BMI	0.058	0.282	-0.041	0.344	-0.041	0.327	-0.164	0.037
Sex	0.159	0.057	-0.100	0.161	0.258	0.002	0.143	0.059
Age	-0.112	0.134	-0.03	0.384	-0.359	<0.001	-0.182	0.023
Pre-existing adenovirus type-5 neutralizing antibody	-0.224	0.013	-0.354	<0.001	-0.295	<0.001	-0.305	<0.001

Note: If the p value is lesse than 0.05, the independent variable is considered to be related to the dependent variable.

Supplementary Figure 1A. Trial profiles from one-dose regimen of Ad5-nCoV.

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                    ┌─────────────────────┐
                    │ 603 participants    │
                    │ screened for        │──────────┐
                    │ eligibility         │          │
                    └─────────────────────┘          ▼
                              │          ┌───────────────────────────────────┐
                              │          │ 95 excluded                       │
                              │          │   46 did not meet the inclusion   │
                              │          │   criteria                        │
                              ▼          │   42 met the exclusion criteria   │
                    ┌─────────────────┐  │   2 withdrew conset               │
                    │ 508 randomised  │  │   5 eligible but not enrolled     │
                    └─────────────────┘  │   because the number of           │
                                         │   participants was met            │
                                         └───────────────────────────────────┘
```

253 assigned to 1×10^{11} vp	129 assigned to 5×10^{10} vp	126 assigned to placebo
253 completed follow-up visits within 28 days	129 completed follow-up visits within 28 days	126 completed follow-up visits within 28 days
10 discontinued	2 discontinued	2 discontinued
243 completed follow-up visits within 6 months	126 completed follow-up visits within 6 months	124 completed follow-up visits within 6 months

vp=viral particles.

Supplementary Figure 1B. Trial profiles from two-dose regimen of Ad5-nCoV.

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                          ┌────────────────────────┐
                          │ 666 participants screened │
                          └────────────────────────┘
                                      │           ┌──────────────────────────────────────┐
                                      ├──────────▶│ 236 excluded                          │
                                      │           │     128 withdrew                      │
                                      │           │     102 excluded by examination       │
                                      │           │       6 eligible but not enrolled because the │
                                      │           │ number of participants was met        │
                                      │           └──────────────────────────────────────┘
                          ┌────────────────────────┐
                          │ 430 participants enrolled │
                          └────────────────────────┘
```

| 30 enrolled in 18-55 years cohort (MID cohort) | 250 enrolled in 56 years and above cohort (OLD cohort) | 150 enrolled in 6-17 years cohort (MIN cohort) |

| 20 assigned to 5×10^{10}vp | 10 assigned to placebo | 100 assigned to 1×10^{11}vp | 100 assigned to 5×10^{10}vp | 50 assigned to placebo | 20 assigned to 5×10^{10}vp | 80 assigned to 3×10^{10}vp | 50 assigned to placebo |

| 20 received the first dose | 10 received the first dose | 100 received the first dose | 100 received the first dose | 50 received the first dose | 20 received the first dose | 80 received the first dose | 50 received the first dose |

2 discontinued

| 20 received the second dose | 10 received the second dose | 100 received the second dose | 98 received the second dose | 50 received the second dose | 20 received the second dose | 80 received the second dose | 50 received the second dose |

vp=viral particles.

Supplementary Figure 2. Compared antibody titers through 6 months between one-dose and two-dose regimens of Ad5-nCoV in matched participants after the last vaccination.
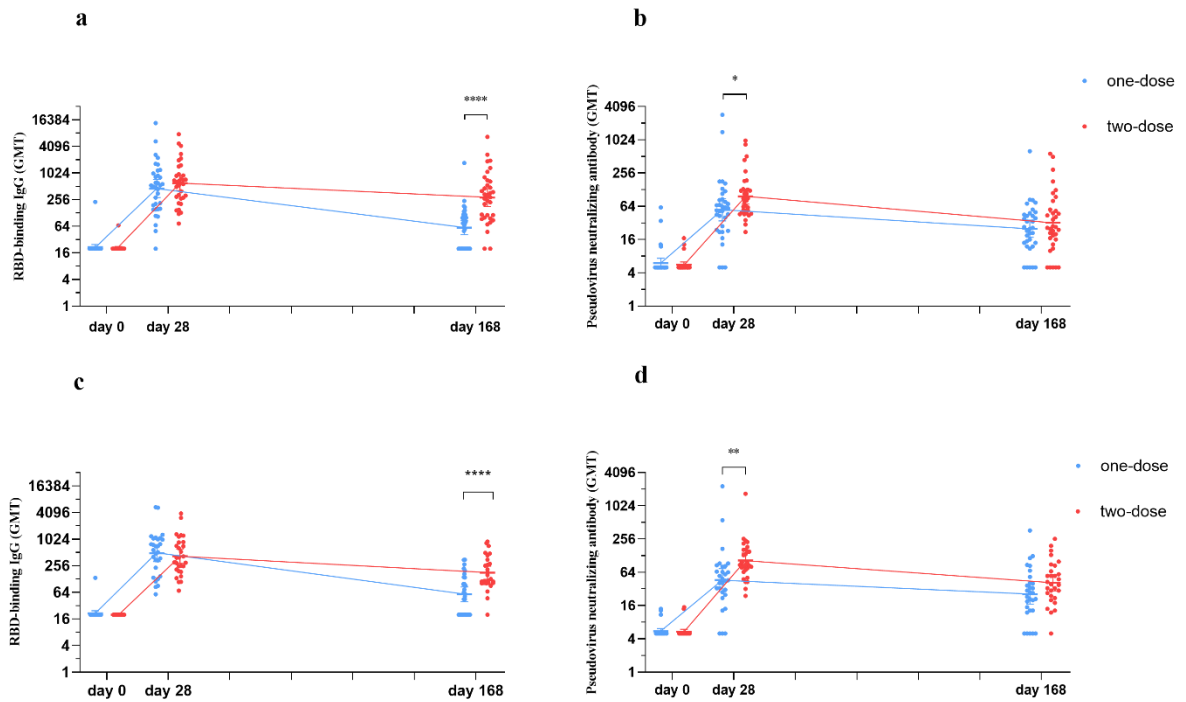
Note: Decay trends and GMTs of RBD-binding antibody in the low-dose groups (**a**). Decay trends and GMTs of pseudovirus neutralizing antibody in the low-dose groups (**b**). Decay trends and GMTs of RBD-binding antibody in the high-dose groups (**c**). Decay trends and GMTs of pseudovirus neutralizing antibody in the high-dose groups (**d**). Titers at day 0 showed antibody titers before vaccination. Blue line charts and dots presented antibodies in one-dose regimen of Ad5-nCoV at day 28 and month 6 after vaccination. Red line charts and dots at day 28 and month 6 presented antibodies after the second vaccination in two-dose regimen of Ad5-nCoV. Error bars indicated 95%CIs. n, the number of participants after propensity score matching. * represents p value less than 0.05, ** represents *p* value less than 0.01 and **** represents p value less than 0.0001.