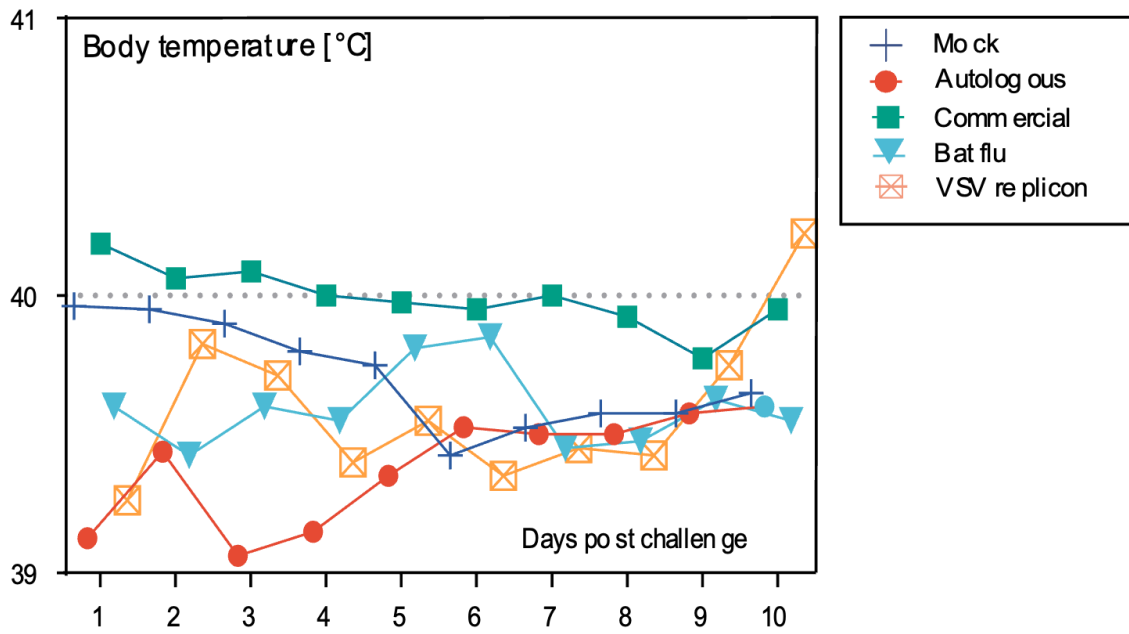
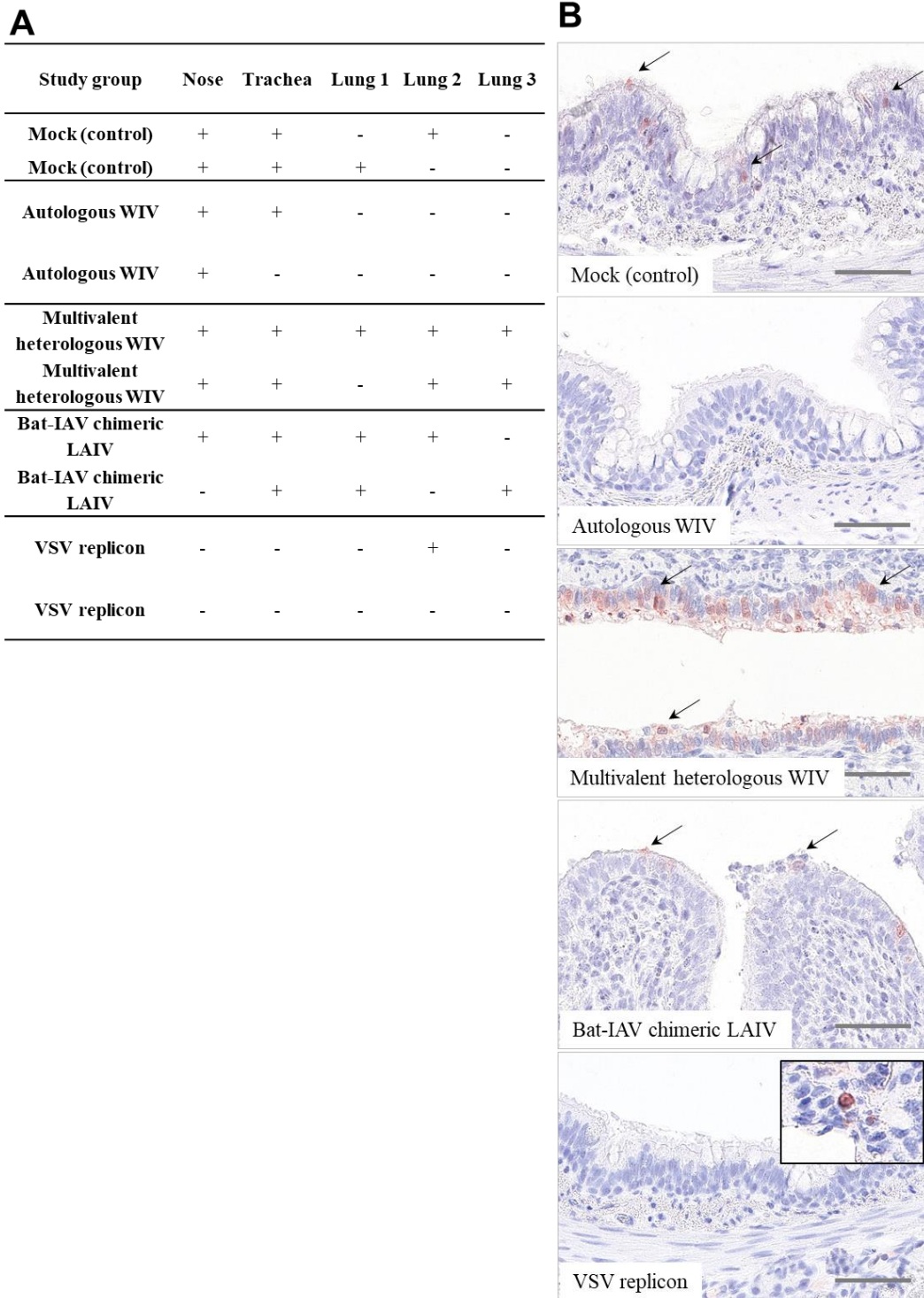


1 **Supplementary Figure 1.** Median rectal temperature of pigs challenged with swIAV isolate  
2 H1pdmN2 AI03362 by contact to inoculated seeder animals. Dashed line shows the 40°C fever  
3 threshold.



5 **Supplementary Figure 2.** Histopathological results of representative WIV and LAIV  
6 vaccinated pigs after challenge infection with H1pdmN2. A) Immunohistochemical results of  
7 the nose, trachea and lung of individual pigs selected based on positive viral genome detection.  
8 (+) = positive, (-) = negative for viral matrix protein. B) Immunohistochemistry of the lung  
9 illustrating IAV matrix-1 protein-positive bronchial respiratory epithelial cells (arrow)  
10 of alveolar cells (VSV-LAIV only, inlay) in the different groups. Scale bar = 50  $\mu$ m.



12 **Supplementary Table 1.** Post mortem findings, 4 dpc, pulmonary atelectasis given in percent  
 13 affected area (%).

14

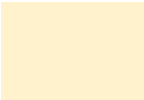

| <b>Study group</b>                  | <b>Status</b>      | <b>pulmonary atelectasis (%) and affected lung lobe</b>                      |
|-------------------------------------|--------------------|--|
| <b>Mock (control)</b>               | Seeder             | <5 % cranial part of left cranial lobe, right middle lobe, right caudal lobe |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |
| <b>Autologous WIV</b>               | Seeder             | -  |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |
| <b>Multivalent heterologous WIV</b> | Seeder             | -  |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |
| <b>Bat-IAV chimeric LAIV</b>        | Seeder             | <5 % caudal part of left cranial lobe, right middle lobe                     |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | <5 % right middle lobe   |
| <b>VSV replicon</b>                 | Seeder             | 30% right middle lobe  |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |
|                                     | vaccinated contact | -  |

15

16 **Supplementary Table 2.** Significance levels calculated by the Kruskal-Wallis test using the Dunn-Bonferoni correction for pairwise comparisons.  
 17 Highly significant differences of vaccine groups versus the Mock group are indicated by asterisks in Figures 2 and 3 in the main text.

18

| Vaccine groups        | Lower respiratory tract (Fig. 3b) |                |             |           | Upper respiratory tract |         | Nasal swabs by day post challenge (Fig. 2b) |          |          |          |          |         |
|-----------------------|-----------------------------------|----------------|-------------|-----------|-------------------------|---------|---|----------|----------|----------|----------|---------|
|                       | Trachea                           | Bronchial swab | Lung        | Lymphnode | Conchae                 | Tonsil  | 2   | 3        | 4        | 5        | 6        | 7       |
| Bat flu-Mock          | 0.0364                            | 0.03138        | 0.002964    | 0.3095    | 0.0486                  | 0.6113  | 0.1262                                      | 0.003633 | 0.001152 | 0.001886 | 0.002807 | 0.00207 |
| Bat flu-WIV Comm      | 0.5108                            | 0.1201         | 0.03092     | 0.4026    | 0.0486                  | 0.3095  | 0.0004001                                   | 0.01311  | 0.02762  | 0.01018  | 0.01207  | 0.3858  |
| Bat flu-VSV replicon  | 0.135                             | 0.1884         | 0.01698     | 0.08297   | 0.8577                  | 0.7423  | 0.9318                                      | 0.8979   | 0.5637   | 0.2562   | 0.232    | 0.05193 |
| Bat flu-WIV auto      | 0.4026                            | 0.5499         | 0.7723      | 0.4731    | 0.05583                 | 0.5108  | 0.01708                                     | 0.0795   | 0.000728 | 0.03144  | 0.1693   | 0.08285 |
| Mock-WIV Comm         | 0.1513                            | 0.5499         | 0.3894      | 0.8577    | 1                       | 0.6113  | 0.04436                                     | 0.6689   | 0.2947   | 0.5907   | 0.6326   | 0.02691 |
| Mock-VSV replicon     | 0.0003345                         | 0.0005254      | 1,12E-04    | 0.005958  | 0.03647                 | 0.8577  | 0.1488                                      | 0.005435 | 0.007515 | 0.0486   | 0.073    | 0.2558  |
| Mock-WIV auto         | 0.2093                            | 0.1201         | 0.007177    | 0.08297   | 0.9049                  | 0.2437  | 0.3922                                      | 0.2482   | 0.8979   | 0.339    | 0.1066   | 0.1784  |
| WIV Comm-VSV replicon | 0.03138                           | 0.00411        | 0.000005484 | 0.01015   | 0.0486                  | 0.4918  | 0.0005513                                   | 0.01866  | 0.1041   | 0.1515   | 0.1886   | 0.2817  |
| WIV Comm-WIV auto     | 0.8577                            | 0.3388         | 0.06165     | 0.1201    | 0.9049                  | 0.09414 | 0.2481                                      | 0.4672   | 0.2395   | 0.6757   | 0.2562   | 0.3858  |
| VSV replicon-WIV auto | 0.01972                           | 0.05574        | 0.007438    | 0.3095    | 0.03647                 | 0.3239  | 0.02148                                     | 0.1041   | 0.005088 | 0.3097   | 0.8577   | 0.8342  |

 Significant (p=0,049-0.01)  
 highly significant (p<0,01)

19

20 **Supplementary Table 3.** Detection of swIAV in nasal swabs of piglets in the selected pig herd  
 21 by RT-qPCR at different weeks of age. A herd with at least one positive sample ( $cq \leq 30$ ) is  
 22 marked in bold.

|                             | <i>age<br/>(week(s))</i> | <i>herd tested<br/>positive (cq<br/><math>\leq 30</math>)</i> |
|-----------------------------|--------------------------|---|
| <i>suckling<br/>piglets</i> | 1                        | -   |
|                             | 2                        | -   |
|                             | 3                        | -   |
| <i>weaned<br/>piglets</i>   | 4                        | <b>yes</b>  |
|                             | 5                        | <b>yes</b>  |
|                             | 6                        | <b>yes</b>  |
|                             | 7                        | -   |
|                             | 8                        | <b>yes</b>  |
|                             | 9                        | -   |
|                             | 10                       | -   |