S2 Table. Digital quantitative IHC scoring of viral antigen in lungs from MERS-CoV infected rabbits.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  | Left caudal lobe | Right caudal lobe | Number of rabbits positive for antigen/total rabbitsc |
| Experiment | Virus Dose(s) TCID50/mla | Day Post-Infectionb | % strong positive | % medium positive | % strong positive | % medium positive |
| Primary Infection- EMC | 103 | 1 | 0.0 | 0.0 | 0.0 | 0.0 | 0/3 |
|  |  | 0.0 | 0.0 | 0.0 | 0.0 |  |
|  |  | 0.0 | 0.0 | 0.0 | 0.0 |  |
|  | 3 | 0.0 | 0.1 | 0.0 | 0.1 | 0/3 |
|  |  | 0.0 | 0.1 | 0.0 | 0.1 |  |
|  |  | 0.0 | 0.1 | 0.0 | 0.0 |  |
|  | 5 | 0.0 | 0.0 | 0.0 | 0.4 | 0/3 |
|  |  | 0.0 | 0.0 | 0.0 | 0.0 |  |
|  |  | 0.0 | 0.0 | 0.0 | 0.1 |  |
| 105 | 1 | 0.0 | 0.0 | 0.0 | 0.0 | 0/3 |
|  |  | 0.0 | 0.0 | 0.0 | 0.0 |  |
|  |  | 0.0 | 0.5 | 0.0 | 0.1 |  |
|  | 3 | 0.0 | 0.4 | 0.4 | **1.7d** | 3/3 |
|  |  | 0.0 | 0.0 | 0.0 | **1.3** |  |
|  |  | 0.0 | 0.1 | 0.7 | **6.4** |  |
|  | 5 | 0.0 | 0.0 | 0.2 | **3.3** | 3/3 |
|  |  | 0.0 | 0.0 | 0.3 | **3.5** |  |
|  |  | 0.0 | 0.0 | 0.0 | **1.4** |  |
| Secondary Infection- EMC | 103//105 | 3 | **5.6** | **15.8** | **3.6** | **10.2** | 3/3 |
|  |  | 0.0 | 0.0 | **7.0** | **20.0** |  |
|  |  | 0.0 | 0.0 | **1.7** | **5.2** |  |
| 105//105 | 3 | 0.0 | 0.0 | 0.0 | 0.1 | 2/3 |
|  |  | 0.0 | 0.0 | **1.8** | **5.0** |  |
|  |  | **1.0** | **4.4** | **4.7** | **9.0** |  |
| None//105 | 3 | 0.7 | **1.7** | **6.1** | **21.9** | 2/3 |
| (Primary control) |  | 0.0 | 0.2 | 0.0 | 0.1 |  |
|  |  | 0.4 | **1.1** | **4.8** | **14.5** |  |
| 103//media | 3 | 0.0 | 0.0 | 0.0 | 0.0 | 0/3 |
|  |  | 0.0 | 0.0 | 0.0 | 0.1 |  |
|  |  | 0.0 | 0.0 | 0.0 | 0.2 |  |
| 105//media | 3 | 0.0 | 0.0 | 0.0 | 0.1 | 0/3 |
|  |  | 0.0 | 0.0 | 0.0 | 0.1 |  |
|  |  | 0.0 | 0.0 | 0.0 | 0.1 |  |
| media//media |  | 0.0 | 0.0 | 0.0 | 0.0 | 0/3 |
|  |  | 0.0 | 0.0 | 0.0 | 0.0 |  |
|  |  | 0.0 | 0.0 | 0.0 | 0.1 |  |
| Tertiary Infection- EMC | 103//105//105 | 3 | 0.0 | 0.0 | 0.2 | **1.1** | 1/3 |
|  |  | 0.0 | 0.0 | 0.0 | 0.0 |  |
|  |  | 0.0 | 0.0 | 0.0 | 0.1 |  |
| 105//105//105 | 3 | 0.0 | 0.0 | 0.0 | 0.1 | 0/3 |
|  |  | 0.0 | 0.0 | 0.0 | 0.1 |  |
|  |  | 0.0 | 0.0 | 0.0 | 0.1 |  |
| None// None//105 | 3 | **1.4** | **3.7** | 0.0 | 0.2 | 2/3 |
| (Primary control) |  | 0.0 | 0.2 | 0.0 | **1.0** |  |
|  |  | 0.1 | 0.7 | 0.1 | 0.7 |  |
| Passive Transfer (PT)- EMC | 103//105 | 3 | **1.0** | **4.8** | 0.0 | 0.0 | 3/3 |
| No PT |  | 0.1 | **1.2** | 0.0 | 0.0 |  |
|  |  | **1.7** | **9.2** | 0.0 | 0.0 |  |
| 103//105 | 3 | 0.0 | 0.0 | 0.3 | 0.9 | 1/3 |
| PT |  | 0.9 | **1.8** | 0.0 | 0.0 |  |
|  |  | 0.2 | 0.7 | 0.0 | 0.0 |  |
| 103//105 | 3 | 0.1 | 0.7 | 0.0 | 0.0 | 0/3 |
| 1:10 PT |  | 0.0 | 0.0 | 0.0 | 0.0 |  |
|  |  | 0.0 | 0.0 | 0.0 | 0.0 |  |

a // indicates the sequence of subsequent infections

b The day listed is relative to day of intranasal infection with MERS-CoV.

c Combined percent of medium and strong positivity in the sample must total ≥ 1% in a single lobe in order to be considered positive for viral antigen. Weak positivity was not considered.

d Values of positivity for either medium or strong staining are bolded when ≥ 1%.

None- No inoculation was performed at the indicated timepoint.