

**Fig.1a: Antibody against BoHV-1 elicited by vaccines in Mice.**  Mice were intradermic immunized twice at a 20 days interval. Arrow indicates the date at which booster vaccination was performed. The cutoff was calculated as the mean level of antibody at day 0 post vaccination (dpv) + 2 SD. The results are presented as the mean ± standard error of the mean (SEM) of log10 antibody titers (n=5). Significant difference \*(p<0.05), \*\* (p<0.01), \*\*\* (p<0.001) compared to pCIgD group.



**Fig.1b**: Anti-BoHV-1 specific immunoglobulin isotypes measured by direct ELISA at 40 dpv. Sera was diluted at 1/50. Each bar represented mice serum OD A492 + SEM of the groups. (n=5) Significant differences \*(p<0.05), \*\* (p<0.01), \*\*\* (p<0.001) compared with pCIgD group.



**Fig.2**: **Specific proliferation of splenocytes from vaccinated mice measured by CFSE labeling.** Percentages of proliferating cells were evaluated by cytometry at 120 dpv. Cells were stimulated *in vitro* with iBoHV-1. The bars represented the mean of positive CFSE cells ± SEM n=5. Statistical significances were calculated with respect to pCIgD and pCIneo-Man-L group \*(p<0.05).



**Fig.3a**: Humoral immune response in bovine. Animals were immunized three times at 30 days intervals. Arrow indicates the date at which boosting vaccination was performed. The cutoff was calculated as the mean level of antibody at 0 days post vaccination (dpv) + 2 SD. The results are presented as the mean ± SEM of log10 antibody titers (n=5) \*(p<0.05) vs pCIgD group.



**Fig. 3b**: Anti-BoHV-1 specific immunoglobulin isotypes in sera measured by indirect ELISA at 90 dpv. The results are presented as the mean ± SEM of log10 antibody titers (n=5). \*(p<0.05), \*\*\* (p<0.001) vs pCIneo group.



**Fig.3c**: Anti-BoHV-1 specific immunoglobulin IgA isotypes in nasal swabs measured by indirect ELISA at 6 dpc. The results are presented as the mean ± SEM of the O.D (n=5). \*(p<0.05) vs pCIneo group.



**Fig.4:** **Cellular response elicited.** Activation of ALDCs after 16 h incubation with culture medium (mock), pCIgD, Man-L or pCIgD-Man-L with (+) or without (-) LPS. Each bar represents the mean fluorescence index for three replicates plus SEM. \*(p<0.05), \*\*(p<0.01), \*\*\*(p<0.001) vs mock.



**Fig.5:** **Percentages of proliferating cells at 12 dpc.** Cells were stimulated *in vitro* with iBoHV-1. The bars represent the mean of positive CFSE cells ± SEM. \*\* (p<0.01) vs control group, \*(p<0.05) vs pCIgD group.



**Fig. 6**: **Viral excretion after challenge.** At 90 dpv the animals were challenged by aerosol exposure with BoHV-1. Nasal swabs were obtained at 0, 3, 5, 6, 7, 8 and 12 days post challenge. Viral titers in nasal swabs were expressed as log10. \*\* (p<0.01 vs pCIneo group). AUC: area under curve of viral titer.



**Fig.7**: **Clinical score after viral challenge.** A clinical score was established according to the presence and severity of mucus and conjunctivitis. Dotted line represents a clinical score of 2, which was considered as mild sickness. Score was expressed as mean number of clinical score ± SEM of each group in each time point. \*(p<0.05) vs pCIneo group. AUC: Area Under Curve.