

Supplementary Information

Neonatal Zika virus infection causes transient perineuronal net degradation

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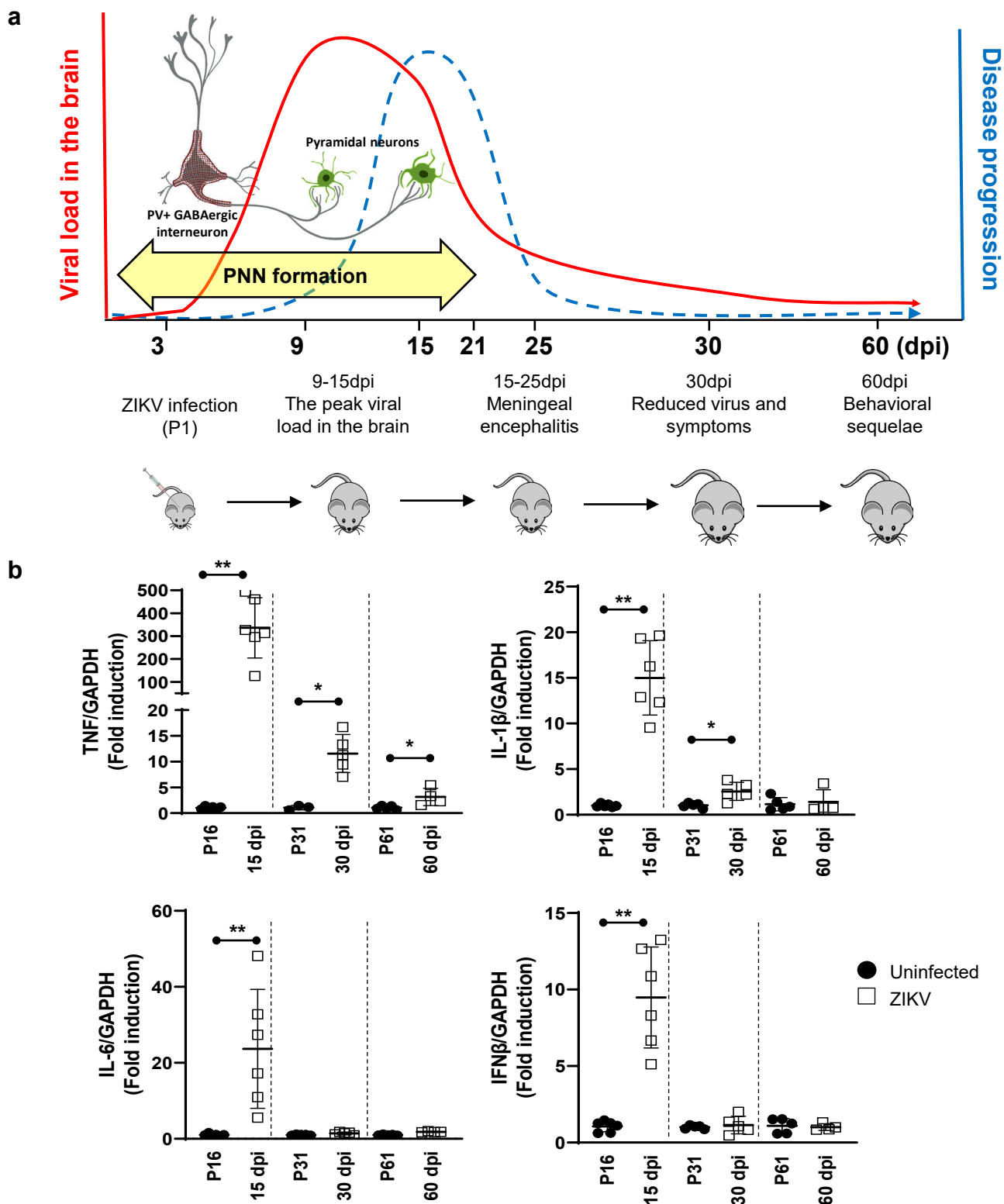
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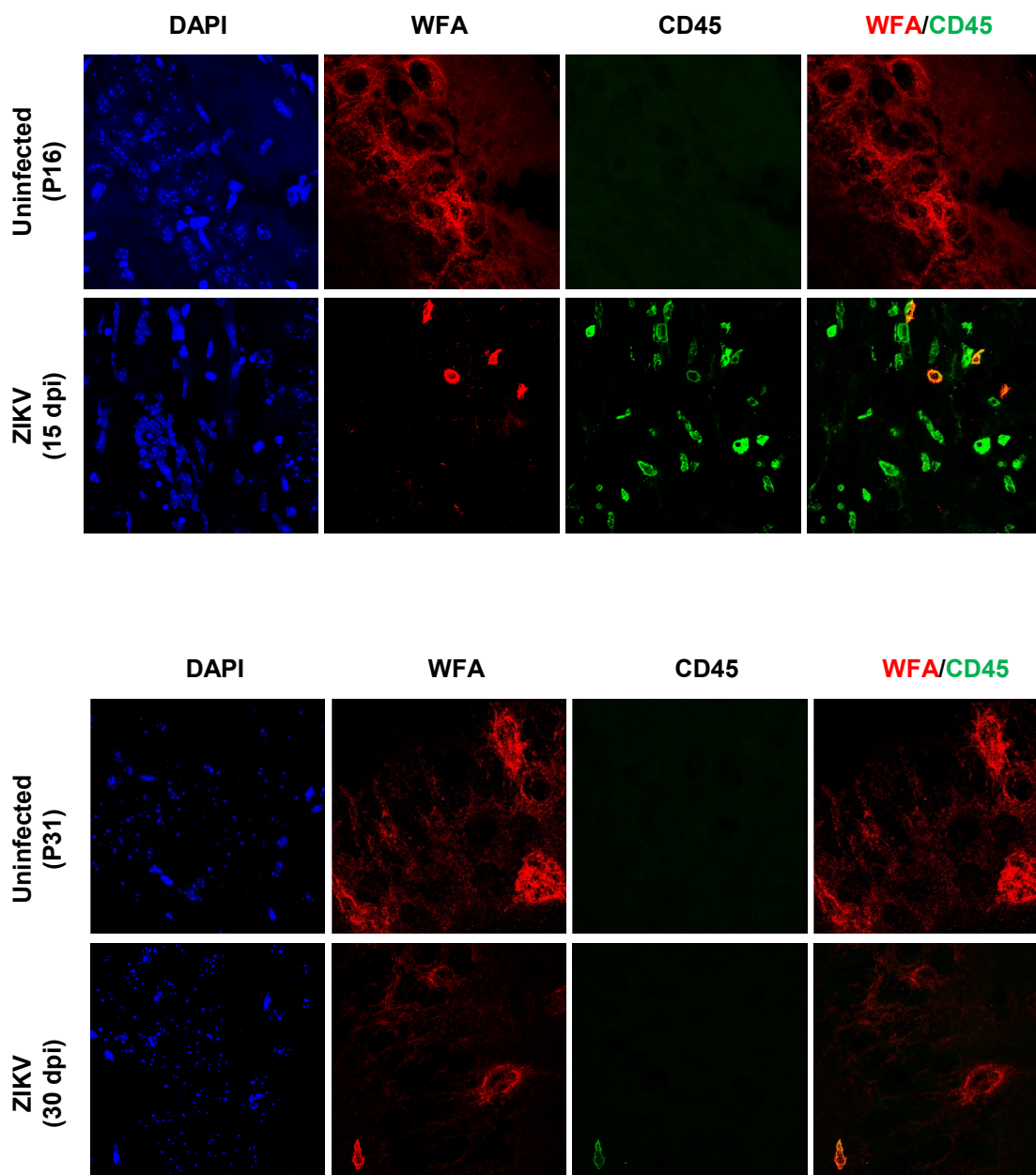
Materials and Methods

Gelatinase assay

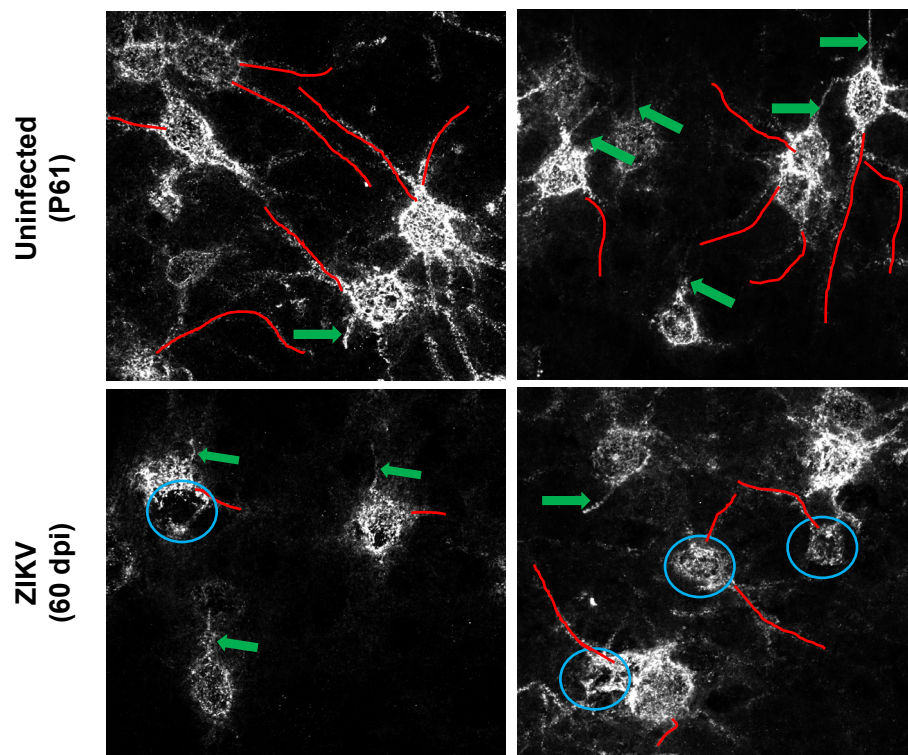
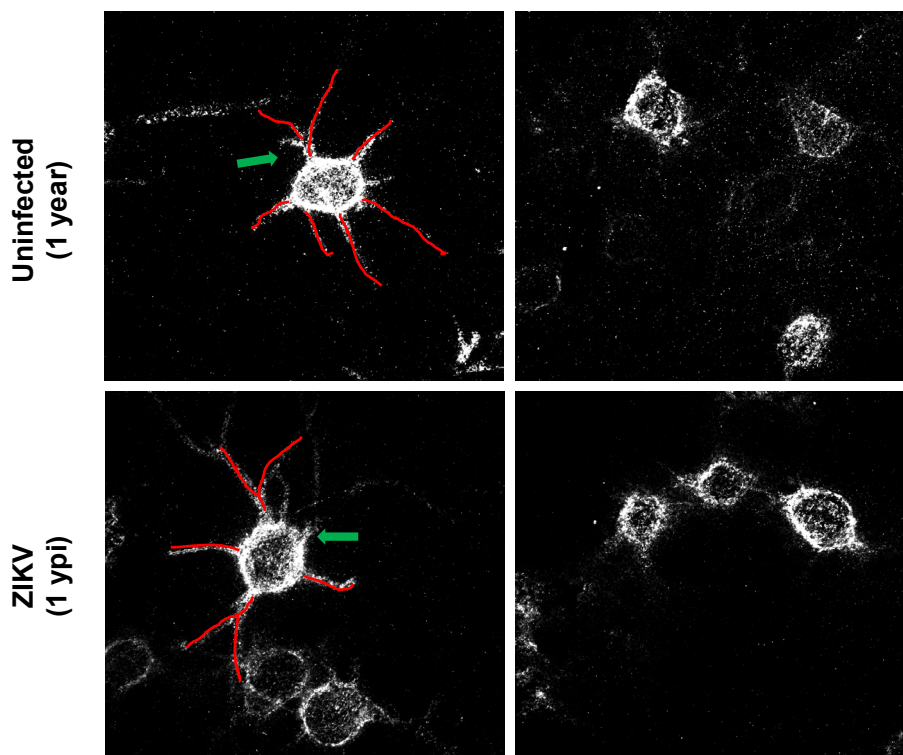
The activity of gelatinases in mouse brain tissues was determined using EnzChek Gelatinase/Collagenase Assay kit (ThermoFisher) according to the manufacturer's instructions.



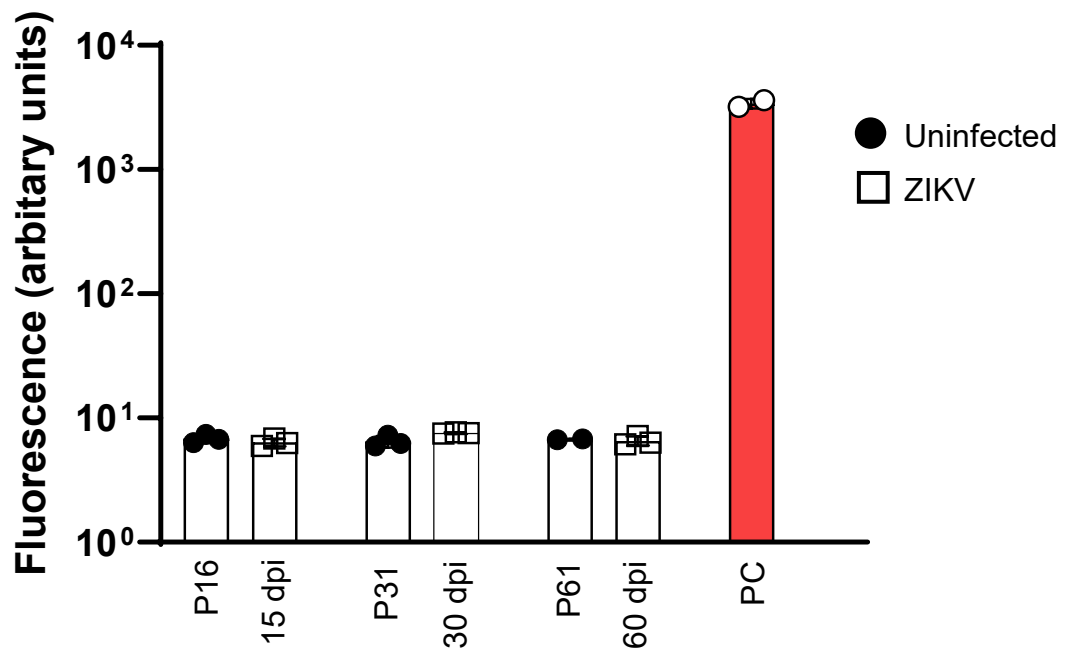
Supplementary figure 1. The disease and inflammation progression during ZIKV infection. (a) Schematic diagram depicting the disease progression of ZIKV infection. P1 C57BL/6 mice infected with ZIKV show the CNS infection that peaks at 9-15 dpi, together with a transient meningeal encephalitis characterized by unsteady gait, kinetic tremors, ataxia and seizures that appear 10-12 dpi and subside by 26-30 dpi. ZIKV-infected mice can show behavioral sequelae as late as 60 dpi. (b) Relative mRNA levels of TNF, IL-1 β , IL-6 and IFN β were determined in the brain of uninfected or ZIKV-infected mice at 15, 30 and 60 dpi using real-time RT PCR. Data shown as means $\pm$ S.D. (n = 4-6 mice for each group). * $P < 0.05$, ** $P < 0.01$ (student's t-test).



Supplementary figure 2. WFA staining is colocalized with CD45 staining in round shaped cells observed in ZIKV-infected brains. Confocal imaging of WFA and CD45 staining in the CA2 regions of the brain from uninfected or ZIKV-infected mice at P16/15 dpi and P31/30 dpi. The images show representative immunofluorescence staining for DAPI (blue), WFA (red) and CD45 (green) in brain sections.

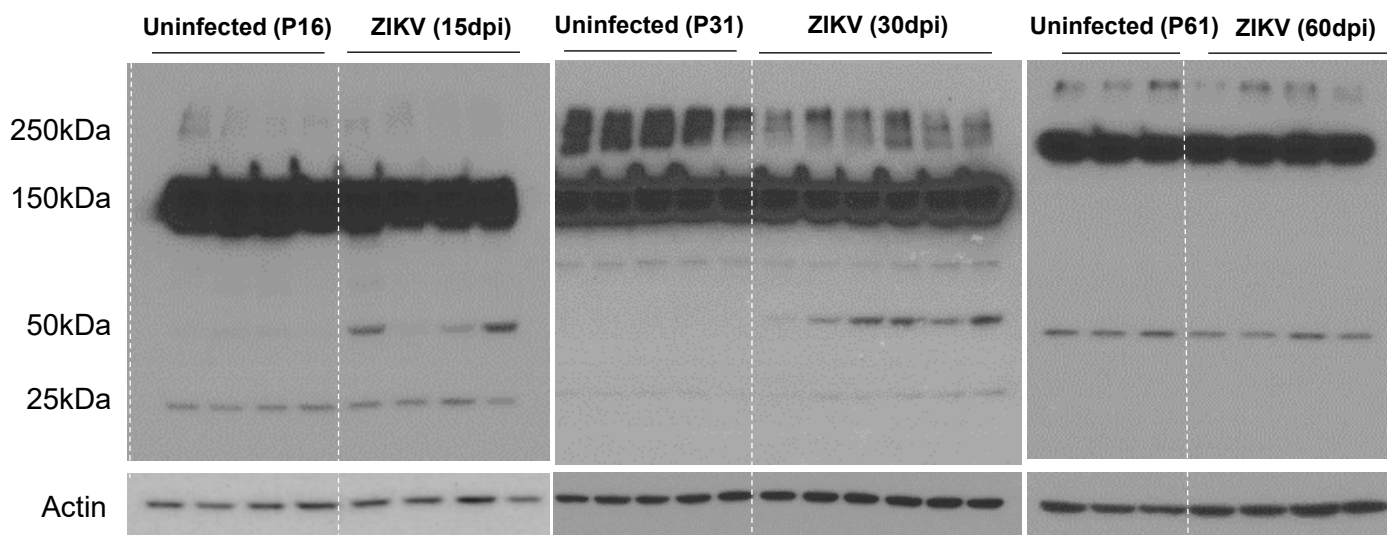
a**Representative PNN morphology****b****Highly arborized PNN****Less arborized PNN**

Supplementary figure 3. PNN morphology in control and convalescent mice. Two representative confocal images (63x) show immunofluorescence staining for WFA in SSC regions of age-matched controls and convalescent mice at 60 dpi (a) and 1 ypi (b). Blue circles, ghost PNNs; red lines, PNN on dendritic arbor; green arrows, PNN on AIS.

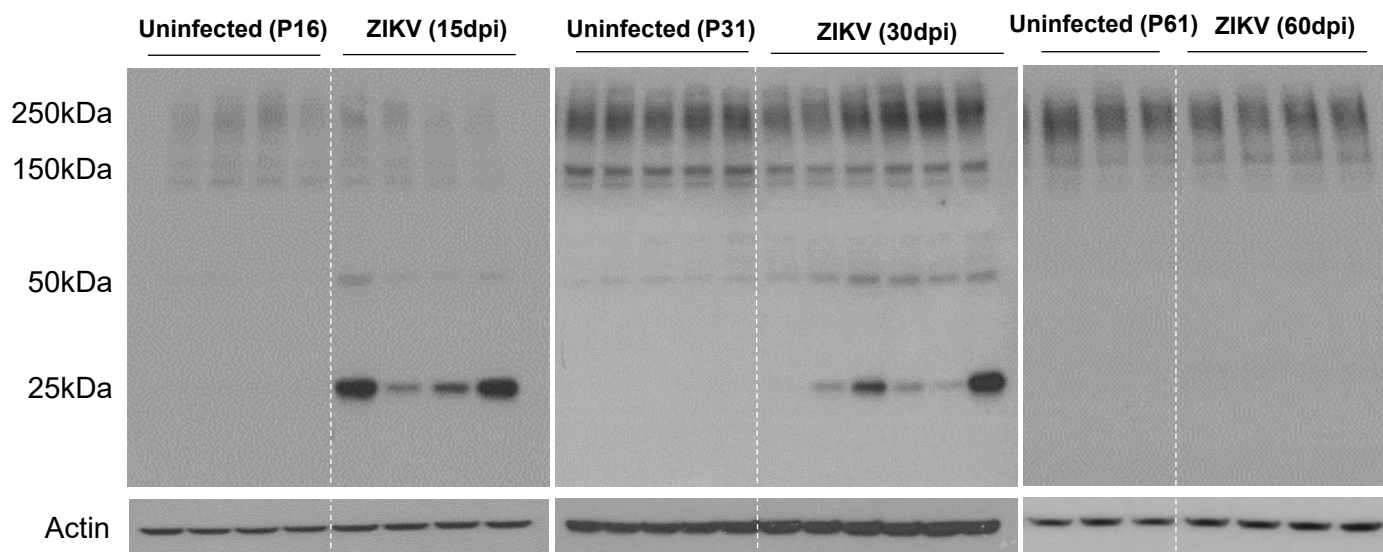


Supplementary figure 4. Gelatinase/collagenase activity in the brain of ZIKV-infected mice. Gelatinase/collagenase activity was measured in the brain lysates from uninfected and ZIKV-infected mice at the indicated time point. PC, positive control (0.1 U/mL of *Clostridium* collagenase) is red bar. n = 2-3 mice for each group.

a Aggrecan



b Brevican



Supplementary figure 5. Uncropped gel images. Full length gel images of aggrecan (a) and brevican (b) corresponding to the cropped images shown in Fig. 1e, 1h, 2e, 2h, 3e and 3h.