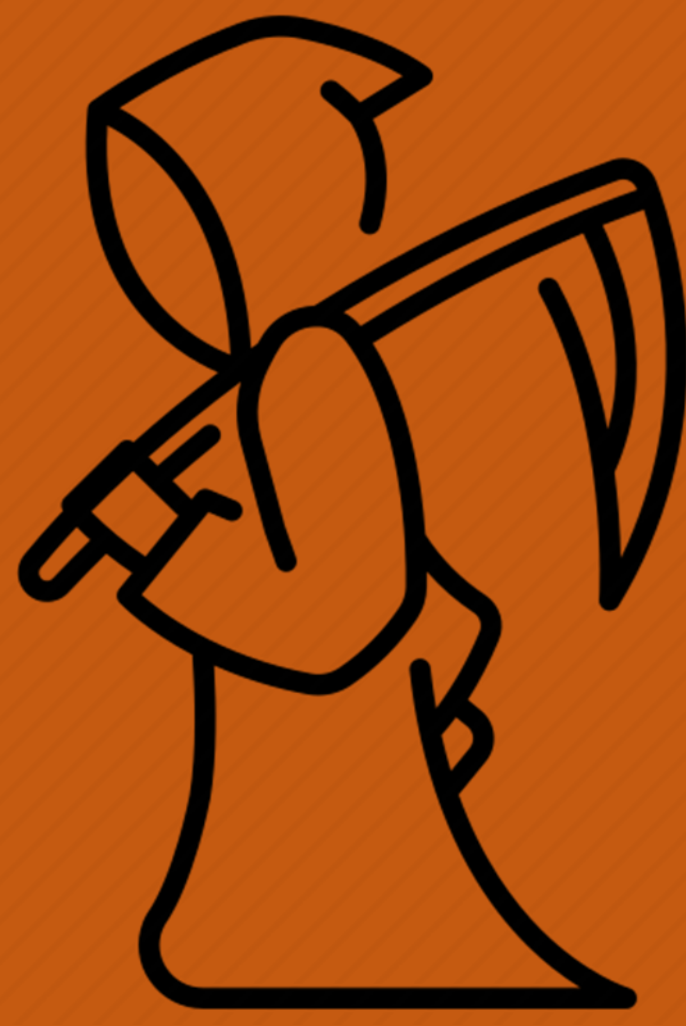


# Necroptosis and pyroptosis are suggested to play a role in neuronal death after TBEV<sup>1</sup> infection



## Are regulated cell death (RCD) pathways involved in neuronal death in TBEV-infected human neuronal/glial cells? A transcriptomic study

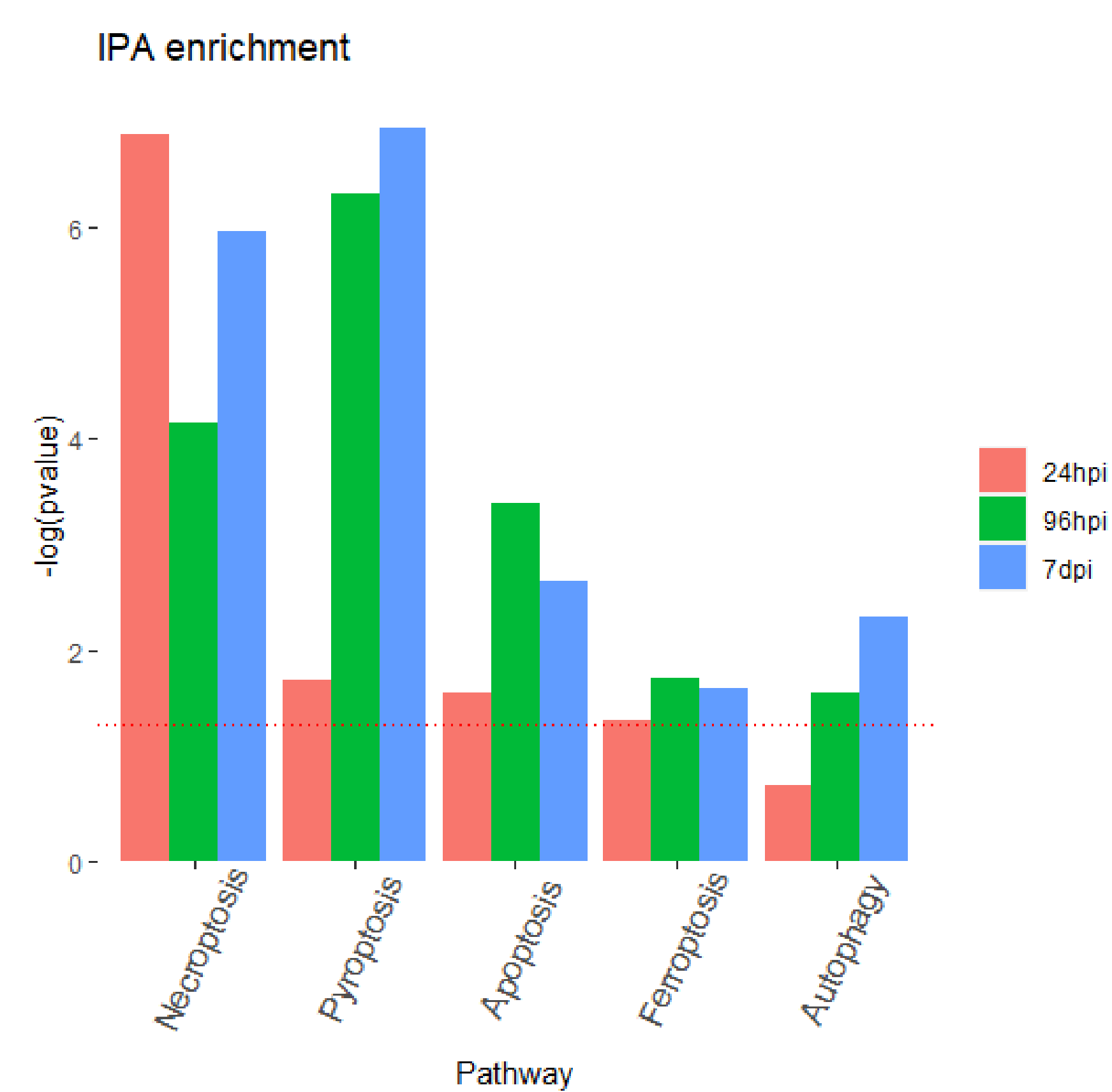
### INTRODUCTION

- One of the major hallmark of TBEV infection is its tropism for neurons followed by neuronal death. Unfortunately, so far, the underlying molecular mechanisms of the neuronal death remain poorly understood<sup>2</sup>

### METHODS

- TBEV-infected human neuronal/glial cells differentiated from fetal neural progenitor cells<sup>2</sup>
- 3 time points: 24 hpi, 96 hpi and 7 dpi
- RNA-Seq (16 RNA samples)
- Diff. expression analysis (in-house developed RNA-Seq pipeline)
- IPA enrichment analysis / gene lists specific for each RCD pathway

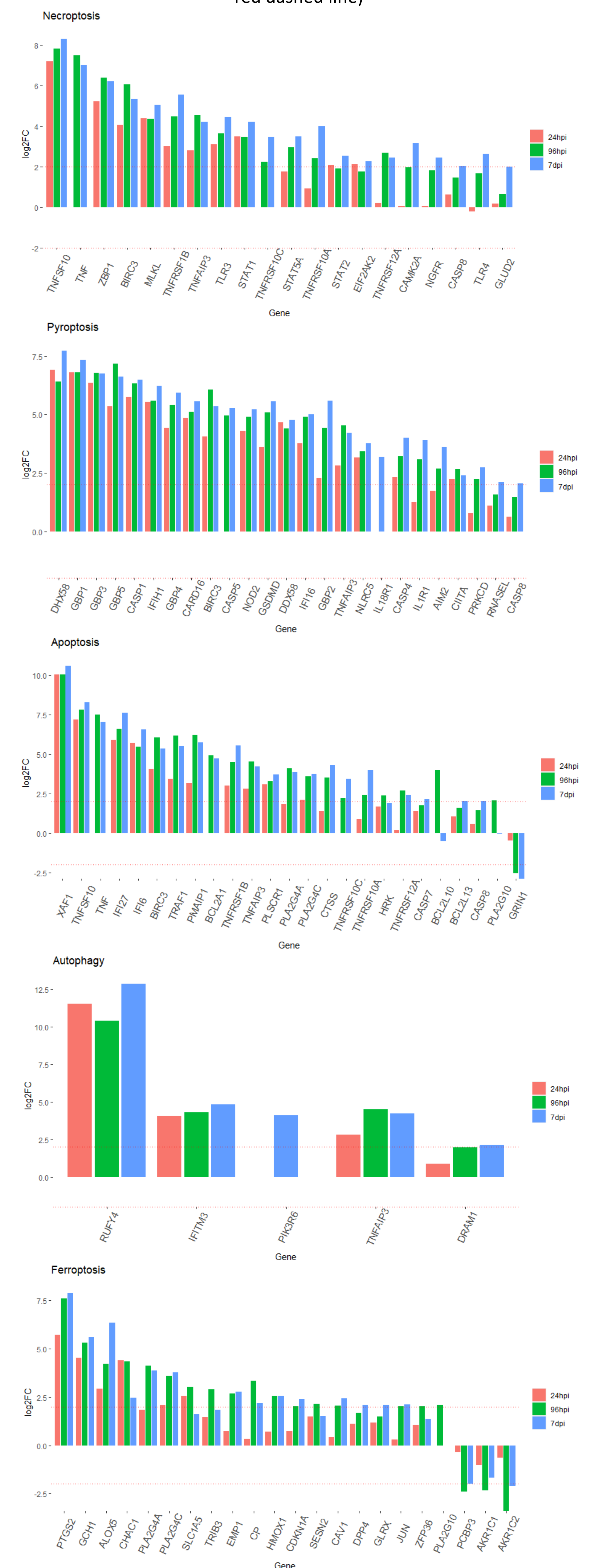
### RESULTS



### CONCLUSION

- Our results suggest that multiple mechanisms of regulated cell death concur to induce neuronal death in TBEV-infected neuronal/glial cells, namely: necroptosis, pyroptosis and apoptosis.
- They confirm previous results<sup>2</sup> showing an involvement of pyroptosis and apoptosis and suggest an additional mechanism (necroptosis) that was, so far, unknown.
- On the contrary, we have no evidence of involvement of ferroptosis and autophagy in TBEV-induced neuronal death.

Differentially expressed genes in RCD pathways (differential expression threshold at log<sub>2</sub>FC = 2 indicated by the red dashed line)



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<sup>1</sup>Tick-Borne Encephalitis Virus

<sup>2</sup>Fares et al. Viruses 2021, 13, 2255. <https://doi.org/10.3390/v13112255>