



TURKEY HAEMORRHAGIC ENTERITIS: GENE SEQUENCE COMPARISON BETWEEN VACCINE-LIKE AND FIELD STRAINS

Objective: To analyse the ORF1 gene 3' region of **Turkey Haemorrhagic Enteritis Virus (THEV)** in order to:

- develop a **molecular diagnostic method** able to differentiate vaccine-like and field strains;
- provide an update on **THEV epidemiology** in Europe.

Materials and Methods:

- **80 samples** (turkey's spleens or cloacal swabs) including a commercial vaccine;
- **New set of PCR primers** (ORF1, hyd and partial Iva2 genes);
- **Sequencing and Phylogenetic Analysis**

Results:

- 56/80 THEV sequences \geq **99.8%** nucleotide identity with the vaccine strain sequence.
- **Three non-synonymous mutations** detected (**Figure 1**).
- Clustering of THEV field and vaccine-like strains in different phylogenetic branches (**Figure 2**).

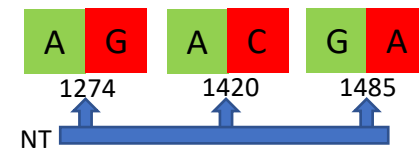


Figure 1. Mutations detected in THEV vaccine-like strains (green) and THEV field strains (red).



THEV
Vaccine-like
strains

Conclusions: The method developed in this study is proved to be a useful tool towards making a correct diagnosis. The data obtained contribute to the knowledge of field distribution of THEV and broaden the limited information available on native isolates in Europe.

Future Proposal: Longitudinal study will be performed to clarify vaccine kinetics in the field.

References: Quaglia G., Di Francesco A., Catelli E., Mescolini G., Lupini C. Turkey Adenovirus 3: ORF1 gene sequence comparison between vaccine-like and field strains. *Vet Res Commun* (2023). (Submitted)

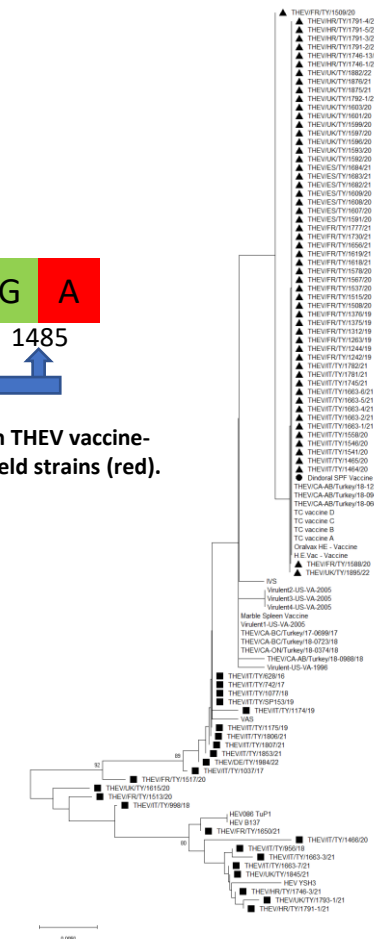


Figure 2. Phylogenetic Tree

THEV
Field strains