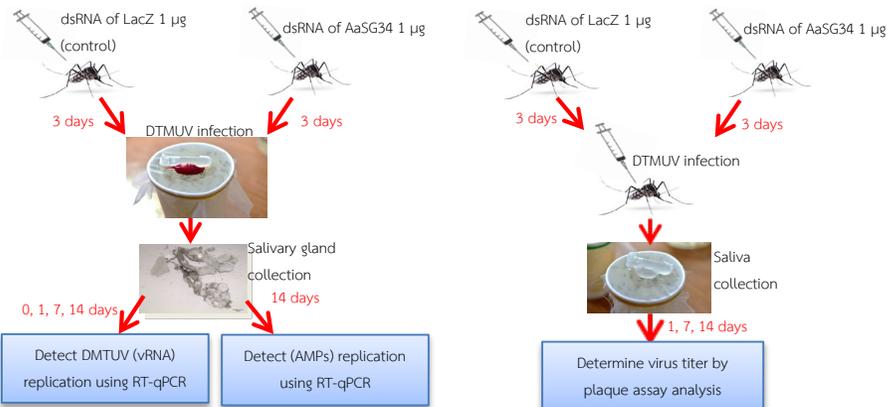


Introduction

- Duck Tembusu virus (DTMUV) infection is an arthropod-borne viral disease that affects many poultry species, including ducks, chickens, and geese. *Aedes aegypti* mosquito is an important vector of DTMUV.
- When the infected mosquito probes for a blood meal, it uses a proboscis to break through the host epidermis and injects infected saliva containing a complex mixture of salivary proteins into the host skin.
- In this study, we sought to determine whether any individual *A. aegypti* salivary protein modulated DTMUV replication in salivary gland and transmission into saliva.

Method



Results

- AaSG34 was found to be upregulated following DTMUV infection (Fig.1).
- Transcript of the duck Tembusu viral genome in salivary glands was significantly diminished when AaSG34 was silenced (Fig.2).
- Virus titer in saliva was inhibited when AaSG34 was silenced (Table 1).
- Infected salivary glands in which AaSG34 was silenced, revealed the presence of 8 antimicrobial peptides (AMPs); namely, CECA, CECB, CECD, CECE, CECG, DEFD, DEFE, and GAM, which were significantly enhanced when compared with LacZ-silenced mosquitoes (Fig.3).

Fig.1

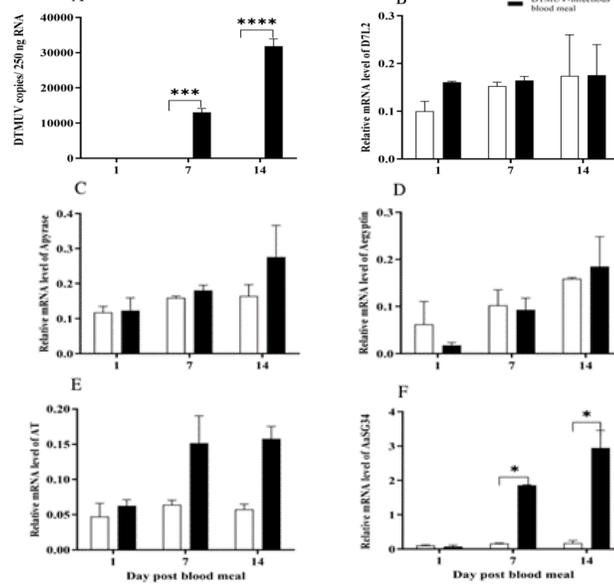


Fig.2

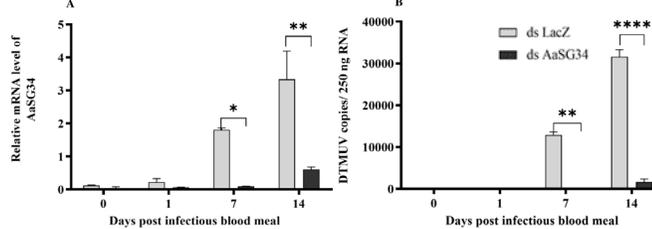
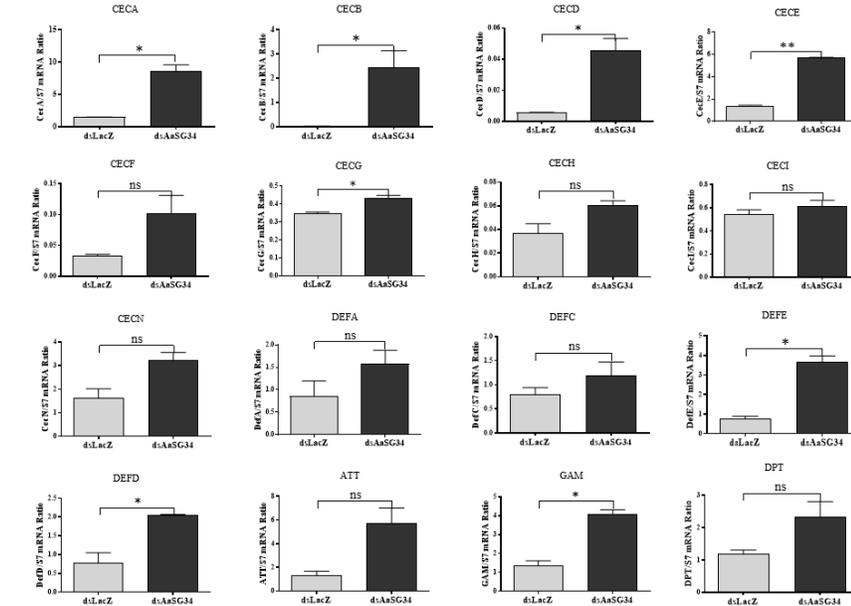


Table 1 The logarithm of PFU/mL of DTMUV-infected saliva from LacZ- and AaSG34-silenced mosquitoes

Day post inoculation	Infected saliva titer (Log PFU/mL)	
	ds LacZ	ds AaSG34
1	nd	nd
7	nd	nd
14	3.719 ± 0.021	nd

Fig.3



Conclusion

This study showed empirical evidence that AaSG34 salivary protein may strongly enhances DTMUV infection in *A. aegypti* salivary glands by suppressing antiviral immune responses.

