# METTL5-mediated 18S rRNA m$^6$A modification enhances ribosome assembly and ABA response in *Arabidopsis*

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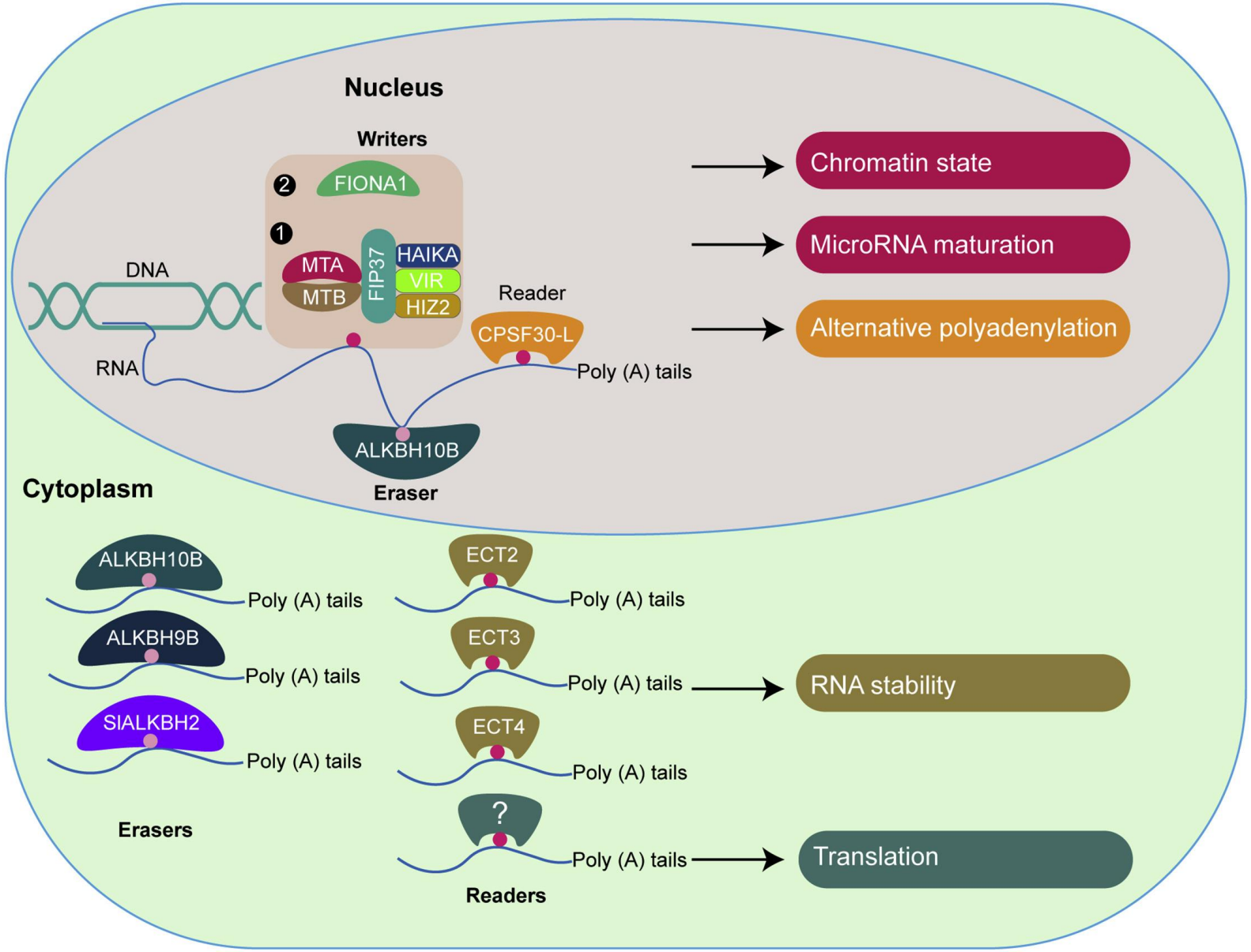
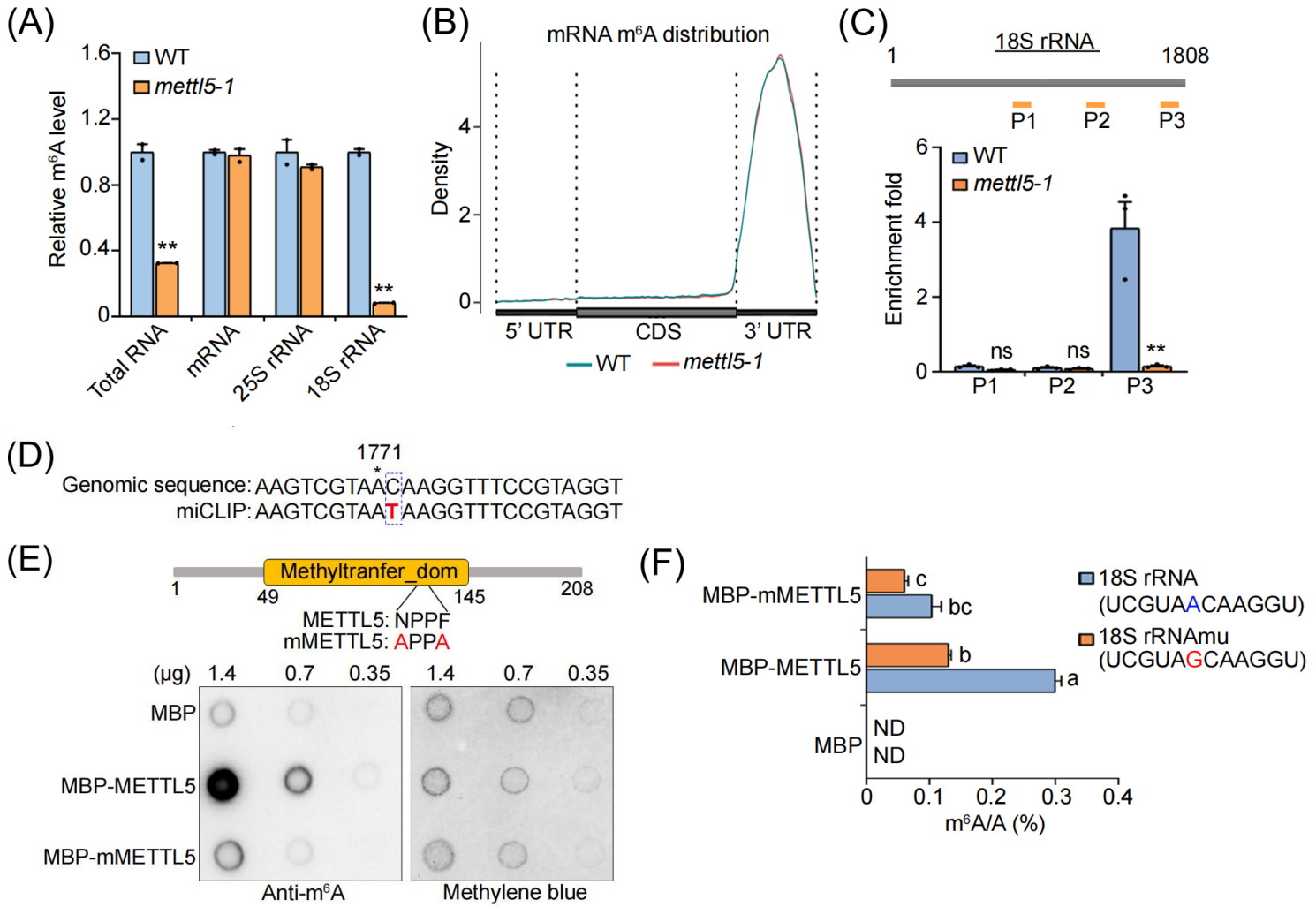
# Introduction



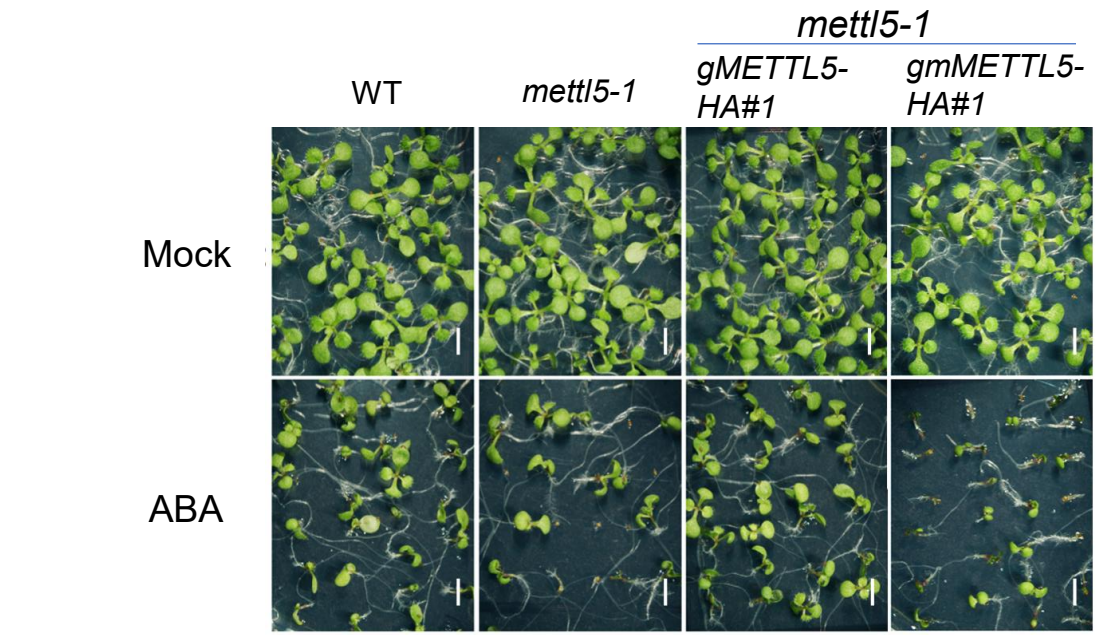

(Tang et al., 2025)

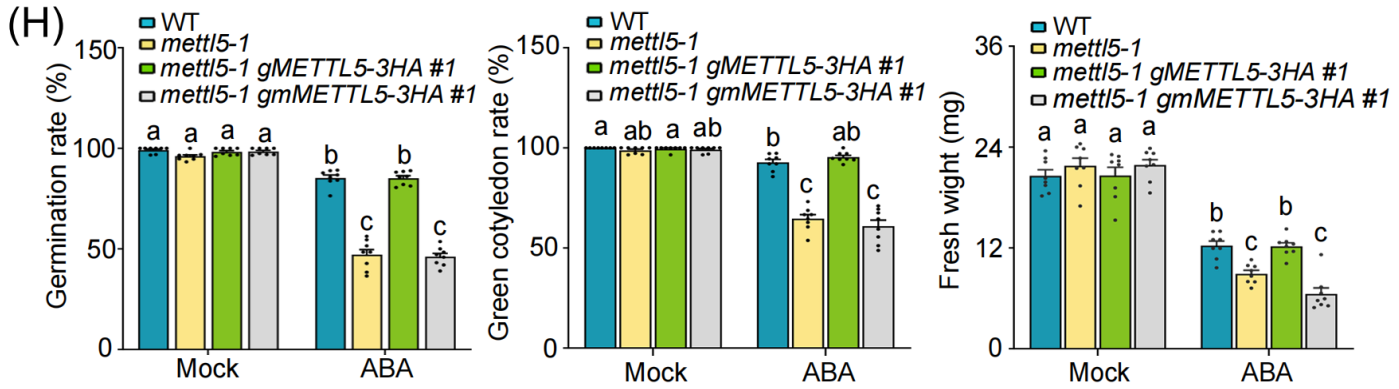
# Highlights

- *Arabidopsis* METTL5 specifically deposits $m^6A$ at $A_{1771}$ in 18S rRNA
- METTL5 enhances the translation efficiency of *GSTs* to mediate the ABA response
- $m^6A_{1771}$ is indispensable for the binding of 18S rRNA to RPL24A

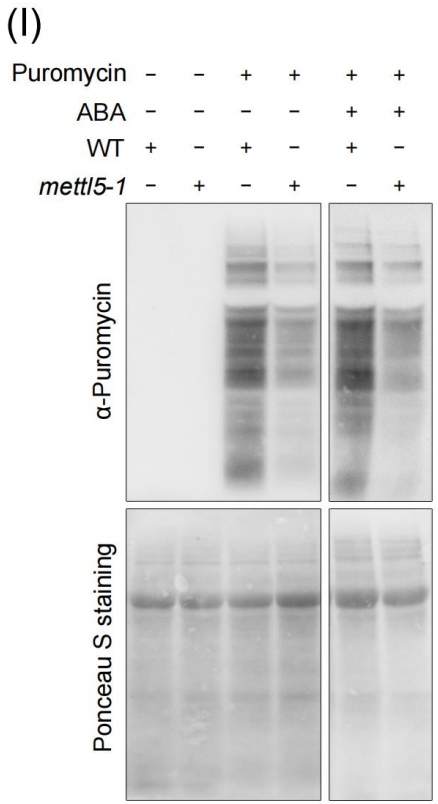


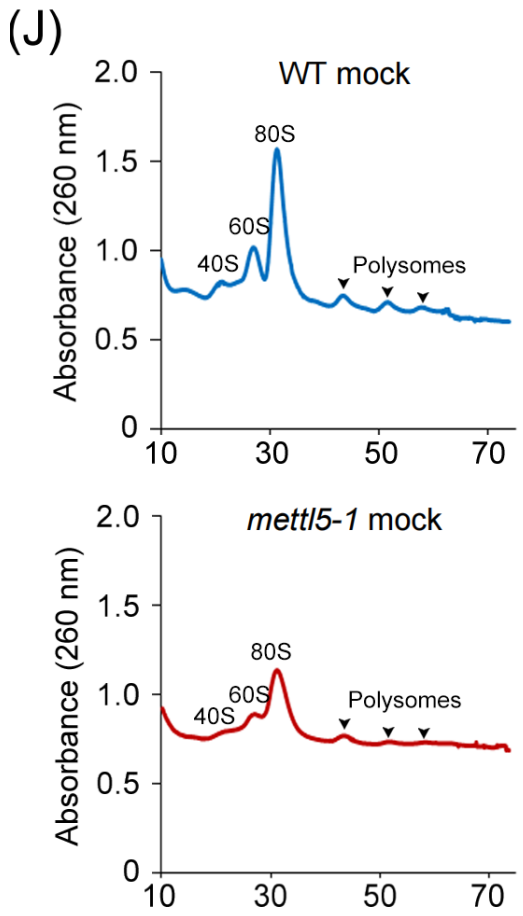

**METTL5 specifically regulates 18S rRNA $A_{1771}$ methylation.**

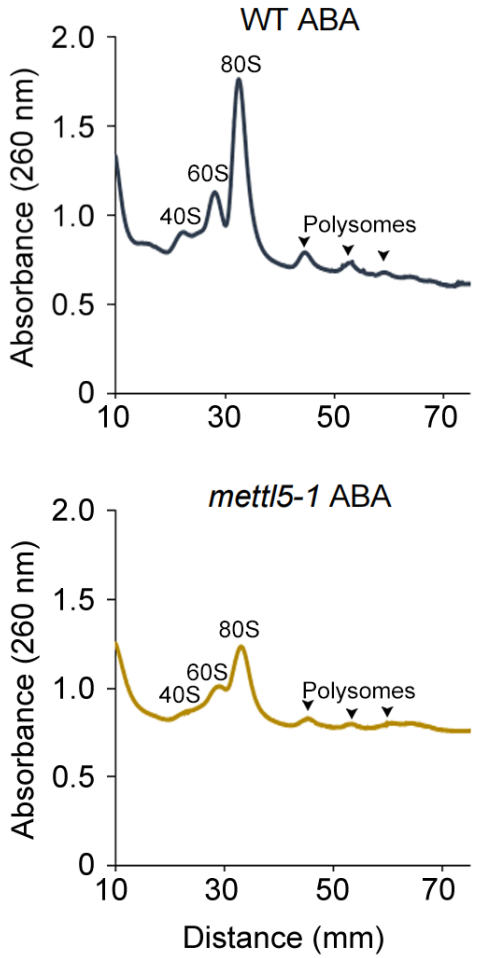


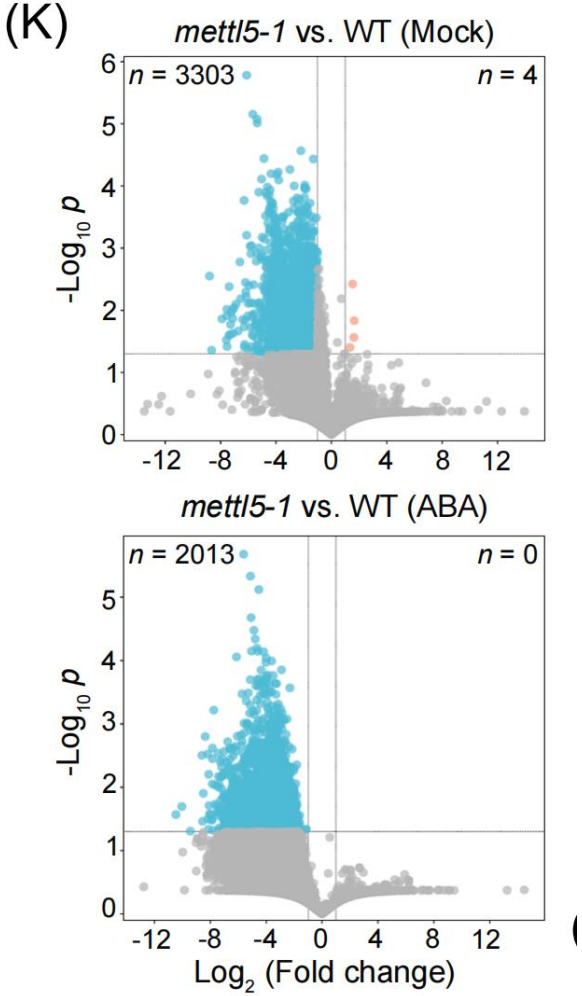




# METTL5 regulates plant ABA response

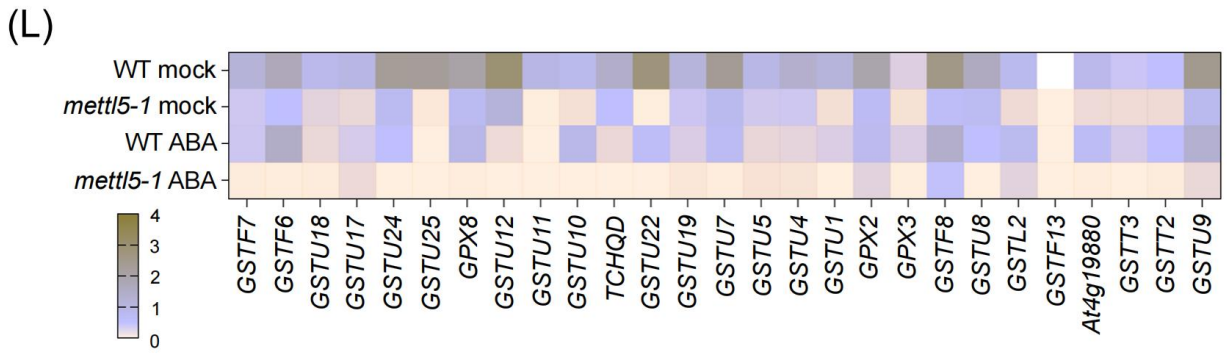


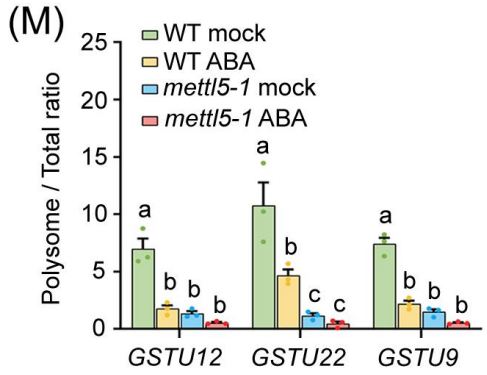



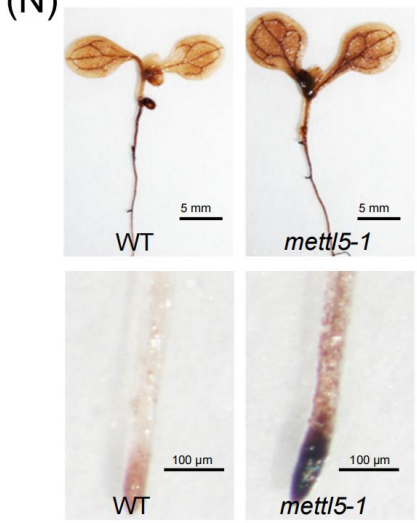



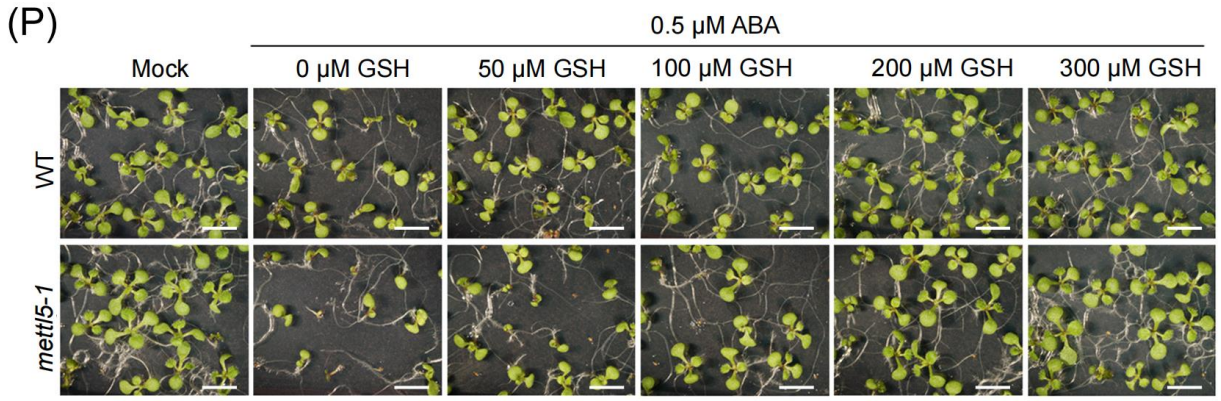



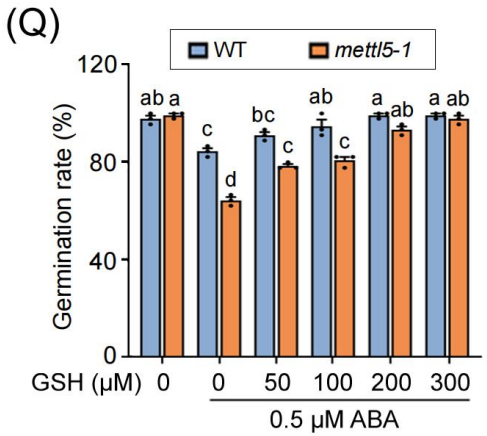

**METTL5 is associated with mRNA translation**

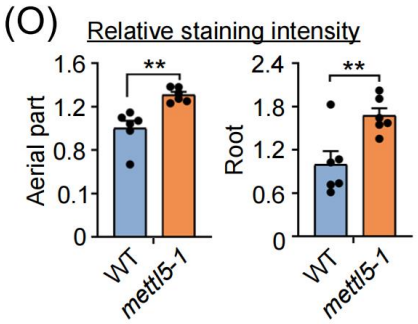


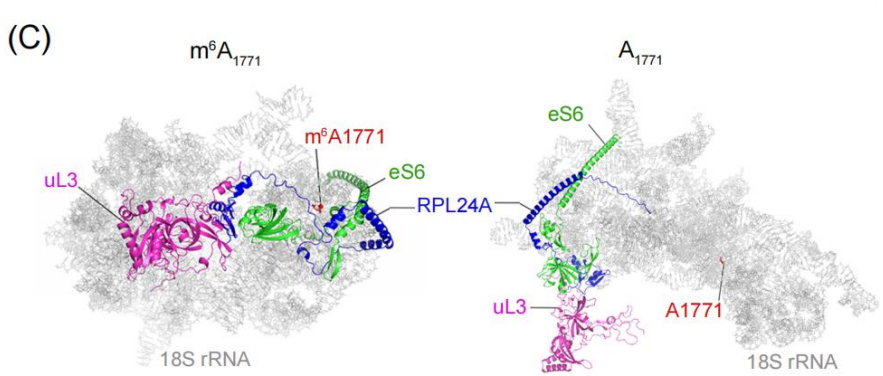



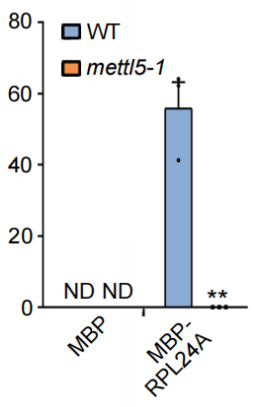



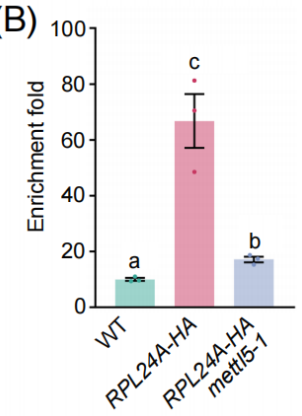



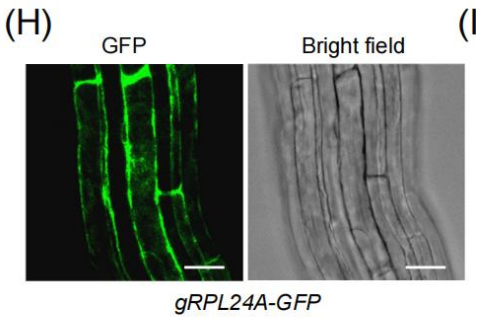



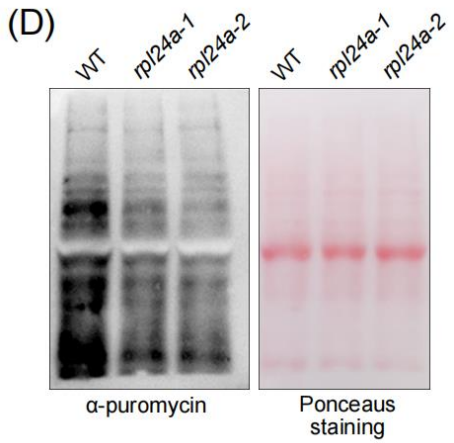

**Reduced translation of *GSTs* in *mettl5* mutant leads to ROS excessive accumulation and ABA hypersensitivity**

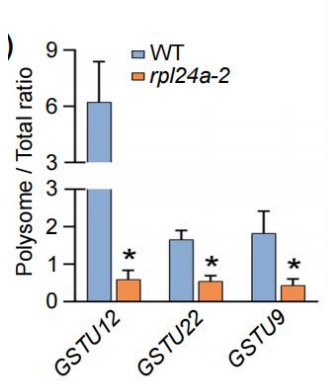


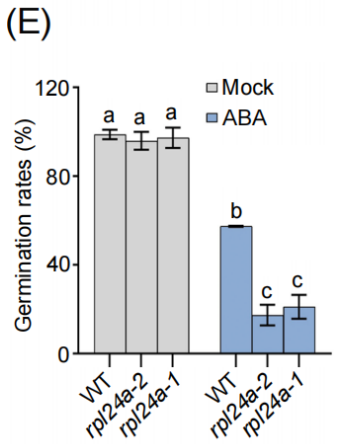



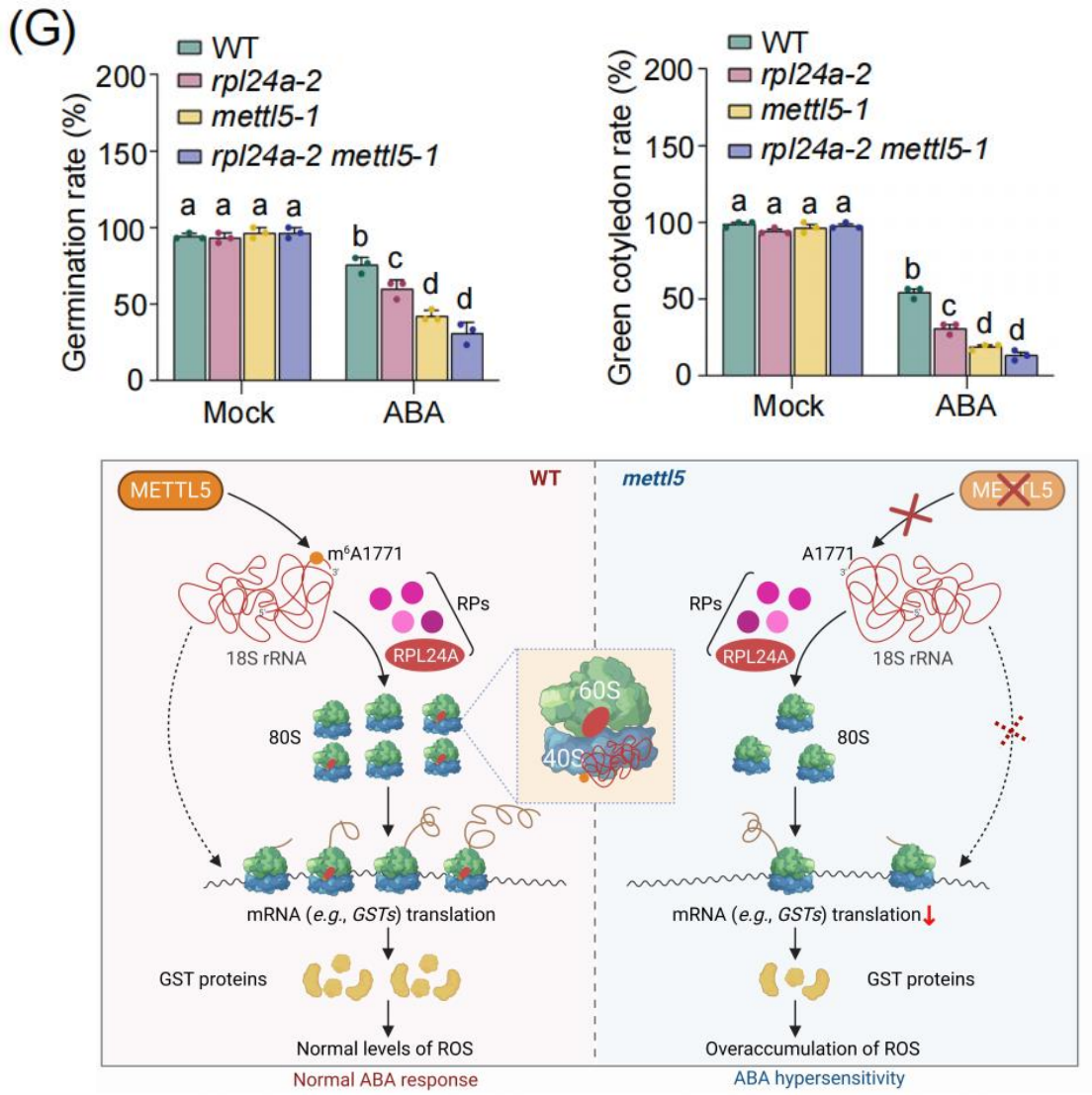




# METTL5 mediated 18S rRNA m$^6$A modification is essential for ribosome assembly




# METTL5 and RPL24 function in a same pathway

# Summary

- Arabidopsis METTL5 deposits $m^6A$ at $A_{1771}$ in 18S rRNA to promote translation of *GSTs* to mediate the ABA response.

- Our findings uncover a mechanism by which rRNA epitranscriptomic regulation controls mRNA translation and mediates plant responses to environmental conditions.

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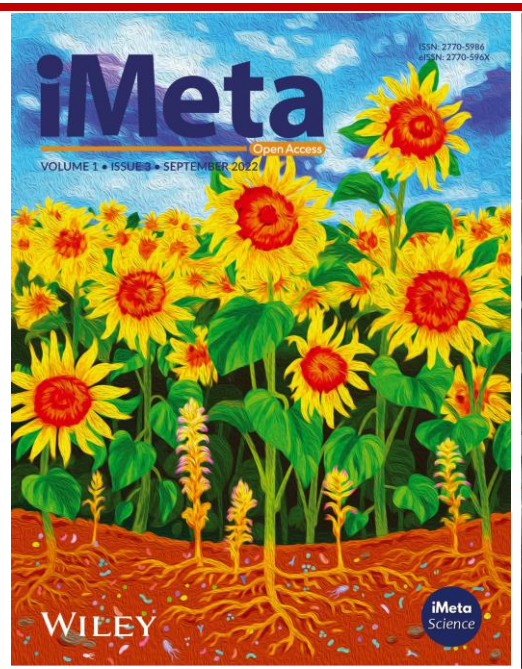


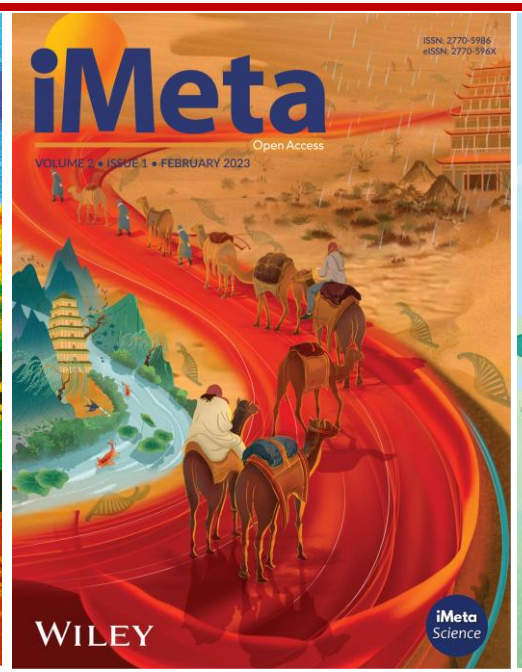


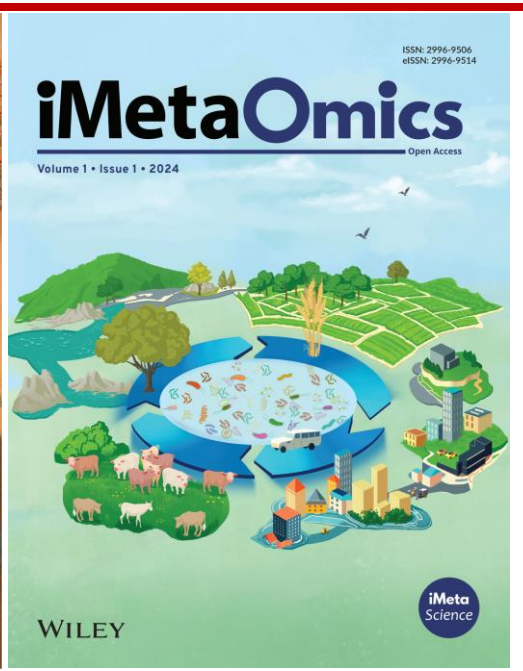



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