

# RNA Interference in the Egg Parasitoid, *Trichogramma dendrolimi* Matsumura

 Long-xi Zhang<sup>1</sup>, Qian-jin Dong<sup>1</sup>, Shuai Yang<sup>1</sup>, Wu-nan Che<sup>1</sup>, Li-sheng Zhang<sup>2</sup>, Jin-cheng Zhou<sup>1,2</sup>, Hui Dong<sup>1</sup>
<sup>1</sup>College of Plant Protection, Shenyang Agricultural University <sup>2</sup>State Key Laboratory for Biology of Plant Diseases and Insect Pests, Institute of Plant Protection, Chinese Academy of Agricultural Sciences

## Corresponding Authors

 Jin-cheng Zhou  
 parasitoidswasp@163.com

 Hui Dong  
 biocontrol@163.com

## Citation

 Zhang, L.x., Dong, Q.j., Yang, S., Che, W.n., Zhang, L.s., Zhou, J.c., Dong, H. RNA Interference in the Egg Parasitoid, *Trichogramma dendrolimi* Matsumura. *J. Vis. Exp.* (201), e66250, doi:10.3791/66250 (2023).

## Date Published

November 21, 2023

## DOI

10.3791/66250

## URL

jove.com/video/66250

## Materials

Name	Company	Catalog Number	Comments
2x ES Taq MasterMix (Dye)	Cowin Biotech, China	CW0690H	To amplify the dsRNA sequences
20x PBS Buffer, DEPC treated (7.2-7.6)	Sangon Biotech, China	B540627-0500	To dilute dsRNA
Agar strip	Shishi Globe Agar Industries Co.,Ltd, China	n/a	To make culture medium
Ampicillin sodium	Sangon Biotech, China	A610028	To make culture medium
Bioer Constant temperature metal bath	BIOER, China	MB-102	To synthesis dsRNA
Borosilicate glass capillary	WPI, USA	1B100-4	To pull capillary glass needle
Clean bench	Airtech, China	SW-CJ-1FD	To extract RNA
Double distilled water	Sangon Biotech, China	A500197-0500	To dilute cDNA
Environmental Testing chamber	Panasonic, Japan	MLR-352H-PC	To culture <i>T. dendrolimi</i>
Eppendorf Centrifuge	Eppendorf, Germany	5418R	To store RNA content
Eppendorf FemtoJet 4i	Eppendorf, Germany	FemtoJet 4i	To inject <i>T. dendrolimi</i>
Eppendorf Refrigerated Centrifuge	Eppendorf, Germany	5810R	Centrifuge
Ethanol solution (75%, RNase-free)	Aladdin, China	M052131-500ml	To extract RNA
Gel Extraction Kit	Omega, USA	D25000-02	To extract cDNA
GUM Arabic	Solarbio, China	CG5991-500g	To make egg card
Isopropyl alcohol	Aladdin, China	80109218	To extract RNA
Laser-Based Micropipette Puller	SUTTER, USA	P-2000	To pull capillary glass needle
Microloader	Eppendorf, Germany	20 µL	To load dsRNA
Multi-sample tissue grinder	LICHEN, China	LC-TG-24	To grind <i>T. dendrolimi</i>
Needle Grinder	SUTTER, USA	BV-10-E	To grind capillary glass needle
Nuclease-Free Water	Sangon Biotech, China		To dilute RNA
OLYMPUS Microscope	OLYMPUS, Japan	XZX16	To observe <i>T. dendrolimi</i>
PCR machine	Bio-rad, USA	S-1000	For DNA amplification
PowerPac Basic	Bio-rad, USA	PowerPac™ Basic	To detect the quality of dsRNA
Primer of <i>dsGFP</i> (Forward)			[TAATACGACTCACTATAGGG]

			ACAAACCAAGGCAAGTAATA
Primer of <i>dsGFP</i> (Reverse)			[TAATACGACTCACTATAGGG] CAGAGGCATCTTCAACG
Primer of <i>Ferhch</i> for qPCR (Forward)			TGAAGAGATTCTGCGTTCTGCT
Primer of <i>Ferhch</i> for qPCR (Reverse)			CTGTAGGAACATCAGCAGGCTT
Primer of <i>Ferhch</i> for RNAi (Reverse)			[TAATACGACTCACTATAGGG]AG TAGCCATCATCTTTCC
Primer of <i>Ferhch</i> for RNAi(Forward)			[TAATACGACTCACTATAGGG] ACACTGTCAATCGTCCTG
Primer of <i>FoxO</i> for qPCR (Forward)			CTACGCCGATCTCATAACGC
Primer of <i>FoxO</i> for qPCR (Reverse)			TGCTGTGCGCCCTTGTCCT
PrimeScript RT reagent Kit with gDNA Eraser (Perfect Real Time)	TaKaRa, Japan	RR047A	
Quantitative Real-time PCR	Bio-rad, USA	CFX 96 Touch	To perform reverse transcriptase polymerase chain reaction (RT- PCR)
Real-time PCR (TaqMan) Primer and Probes Design Tool			<a href="https://www.genscript.com/tools/real-time-pcr-taqman-primer-design-tool/">https://www.genscript.com/tools/real-time-pcr-taqman-primer-design-tool/</a>
T7 RiBoMAX Express RNAi System	Promega, USA	P1700	To synthesis dsRNA <i>in vitro</i>
TB Green Premix Ex TaqTM II (Til RnaseH Plus)	TaKaRa, Japan	RR820A	To perform RT-qPCR
Trichloromethane	KESHI, China	GB/T682-2002	To extract RNA
TRIzol Reagent	Ambion, USA	15596018	To extract total RNA content from samples
Ultra-low Temperature Freezer	Thermo, USA	Forma 911	