

Supplementary Table S1 PCR primer list.

Primer	Primer sequence (5'-3')	Annotation
S <sub>1</sub> -RNase	F: ATGCATTTTAGTATTGTCAA; R: TCATTGTGGGATTGCGATCA	PCR
S <sub>2</sub> -RNase	F: ATGAAGGTAAACCTCTTATT; R: CTAGTCGTTACGATTAGCCG	PCR
S <sub>3</sub> -RNase	F: CTGATTGCACTATCCCTCGT; R: GGCATTATAGTCAGGCCACAGT	Gene expression
S <sub>4</sub> -RNase	F: GGCCATCAGATTTCGTTCTA; R: GTCTGATAGCTGCTTGGAGA	Gene expression
S <sub>5</sub> -RNase	F: CAGACGGTGGCAGTTACAAT; R: GGGAGGAACGTCAAACATGA	Gene expression
S <sub>6</sub> -RNase	F: GTTCTTGCAATCGCATTCGC; R: GGTATTTGTCGAGGACCTGC	Gene expression
S <sub>7</sub> -RNase	F: CAGCGGCAGATTTCGGGATT; R: GCACAGACTCAGAGCAAGTG	Gene expression
S <sub>8</sub> -RNase	F: GATTTTGGCATTACGGGCT; R: CAGACTCTGCACAAGTACCGT	Gene expression
F-box1	F: GATAAGGGGAAGAATGCAAC; R: TTACGGAAGGAATAAGACTG	Gene expression
F-box2	F: GATTCCTGATGGGTTGCCT; R: TGCACATCCGAACAACATCC	Gene expression
ClActin	F: CGTATGAGCAAGGAAATCACAG ; R: ATTGATCCTCCAATCCAAACAC	

Supplementary Table S2 Secondary structure.

	Alpha helix	Beta sheet	Turn	Coil
S <sub>1</sub> -RNase	33.33%	17.51%	5.08%	44.07%
S <sub>2</sub> -RNase	31.91%	11.91%	4.68%	51.49%
S <sub>3</sub> -RNase	42.09%	9.71%	3.24%	44.96%
S <sub>4</sub> -RNase	34.23%	14.86%	5.86%	45.05%
S <sub>5</sub> -RNase	29.59%	19.39%	12.24%	38.78%
S <sub>6</sub> -RNase	18.18%	30.68%	5.68%	45.45%
S <sub>7</sub> -RNase	36.52%	12.17%	6.09%	45.22%
S <sub>8</sub> -RNase	34.51%	13.72%	5.31%	46.46%

Supplementary Table S3 protein functions.

S <sub>3</sub> -RNase Interaction candidate protein information		
Number	Gene description	Molecular function
<b>A1</b>	Pectin acetyltransferase 8 (PAE8)	Pectin hydrolase activity.
<b>A2</b>	Polygalacturonase inhibitor (PGIP1)	It is an important factor for plant resistance to phytopathogenic fungi.
<b>A3</b>	Putative invertase inhibitor (PPI)	Acts in the modification of cell walls via demethylesterification of cell wall pectin, Related to pollen development.
<b>A4</b>	Transmembrane emp24 domain-containing protein p24beta2-like (p24beta2)	Involved in vesicular protein trafficking.
<b>A5</b>	Serine-tRNA ligase	Serine-tRNA ligase activity, seryl-tRNA aminoacylation.
<b>A6</b>	Purple acid phosphatase 15 (PAP15)	Affect pollen germination, with acid phosphatase activity.
<b>A7</b>	F-box/kelch-repeat protein At1g15670(F-box2)	Component of SCF(ASK-cullin-F-box) E3 ubiquitin ligase complexes, which may mediate the ubiquitination and subsequent proteasomal degradation of target proteins.
<b>A8</b>	F-box protein At5g03970-like(F-box1)	Component of SCF(ASK-cullin-F-box) E3 ubiquitin ligase complexes, which may mediate the ubiquitination and subsequent proteasomal degradation of target proteins.
<b>A9</b>	Bifunctional fucokinase/fucose pyrophosphorylase(FKGP)	Pyrophosphorylase activity.
<b>A10</b>	Aspartic proteinase A1(APA1)	Possesses aspartic protease activity, played an important role in the growth and guidance of pollen tubes.
<b>A11</b>	Exosome complex exonuclease RRP46 homolog(RRP46)	Possesses hydrolytic DNase and phosphorolytic RNase activities in vitro.
<b>A12</b>	Probable pectinesterase/pectinesterase inhibitor 51(PME51)	Acts in the modification of cell walls via demethylesterification of cell wall pectin.
<b>A13</b>	Mitochondrial import inner membrane translocase subunit TIM14-2	An important component of the transporter complex for proteins to enter mitochondria.
<b>A14</b>	Phospholipid:diacylglycerol acyltransferase 1	The Double-mutant defect of PDAT1 and DGAT1 lead to pollen death, PDAT1 played a key role in the normal growth of pollen.
<b>A15</b>	Gibberellin receptor GID1B	Functions as soluble gibberellin (GA) receptor. Seems to be required for GA signaling that controls flower development.
<b>A16</b>	GDT1-like protein 4	Calcium ion transmembrane transport.

S <sub>4</sub> -RNase Interaction candidate protein information		
Number	Gene description	Molecular function
B1	serine/threonine-protein phosphatase PP1 isozyme 4(TOPP4)	Acts as positive regulator in the gibberellin (GA) signaling pathway to regulate plant growth and development.