

## Supplementary Material

### An Insight into Emerging Begomoviruses and Their Satellite Complex causing Papaya Leaf Curl Disease

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**Table S1. Known genes regulating the amount and efficacy of Begomovirus transmission in *B. tabaci*.**

Gene	Acronym	Action site	Consequence	Reference
<b>Defensin</b>	<i>BtDef</i>	Expressed in ➤ Salivary gland ➤ Midgut ➤ Fat bodies ➤ Ovaries	➤ DsRna-silencing lowers the large quantity expression of begomovirus in midgut.	[1]
<b>Cyclophilin B</b>	<i>CypB</i>	Expressed in ➤ Salivary gland ➤ Midgut	➤ Oral feeding with CypB antibodies reduces the begomovirus transmission	[2]
<b>Knottin-1</b>	<i>Knot-1</i>	Expressed in ➤ Abdomen	➤ Controls the amount of virus. ➤ DsRna-silencing accelerates the ingested quantity of virus and transmitted to host(plant) by various order of magnitude.	[3]
<b>Peptidoglycan recognition protein</b>	<i>BtPGRP</i>	Co-localized with begomovirus in midgut	➤ Up-regulated upon ingestion of begomovirus.	[4, 5]
<b>HSP70</b>	<i>HSP70</i>	Expressed in ➤ Midgut epithelial cells ➤ Co-localized with begomovirus in midgut	➤ Controls or inhibit virus transmission. ➤ Oral feeding with <i>HSP70</i> antibodies enhances the begomovirus transmission	[6]
<b>Midgut protein</b>	<i>MGP</i>	Expressed in ➤ Midgut	➤ Interacts with Coat protein of virus to ease transmission.	[7]
<b>Components of clathrin-mediated endocytosis</b>	<i>CME</i>	Expressed in ➤ Midgut barrier	➤ Transport of viruses transversely the gut barrier into the haemolymph	[8]

**Table S2. Mechanistic action of various Begomoviruses-encoded RNA silencing suppressor protein (VSRs) to counter RNAi-mediated host defense.**

<i>Begomovirus(es)</i>	VSRs	Regulate Host Biology	Reference
<i>African casava mosaic virus</i>	AC2	Interacts with transcriptional gene silencing	[9]
<i>Tomato golden mosaic virus</i>	AC2	Prevents transcriptional gene silencing and inactivates adenosine kinase	[10, 11]
<i>Tomato yellow leaf curl virus</i>	AC2	Interacts with transcriptional gene silencing	[9]
	V2	Unites with Suppressor of gene silencing3(SGS3) and inhibits secondary siRNA production	[12]
	C4	Inhibits intercellular circulation of siRNA	[13]
<i>Tomato yellow leaf curl China virus</i>	$\beta$ C1	Suppresses S-adenosyl-homocysteine-hydrolase and transcriptional gene silencing; Degrades SGS3 and stimulates Rgs-CaM (regulator of gene silencing calmodulin-like protein), thus inhibit secondary siRNA production	[14, 15]
<i>Tomato leaf curl New Delhi virus</i>	AC4	Cleaves Argonautes4 and affects transcriptional gene silencing	[16]
<i>Mungbean yellow mosaic virus</i>	AC4	Sequesters and suppresses systemic movement of siRNA	[17]
<i>Mungbean yellow mosaic India virus</i>	AC5	Represses the expression of CHH cytosine transferase, thus obstruct RNA-directed DNA methylation	[18]
	AC2	Interferes with RNA dependent RNA polymerase6 and Argonautes1	[19]
<i>Cotton leaf curl Multan virus</i>	C4	Interferes with S-adenosyl methionine synthetase and inhibits transcriptional gene silencing	[20]

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