

Protective efficacy of FMDV subunit vaccine produced using a silkworm-baculovirus expression system against two Chinese type Asia I isolates in cattle

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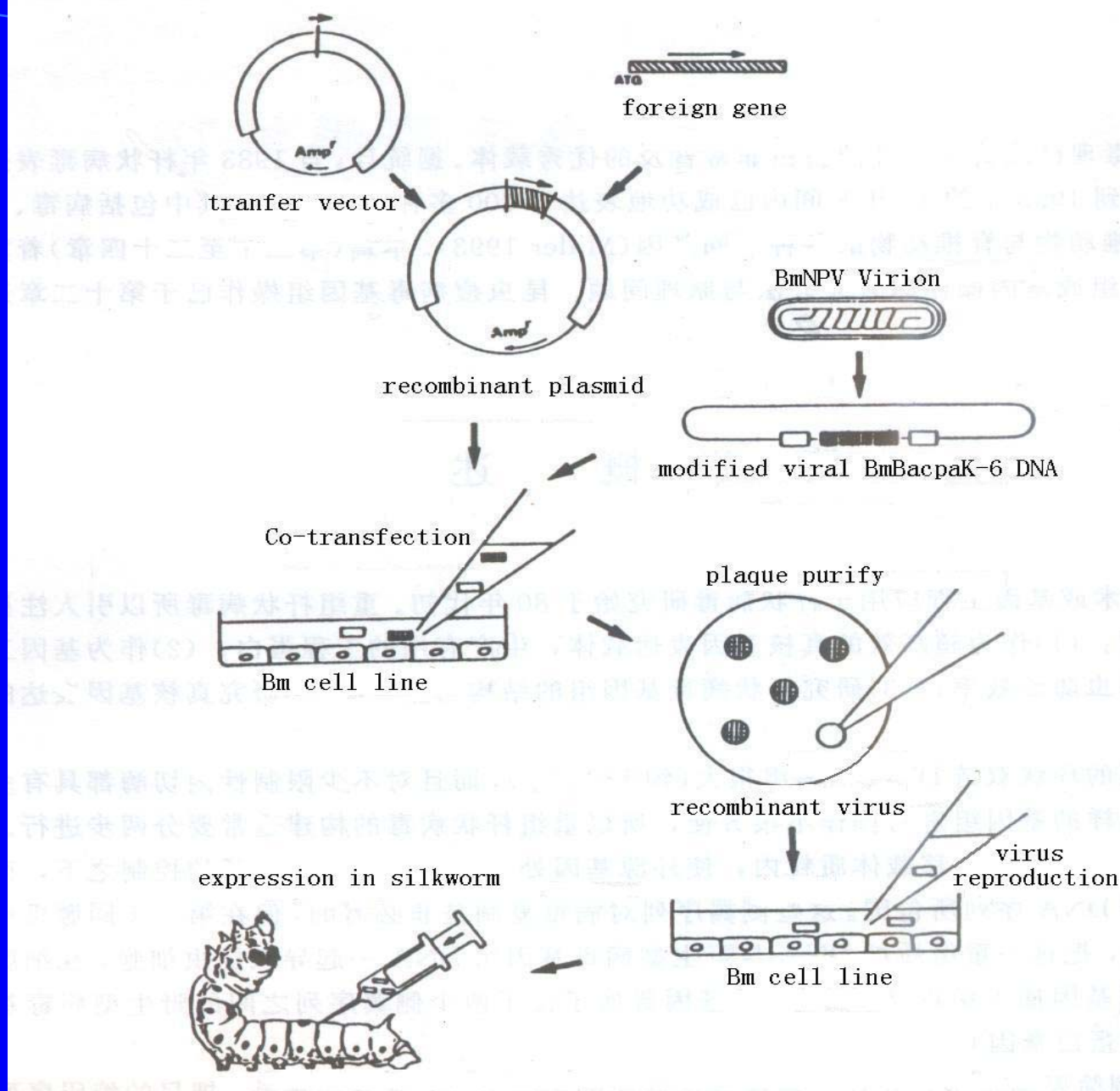
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Characteristic of BES-Silkworm:

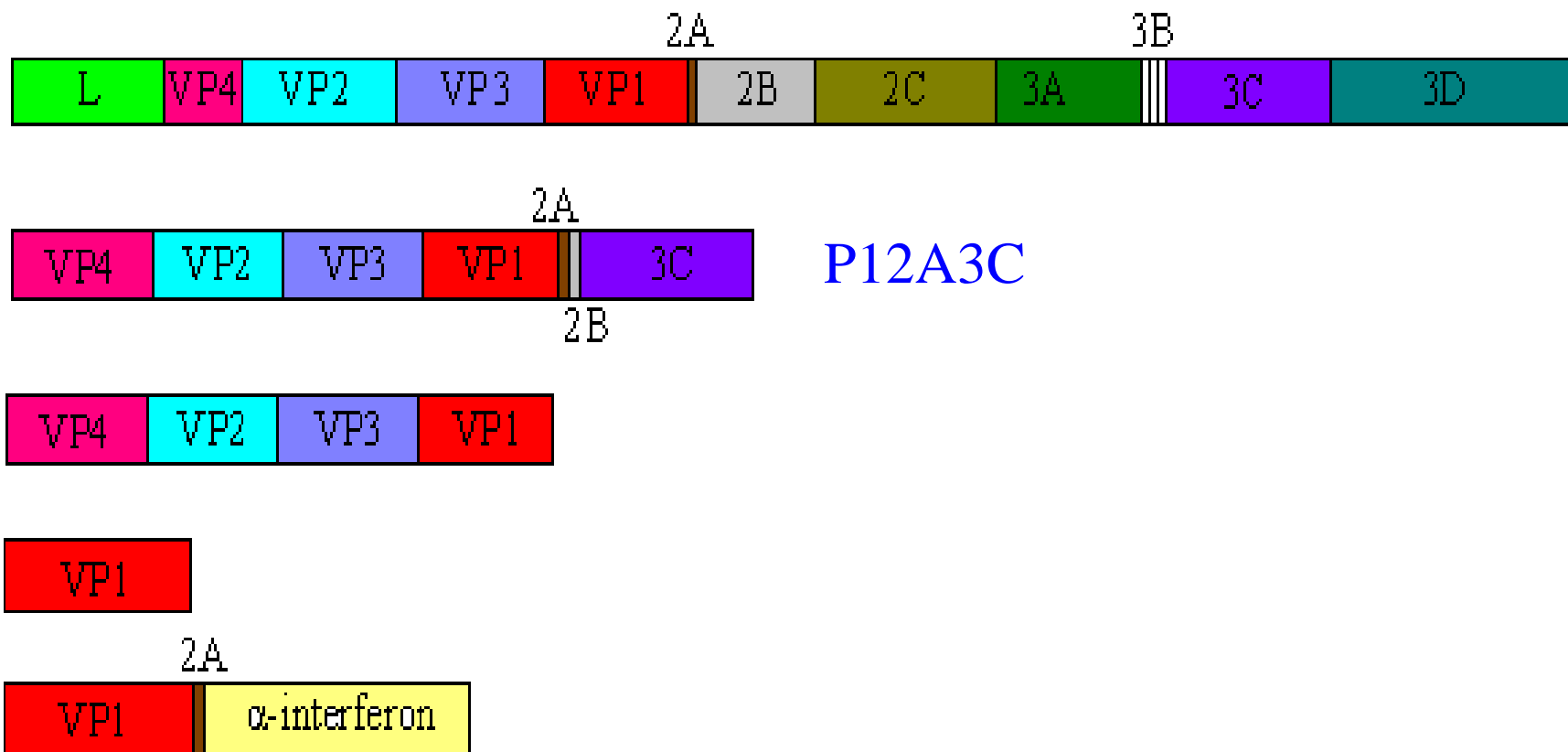
- 1. Accommodate the large foreign gene fragment (~10Kb) .
- 2. It is a safe expression system to human and environment.
- 3. Even the recombinant virus has a strong infecting activity on both the cells and the larva. So mass product might be expected .
- 4. The cost of Bm-BES is very cheap.



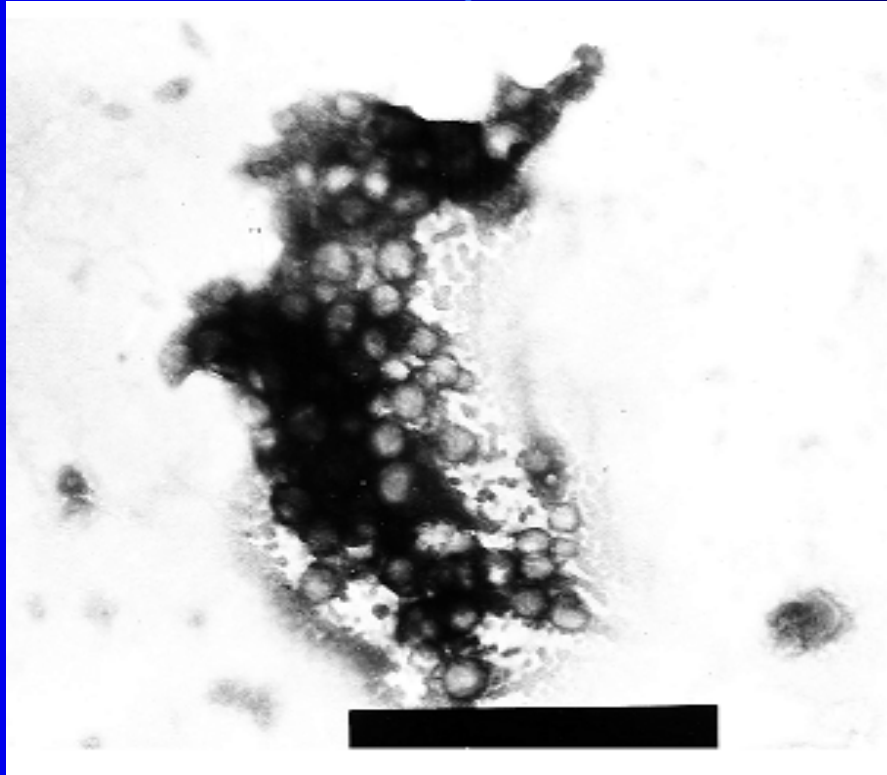
The Schematic protocol of Baculovirus-Silkworm Expression System

Silkworm rearing with artificial feed





Construction of Different FMDV Gene's Combination for Expression in Silkworm



Produced FMDV Virus Like Particles in Silkworm

● There are two different strains of Asia I FMDV prevalence in China, which are Asia 1/HNK/CHA/05 and Asia I/JS/CHA/06 isolate.

● When vaccinated with inactivated vaccine from Asia 1 /HNK/CHA/05, it can't get the protection after challenging with Asia I/JS/CHA/06 strain and vice versa.

● So we designed an experiment to verify whether this produced antigen can get the protection against the two strains.

The result of PD₅₀ test -1

Immunize dose	Animal number	LPBE-Antibody (14)	LPBE-Antibody (21)	Protection	PD50
1	1-1	1 : 360	1 : 512	+	6.34
	1-2	1 : 180	1 : 128	+	
	1-3	1 : 32	1 : 45	+	
	1-4	1 : 90	1 : 256	+	
	1-5	1 : 180	1 : 180	+	
1/3	1-6	1 : 360	1 : 180	+	
	1-7	1 : 90	1 : 90	+	
	1-8	1 : 45	1 : 45	-	
	1-9	1 : 180	1 : 180	+	
	1-10	1 : 180	1 : 180	+	
1/9	1-11	1 : 20	1 : 45	+	
	1-12	1 : 20	1 : 45	-	
	1-13	1 : 8	1 : 8	-	
	1-14	1 : 20	1 : 45	-	
	1-15	1 : 90	1 : 45	+	

The result of PD₅₀ test-2

Immunize dose	Animal number	LPBE-Antibody (14)	LPBE-Antibody (21)	Protection	PD50
1	1-1	1:180	1 : 180	+	5.20
	1-2	1 : 256	1 : 128	+	
	1-3	1 : 180	1 : 360	+	
	1-4	1 : 512	1 : 360	+	
	1-5	1 : 256	1 : 180	+	
1/3	1-6	1 : 90	1 : 180	+	
	1-7	1 : 90	1 : 360	+	
	1-8	1 : 45	1 : 90	-	
	1-9	1 : 90	1 : 180	+	
	1-10	1 : 45	1 : 90	+	
1/9	1-11	1 : 45	1 : 45	-	
	1-12	1 : 45	1 : 64	-	
	1-13	1 : 45	1 : 90	+	
	1-14	1 : 45	1 : 45	-	

*Thank
you !*

