DIFFERENCE IN THE MULTIPLICATION OF PHASE I AND II *COXIELLA BURNETI* IN CELL CULTURES

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Phases I and II of *Coxiella burneti*, the existence of which is due to the regularities of the phase variation phenomenon *(1)*, differ from one another in several properties: in their antigenic composition, immunogenicity, phagocytosis, virulence, pyrogenic effect and immunofluorescence. For recent reviews on the subject see *(2, 3)*.

We are presenting now preliminary data about further differences between phases I and II, concerning their different multiplication in cultures of stable L, HeLa and monkey kidney (OL) cell lines. We used 6 strains of *C. burneti* with the following passage history (EP, MP and GPP — numbers of yolk sac, white mouse and guinea pig passages, respectively): Henzerling II (127 EP), Nine Mile (136 EP), Vančo (12 EP, 2 MP, 2 EP), Henzerling I (119 EP, 5 MP, 2 EP), Florián (27 EP, 17 MP, 2 EP), L 35 (15 EP, 17 MP, 2 EP) and 48 (1 GPP, 3 EP). The phases of the strains were determined in complement fixation and agglutination reactions with homologous early and late guinea pig immune sera. Starting 20% *C. burneti* suspensions were titrated in parallel in primary cultures of chick embryo cells (CEC) and in chick embryo yolk sacs (YS). The cells were grown on slides in tubes in medium 199 supplemented with 10% calf serum. The grown cultures were inoculated with 1 ml of serial tenfold dilutions of the starting suspensions and then maintained in medium 199 with 2% calf serum. The results were read 6 days after inoculation after staining the cultures with Giemsa stain. Titrations in chick embryos were evaluated on the 10th day p. i., after staining according to Gimenez.

C. burneti strains	Phase	Titres in YS (log EID_{50}/ml) or cell cultures (log $TCID_{50}$/ml)				
		YS	L	CEC	HeLa	OL
Henzerling II	II	7.8	n. d.	n. d.	4.8	n. d.
Nine Mile	II	7.6	4.5	5.0	4.5	6.1
Vančo	I + II	7.1	4.0	4.5	4.7	n. d.
Henzerling I	I	7.2	n. d.	n. d.	1.5	n. d.
Florián	I	6.8	4.2	1.7	1.5	n. d.
L 35	I	7.1	4.7	1.5	1.5	1.5
48	I	6.8	4.0	n. d.	1.5	n. d.

n. d. = not done.

The results presented in the Table indicate that 1) in cell cultures practically the same suspensions (according to EID_{50}/ml values) were compared; 2) phase I and II did not differ from one another in their multiplication in primary CEC cultures; and 3) phases I multiplied to markedly lower titres than phases II in HeLa, L, and OL cell cultures. The latter fact was also confirmed by the finding of 70—80% infected cells 6 days after inoculation with phase II, while in case of phase I this proportion amounted only to 5—7%. The strain Vančo, representing a mixture of phases, behaved in the 3 critical cell culture types as phase II.

The principles of the difference between phase I and II described above are being studied further.

References

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