

## DIFFERENTIAL SUSCEPTIBILITY OF NEWBORN MOUSE ORGAN CULTURES TO VIRUS GROWTH

R. R. Bhonde, U. V. Wagh

Division of Tissue Culture and Cell Biology, National Institute of Virology,  
Pune-411 001, India

Received November 2, 1982

In the course of preparation of full-term mouse embryo cultures, liver, lung and kidney were removed by evisceration. The aseptically dissected organs from anaesthetised newborn Swiss albino mice (NIV, Pune, India) were washed in Hank's balanced salt solution (HBSS) containing antibiotics (200 U penicillin/ml and 200 µg/ml streptomycin) and cut into small pieces (1-2 mm). Explants were set in 24 wellled multicavity plate (Laxbro) following raft technique (1). Each well of the multicavity plate received 1 ml nutrient (Eagle's Minimum Essential Medium) supplemented with 10% heat inactivated goat serum and one raft (silicized NYLOBOLT mesh) with 2-3 explants. The cultures were incubated at 37 °C in a CO<sub>2</sub> incubator. The explants were inoculated (2) immediately or after 24 hr with viruses listed in the Table. Multiplication of the viruses was assayed (3) in the nutrient fluid harvested on alternate days using Vero cells. The virus titre was expressed in TCID<sub>50</sub>/ml.

Virus	Strain	Virus titre on day 8 p.i.		
		Liver	Lung	Kidney
Vaccinia	671061	6.5	7.0	6.5
Herpes simplex type-1 (HSV-1)	753166	5.5	6.5	7.0
Herpes simplex type-2 (HSV-2)	753167	3.0	3.5	4.5
Chandipure (CHP)	653514	5.5	6.5	7.0
West Nile (WN)	E101	4.0	5.5	4.5
Japanese encephalitis (JE)	P20778	none	none	4.0
Sindbis (SIN)	AR339	none	none	6.5
Polio-1		5.5	none	5.5

As seen from the Table kidney organ cultures supported multiplication of all viruses tested. JE and SIN did not grow in liver explants, whereas JE, SIN and Polio viruses showed no replication in lung explants. Culture fluids collected from susceptible explants on alternate days post inoculation (p.i.) exhibited the presence of virus either on day 2 p.i. (HSV-1, CHP, SIN, WN) or on day 4 p.i. (HSV-2, JE and Polio). The gradual rise in titre reached the peak on the 8th day p.i.

It is evident that organ cultures of liver, lung and kidney, exhibited differential virus susceptibility patterns. Kidney was found most susceptible supporting also the multiplication of JE virus. This differential susceptibility pattern of kidney can be employed to distinguish JE from WN since the former did not multiply in liver and lung, whereas the latter multiplied in all three organs.

## References

1. Chen, J. M., *Exp. Cell Res.* **7** : 518, 1954.
2. Bhonde, R. R., and Wagh, U. V., *Ind. J. exp. Biol.* **20** : 814, 1982.
3. Dolin, R., Blacklow, N. R., Malmgren, R. A., and Chanock, R. M., *J. infect. Dis.* **122** : 227, 1970.