

PHAGE TYPING OF *MICOBACTERIUM TUBERCULOSIS* IN CUBA

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Improved methods in the standardization of the means and methods in phage typing of Mycobacteria (W. D. Redmond & D. M. Ward, 1966, *Bull. Org. Mond. Santé*, 35: 563-568; W. D. Jones & J. Greenberg, 1978, *J. Clin. Microbiol.*, 7: 467-469) have permitted the development of a series of epidemiological studies which have demonstrated the presence of phage types according to country or origin as well as the relationship between certain characteristics of a strain and its origin (J. H. Bates & D. A. Mitchison, 1969, *Am. Rev. Respir. Dis.*, 100: 189-193; D. Goode, 1983, *Tubercle*, 64: 15-21; S. Clavel & F. Clement, 1984, *Ann. Microbiol. (Inst. Pasteur)*, 135B: 35-44).

At present, studies carried out in the American continent have demonstrated the predominant distribution of types A and B in northern America (W. D. Jones et al., 1982, *Am. Rev. Respir. Dis.*, 125: 640-643; W. D. Jones & C. L. Woodley, 1983, *Am. Rev. Respir. Dis.*, 127: 348-349). This paper presents the first study to be carried out in a country of the Latin American region.

Two hundred and twenty seven strains of *M. tuberculosis* were studied through Mycobacteria phage typing techniques described by W. Redmond & D. Ward (1966, *Bull. Org. Mond. Santé*, 35: 563-568) with the modifications introduced by Rado et al. (1975, *Am. Rev. Respir. Dis.*, 111: 459-468; 1977, *Am. Rev. Respir. Dis.*, 115 (suppl.). 268) and the WHO classification as well as that described by J. M. Grange et al. (1977, *Tubercle*, 58: 207-215).

The results presented in the Table reflect the distribution according to type of *M. tuberculosis* in Cuba, where there is a predominance of Type I (184 strains, 81.05%) in 14 of the 15 provinces, followed by type A (31 strains, 13.65%), type Ax (7 strains, 3.08%) and type C

(5 strains, 2.20%). There is no report for Type B in the country. The results obtained signal the highest values for Type I in the Havana City province (90.19%) where there is also a diversity of *M. tuberculosis* followed, in order of importance, by the provinces of Santiago de Cuba, Camaguey and Villa Clara with similar patterns as to those observed in the capital province. However in the provinces of Santiago de Cuba and Camaguey type Ax also appears, although in low values. In general, there is a low circulation of phage types Ax and C.

TABLE

Mycobacterium tuberculosis phage types distribution for the Cuban provinces

Province	Frequency		Phage types			
	No.	%	A	Ax	I	C
Pinar del Rio	8	3.52	1	-	7	-
Ciudad Habana	51	22.47	3	-	46	2
Habana	9	3.96	1	-	8	-
Matanzas	10	4.41	1	-	9	-
Villa Clara	30	13.22	7	-	22	1
Cienfuegos	2	0.88	-	-	2	-
Sancti-Spiritus	2	0.88	-	-	2	-
Ciego de Avila	1	0.44	-	1	-	-
Camaguey	39	17.18	7	1	29	2
Las Tunas	12	5.29	-	1	11	-
Gamma	18	7.93	2	2	14	-
Holguin	6	2.64	2	-	4	-
Santiago de Cuba	31	13.66	4	2	25	-
Guantanamo	6	2.66	3	-	3	-
Isla de la Juventud	2	0.88	-	-	2	-
Total	227	100.00	31	7	184	5

Acknowledgements — To Dr Sabine Clavel-Seres and Prof. Hugo L. David, Department of Tuberculosis of Pasteur's Institute of Paris (France), for technical assistance and critical revision of the manuscript and pertinent suggestions.