ROLE OF TEMPERATURE IN THE PRODUCTION OF THE L.E. (LUPUS ERYTHEMATOSUS) CELL PHENOMENON

BY

G. BENCZE AND L. LAKATOS

WITH THE TECHNICAL ASSISTANCE OF

K. HANSAGI

First Department of Medicine University Medical School, Szeged, Hungary

In previous experiments dealing with the two types of L.E. plasma factor we found that the transferable (stable) type did not become inactivated, even when heated at 65° C. for 60 min. In plasma transfer experiments carried out on dogs we succeeded in producing L.E. cells by means of a stable type of plasma factor kept at 56° C. for 60 min., whereas the non-transferable (labile) type of plasma factor became inactivated when heated at 56° C. for 30 min. (Bencze, 1960). Hence this labile type of L.E. factor is relatively more sensitive to heat, and the experiments performed so far suggest that the labile type occurs far more frequently.

It is generally accepted that after various forms of traumatization the cells must be kept for at least 30 min. at 37° C., but Ogryzlo (1958) reported that L.E. cells also developed at room temperature (22° C.). The present paper deals with the effect of different temperatures on the development of the L.E.-cell phenomenon *in vitro*.

Method

The L.E.-cell test was carried out by the rotatory method of Zinkham and Conley (1956) using blood from the same patient at three temperatures: 37° C., 20-22° C., and 4° C. The time of incubation in each case was 90 min., as this had been found most suitable for the development of L.E. cells in previous experiments.

Material

Simultaneous L.E.-cell tests were performed repeatedly (on 220 occasions in all) on 45 patients (21 with L.E.-cell positive systemic lupus erythematosus, and 24 others with rheumatoid arthritis, discoid erythematosus, and Sjögren's disease).

Results

In previous communications (Bencze and Lakatos, 1960, 1962) we have reported that, by the usual methods with the labile type of L.E. factor, L.E.

cells often failed to appear even with the patient's own leukocytes. With the stable type of L.E. factor, however, L.E. cells could be demonstrated regularly every week for years.

In the 24 patients with diseases other than systemic lupus erythematosus, L.E. cells could not be found at all at any temperature.

The results in the 21 patients with L.E.-cell positive S.L.E. are shown in the Table. It was observed that in nineteen of these 21 patients the L.E. factor was labile and in two it was stable.

TABLE
RESULTS OF SIMULTANEOUS L.E.-CELL EXAMINATIONS
CARRIED OUT AT DIFFERENT TEMPERATURES FOR
90 MINUTES

L.E.-cell Phenomenon	Temperature (° C.)		
	37	20-22	4
Positive	15	18	16
Negative	6	3	5
Total No. of Patients ..	21	21	21

The results obtained establish that the L.E.-cell phenomenon occurs not only at 37° C. but also at room temperature, and even at 4° C. The number of L.E. cells, compared with the total number of leukocytes, was about the same at all temperatures. The L.E.-cell phenomenon was negative in six out of the 21 cases at 37° C., in only three at 20-22° C., and in five at 4° C.

Summary

In 21 patients with systemic lupus erythematosus, repeated L.E.-cell examinations were carried out simultaneously for 90 min. at three incubation temperatures. The results show that the L.E.-cell phenomenon occurs not only at 37° C., but also at 20-22° C. and at 4° C.

REFERENCES

- Bencze, G. (1960). *Ann. rheum. Dis.*, **19**, 272.
— and Lakatos, L. (1960). *Brit. med. J.*, **2**, 1571.
— — (1962). *Acta rheum. scand.*, **8**, 52.
Ogryzlo, M. A. (1958). In "Progress in Arthritis",
ed. J. H. Talbott and L. M. Lockie, p. 372.
Grune and Stratton, New York.
Zinkham, W. H., and Conley, C. L. (1956). *Bull. Johns
Hopk. Hosp.*, **98**, 102.

**Rôle de la température sur la production du phénomène
L.E. (lupus érythémateux)**

RÉSUMÉ

Chez 21 malades atteints de lupus érythémateux
disséminé des examens répétés des cellules L.E. furent

effectués simultanément pendant 90 minutes à trois
températures d'incubation. Les résultats de ces expéri-
ences montrent que le phénomène L.E. se produit non
seulement à la température de 37° C. mais aussi à celles
de 20°-22° C. et de 4° C.

**El papel de la temperatura en la producción del fenómeno
L.E. (lupus eritematoso)**

SUMARIO

En 21 enfermos con lupus eritematoso diseminado
exámenes repetidos de células L.E. se hicieron al mismo
tiempo durante 90 minutos en tres temperaturas de
incubación. Los resultados de esta investigación
demuestran que el fenómeno L.E. se produce no sólo
a la temperatura de 37° C. sino también a las de 20°-22° C.
y de 4° C.