# PRESENCE OF ACID-LABILE INTERFERON IN THE SERUM OF SARCOIDOSIS PATIENTS

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Sarcoidosis is a granulomatous disorder where a chronic, yet uncertain antigenic insult causes impaired cell-mediated immunity and abnormal immunoglobulin levels. Sarcoidosis patients frequently have circulating immune complexes (CIC) and the fact that these may as an interferon (IFN) inducer compelled us to investigate whether sera and bronchoalveolar lavages (BAL), when available, from sarcoidosis patients (confirmed by biopsy and/or Kveim test) showed any antiviral activity (AA) referable to IFN. So far 10 men and 12 women (21 with pulmonary sarcoidosis and 1 with cutaneous form) have been examined. The patients, using radiological criteria (1) were subdivided as follows: 9 with Stage I, 6 with Stage II, and 6 with Stage III. Sera and a few BAL were collected immediately after diagnosis and before the beginning of any treatment (with the exception of 5 cases). AA was measured by virus plaque assay using HEp2 cell, VSV as challenge virus and AA was finally referred to an international standard of γ-IFN. Controls were normal subjects of similar age and sex. The Table shows that the serum in majority of sarcoidosis patients, particularly at Stage II, contained a significantly higher ($P < 0.01$) AA than controls. AA was characterized by the use of classical criteria and of antisera and appeared to be due to γ-IFN (82 ± 4.6%) in combination with acid-labile α-IFN (15 ± 5.5%). In the untreated patients there was a correlation between the presence of IFN and CIC (measured with PEG-precipitation test) in 58% of the patients. However, in steroid treated patients (for as long as 3 months), circulating CIC disappeared but, unexplicably serum IFN levels in about half of the patients remained high. This point is investigated further and may be related to a different cellular population involved in the disease and with different sensitivity to steroids. There was no measurable AA either in the original aspirates or in the 50-fold concentrated fluid in 5 BAL taken from pulmonary sarcoidosis patients. In the light of our finding of rapid absorption of IFN from the lung (2), this result is understandable and does not exclude that alveolar mononuclear cells (MC) release IFN. Indeed in a few experiments we have measured γ-IFN in the supernatant of incubated bronchoalveolar cells (mainly macrophages and lymphocytes).

| Samples | IFN activity (IU/ml ± SD) |
|---|---|
| Control (n = 18) | 7 ± 3 |
| Sarcoidoses | |
| *Stage I | 23 ± 8 |
| *Stage II | 34 ± 11 |
| *Stage III | 25 ± 6 |

To our knowledge this is the first report indicating the presence of γ-IFN in sarcoidosis sera but recently presence of acid-labile α-IFN has been detected in autoimmune diseases (3, 4). It is hoped that this result will stimulate interest in explaining the nature, meaning and prognostic value of IFN in sarcoidosis patients.

## References

1. *James, G., Turiof, J., Hosoda, Y., Jones Williams, W., Israel, M., Douglas, A., and Siltzbach, L., *Ann. N.Y. Acad. Sci.* **278** : 742–745, 1976.
2. Bocci, V., Pessina, G. P., Pacini, A., Paulesu, L., Muscettola, M., and Mogensen, K., *Antiviral. Res.* **4** : 1984 (in press).
3. Preble, O. T., and Friedman, R. M., *Lab. Invest.* **49** : 4–18, 1983.
4. Eyster, M. E., Goedert, J. J., Poon, M.-C., and Preble, O. T., *N. Engl. J. Med.* **309** : 583–586, 1983.

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