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Division of THE NATAL BLOOD TRANSFUSION SERVICE
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Genetics Department
26th June 1986

Dr P Pybus
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Dear Paul

RHEUMATOID ARTHRITIS : SYNOVIAL FLUID CELL CULTURES

As you know, there was no formal protocol for the investigations that I have done on the synovial fluid aspirates from some of your patients with rheumatoid arthritis, but, briefly, the following points of interest were examined:

- Establish whether or not cells recovered from synovial fluids would grow in culture;
- Establish the viability of these cells over several weeks after aspiration;
- Establish the effect, if any, of therapeutic doses of Metronidazole (Flagyl) on the growth of cells in the synovial fluid; and
- Establish the concentration of Flagyl required to affect the growth of these cells in vitro.

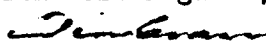
My preliminary findings are:

- Cells in synovial fluid grow readily in the routine culture system employed here; Ham's F10 medium gave good results.
- The viability of cells was evaluated using two specimens; cultures were put up periodically from day 1 to day 21 after aspiration. Live cells were found for as long as 18 days after aspiration. The specimens were kept at RT during this experiment.
- Flagyl appears to have a pronounced effect on the growth of cells in culture. Cultures of cells aspirated prior to intracapsular administration of Flagyl showed +++ growth (confluent colonies) after 7 - 17 days while cells sampled 5 - 15 min after administration of Flagyl showed poor growth or much retarded rate of proliferation. Only one of the 12 samples was assessed as +++ and the usual picture was ++ (a few colonies per flask); and this a week or two after their control cultures had attained +++.
- In vitro experiments with control (untreated) cultures and three with 1 µg, 5 µg and 10 µg Flagyl per ml culture medium were done but last week our incubator failed (temperature went to 41°C overnight) and several cultures were lost. This work will have to be repeated.

These early results indicate that a more detailed study should be done, to identify the cell types in synovial fluid, monitor conditions in culture, and titrate the concentration of Flagyl required to inhibit growth in vitro; also, I would like to do similar tests on 'normal' synovial fluid (eg. taken at meniscectomy) to compare with results from RA patients. This, however, will require the services of a technologist - a part-time worker will do - but my budget cannot provide a salary, which would be in the order of R7 500!

I look forward to your comments and suggestions!

With best regards,


H J GRACE, M.Sc., Ph.D.