

Charles W. Edington, Associate Director
for Research and Development Programs, BER

CHROMOSOME ANALYSIS ON BIKINI PEOPLE

Dr. Barr's memo of April 9 makes it important to put on record what has been done since his earlier memo to you of September 7, 1973 on the same subject.

The following are notes from my discussions with experts in November 1973. The question addressed to them was would it be scientifically important to get information on chromosomal aberrations induced by low chronic levels of irradiation such as these people may be exposed to when they return home. Another question to them was would it be possible within reasonable limits to do a good study. The question whether this information would be medically useful to the indigenous people was not discussed. This is a separate concern and may be the most important in determining whether any work of this kind should be done.


BREWEN AND PRESTON, Oak Ridge

Logistics: 200 people, at say six per day would take two scientists about one month to do.

Equipment: Small medical lab, two portable incubators, centrifuge, microscope.

People: Perhaps one person could do it, but two would be much better. Need people of the technician level, highly qualified. Carolyn Gooch could do it, Judy Bodicoat (Shelly Wolff's assistant) could do it.

Slide Reading: More than one lab might do it: Shelly Wolff, Mike Bender, Brewen and Preston. Kastenbaum, of the American Tobacco Institute would be a good person to consult on experimental design.

 5009549

MAYALL AND CARRANO, Lawrence Livermore Laboratory

Method: They would like to use their own techniques for measuring DNA/chromosome. It is sensitive and look promising. They'd like to use this population as a test population to work it out. They can see a two to five percent difference with age. DNA variation is indeed greater in older people, say in content of DNA for a specific chromosome. At that time they figured it would be about 18 months until their methods were ready for field studies and that would be May 1975.

Blood could be collected in field and sent to Livermore, Chromosomes would be stained with usual systems and also with banding methods. Semen samples might also be collected for study by Bart Gledhill, reproductive biologist. It is apparent that they see this as an opportunity to test some of their systems; we should not overlook this possibility, but should certainly use the standard methodologies first or at least.

BENDER, John Hopkins

This work should be done! The people should be studied before resettlement or immediately after resettlement. The slides could be made by somebody in Hawaii. Perhaps fly blood to Hawaii; slides could be made and stored for examination later -- should be frozen, but very important that they be kept dry.

People: A professional should plan it and decide who should do it. Carrano is good. Petersen and Deaven at LASL are good. Brewen and Preston are good.

BLOOM, University of Michigan, now of Columbia University

A study of somatic cell aberrations is a reasonable thing to do. We need low dose effects data, and it might be obtained on these people.

Sample the people, say around 50 to 75 from Bikini and 100 from Enewetok.

Method: Easy enough to do, send blood samples to a lab. Will last 30 to 36 hours, preferably not frozen but slightly cooled.

Would be good to have a boat, with lab aboard, incubator, media, two centrifuges. Perhaps just separate white cells and ship them out. Whitecells in a medium will last 24 hours, with 80% success.

Might also look at buccal smears for X and Y chromosomal aberrations; easy procedure and worth the additional effort.


People: Two people in the field could do it. It would be good to read a few slides initially to determine how many cells are needed, and if background is clear.

The reading could be a collaborative effort. Pat Jacobs in Honolulu (worked with Court-Brown) is superb. She could supervise at the University of Hawaii.

An oral summary of these notes was given to Drs. Conard and Barr about December 1973 when Dr. Conard was at Headquarters. My general impression of his assessment at the time was that there were too many political problems and other issues involved with this resettlement to undertake tests of this kind which themselves could raise problems.

Thomas H. Roderick
Geneticist, Biomedical Programs
Division of Biomedical and
Environmental Research

cc: Dr. Barr

 5009551