APPENDIX D

Meeting of Committee on Research Integrity (Newark Campus): 11/25/02

Present: Drs. Forrester (Chair), Fine, Cherniak, Turkall, Brown

Staff: Ms. Kligerman, Dr. Eder

The meeting began with Dr. Forrester presenting a summary of the University policy on the initial inquiry into an allegation of scientific misconduct. He then reviewed with the Committee the materials relating to the current allegation made by Helene Z. Hill, Ph.D., against Anupam Bishayee, Ph.D.: an initial contact sheet, enclosures consisting of 2 articles and 2 statistical tables, and a copy of the final report from the Federal Office of Research Integrity (ORI) in regard to a previous inquiry conducted by the Committee involving the same complainant and respondent. Dr. Forrester further indicated that letters of notification to the parties had been prepared, in the event that the Committee decided to proceed to an initial inquiry.

Dr. Forrester confirmed that the complainant, Dr. Helene Z. Hill, was making a new allegation based on new evidence, and that the new evidence was the data analysis presented to the Committee in the attachments to the initial contact sheet.

In the subsequent discussion, the Committee developed the following questions about the data analysis and its relevance for the allegation of scientific misconduct.

1. Who actually performed the data analysis?
2. What is the problem with the data produced by Dr. Bishayee?
3. Where is Dr. Bishayee's original data, and was it a printout or was it hand-written?

In its discussion, the Committee debated whether or not the evidence was sufficient to

establish the possibility of scientific misconduct. Dr. Forrester reminded the Committee that the only decision before it was whether the evidence was sufficient to proceed to an initial inquiry.

The Committee then decided to proceed to an initial inquiry and call Dr. Hill to speak to the Committee.

Dr. Hill was introduced to the members of the Committee. Dr. Forrester then proceeded to read the allegation from the initial contact sheet, and asked Dr. Hill to confirm that the statement was correct. Dr. Hill confirmed that it was correct.

Dr. Forrester then asked Dr. Hill to help the Committee to understand the facts of the allegation. He asked Dr. Hill who performed the data analysis and whether or not the analysis was based on Dr. Bishayee's raw data.

Dr. Hill responded that she had carried out the analysis, and that it was based on raw data of which she had copies. The previous Committee had the originals of the raw data.

Dr. Forrester asked her to explain how this analysis showed an indication of scientific misconduct, as defined in the policy.

Dr. Hill then handed out additional material to the Committee, consisting of a large comparative table of Coulter averages and three graphs labeled "Comparison of Mutants/Cell in Clusters, Bishayee versus Hill", "Comparison of Cluster Survivals, Bishayee versus Lenarczyk", and "Comparison of Cell Numbers on Day 3, Bishayee versus Hill".

Dr. Hill said she had 5 points to make.

The first point: There were two experiments that she was in charge of, the purpose of which was to see whether cells had hypoxia. She added that the experiments are very difficult to explain to people who are not biologists. Because she was dissatisfied with the outcome of the first (allegation with regard to Dr. Bishayee's conduct of the experiment), she contacted the Federal Office of Research Integrity (ORI). Dr. Hill stated that although she understood that ORI very strongly supported her allegation, it decided to back the University's decision in the case of the first allegation, not to proceed to an investigation. Further, Dr. Kay Fields, an official in the ORI, had faxed ORI's preliminary findings to Dr. Hill. The preliminary findings were based on the statistical methodology used by ORI and based on an article by Mosimann, et.al.

The paper discussed the distribution of digits generated by a machine. The left-most digit is the most important, but as you go to the right, the digits become random. Using chi-squares, it is possible to learn whether the digits are randomly distributed. Dr. Hill then referred to the large table of Coulter averages. According to Dr. Hill, using the Mosimann method of analysis on the Coulter averages, there is a very high probability that Dr. Bishayee was fabricating the data.

In response to a question, Dr. Hill indicated that the Coulter Counter does not produce a printout. The paper control would be hard copy and the way to do it is to mock up the cells and take a photograph of the resulting screen. Another control is to compare Dr. Bishayee's numbers with Dr. Lenarczyk's numbers.

(Point 2) Dr. Hill continued that Dr. Fields had also suggested a second method using standard deviations. If independently obtained, the standard deviation should be the

square root or greater. The highlighted average for each experiment shows the standard devision and then the square root. According to Dr. Hill, Dr. Bishayee's figures are less than half of the square root while Dr. Lenarcyzk's are around half. Dr. Hill admitted to the Committee that she has difficulty using the Coulter Counter and that her figures are "terrible".

The Committee asked Dr. Hill the difference between her figures which were "terrible" and Dr. Bishayee's which she was alleging to be fabricated. She replied that if fabricated, the numbers, like Dr. Bishayee's, would be too close together and the square root would be less. The data would be "too good" suggesting that the data were fabricated.

(Point 3) Dr. Hill noted that Dr. Howell's grant application uses data that show that there is not much hypoxia in the clusters. In radiation biology if cells are aerobic the conditions wil be maximally sensitive and the maximum number of mutants is developed. If cells are hypoxic there are decreased mutants. When (Dr. Hill) did the experiment, (she) got no increase in mutants but when Dr. Bishayee did the experiment he did get an increase. Dr. Hill produced a graph to illustrate her point.

The point made in the grant was that you would expect mutants to mirror survival. Dr. Bishayee's curves went down but Dr. Lenarczyk did the same experiment and got different results. The hypothesis was that there wasn't any hypoxia but (Dr. Hill) believes this was wrong. Two experiments were done one after the other, two weeks apart. You expect some variation but not to be very different. ..The findings that clusters were hypoxic was not consistent with the hypothesis.

Dr. Hill stated that she intended the skip the fourth point because "it wasn't very

strong". She went on to say that she did the first mutagensis experiment in September, 1999. She could not participate in the replication but was present when it was finished. The experiment uses several size dishes including 100 mm. Dishes that had to be ordered. The experiment required 50 dishes at 100 mm. At the end there would be 5 replicates at each data point, 10 stacks of 5 dishes each. At the end, the dishes needed to fixed and stained. Dr. Hill asked Dr. Bishayee when he would fix and stain the experiment and he said later that night. When Dr. Hill came in the next morning, there was no sign of dishes. She saw dishes in the incubator and assumed that those were the dishes from that experiment. She looked at the dishes, looking for colonies and saw none. She went on to explain, in response to questions from the Committee, that no stain is needed to see colonies on the plates. Even at the lowest dose, there would be a lower number of cells, but she saw no cells on any plates.

When Dr. Bishayee arrived at the lab, he told Dr. Hill he had fixed the dishes and that it "came out just fine". Asked about the dishes in the incubator, he told Dr. Hill that those dishes were for another experiment.

Dr. Hill told Dr. Howell about this incident. She was suspicious because there was only one experiment using 100 mm. dishes. Dr. Howell "brushed off" the comment. Later on, (Dr. Hill) asked Dr. Bishayee for all the data from the experiment. He said that he had taken it home. Dr. Bishayee brought the data in the next day.

Dr. Hill continued that Dr. Raveche, during the first inquiry, had advised Howell to replicate the experiments in the grant and the papers. Dr. Lenarczyk did replications but could not reproduce the data. He kept trying because Dr. Howell was "frustrated".

The Committee asked Dr. Hill for an explanation of how the statistical analysis was

related to the graphs and she replied that the relationship was indirect. When asked why Dr. Bishayee would fabricate data, she responded that he didn't do the experiment, the dishes were empty.

Dr. Forrester asked Dr. Hill whether she had anything further to provide to the Committee. Dr. Hill replied that she did not.

Dr. Hill was then excused.

As the Committee discussed Dr. Hill's statements. Ms. Kligerman referred the Committee to page 21 of the ORI report and pointed out that ORI, in its review of Dr. Hill's first allegation against Dr. Bishayee, had brought up new elements and raised questions about the previous Bishayee allegation, but then "closed the case". She The Committee then interviewed Dr. Karen Putterman by telephone.

Dr. Putterman reviewed the sequence of events leading up to the letter she received from Dr. Kay Fields, an investigator with the ORI, informing her that ORI wished to review the 2001 allegation against Dr. Bishayee. The ORI review was not completed until September, 2002, one year after the initial report had been sent to them. The ORI report concurred with the University that "there is insufficient evidence to warrant further investigation". Dr. Putterman stated that Dr. Hill "is not aware that ORI did this analysis and has not received a copy of the ORI report".

Dr. Putterman continued: The ORI report discussed the 1999 experiments on pp. 14-17. ORI did not question the accuracy of the statements in Dr. Howell's grant application, but only whether Dr. Bishayee's second experiment confirming Dr Hill's first experiment was falsified. ORI analyzed Dr. Bishayee's data (p. 16) in accordance with the Mosimann

articles and the methodology Dr. Hill herself subsequently applied in the current allegation. However, the ORI concluded that it was not possible to resolve whether these Coulter counts were fabricated or not, and that "this evidence is not sufficient to warrant further investigation".

The Committee questioned Dr. Putterman about other statements in the ORI report, which criticized the UMDNJ committee for its apparent lack of expertise in radiation biology. Dr. Putterman replied that Dr. Fields had developed a personal relationship with Dr. Hill, and that Dr. Fields' position was overruled by her superiors in the ORI. She went to say that ORI is only interested in issues pertaining to Dr. Howell's Federal grant and that ORI is not questioning the grant.

The meeting was concluded with the Committee agreeing to read the ORI report in its entirety, and to meet again on Monday, December 2, 2002.