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from **Dr M.D. Brand**, Reader in Cellular Biochemistry

Mr DPF McCallum
Secretary, Board of Graduate Studies
4 Mill Lane
Cambridge

10 November 1997

Dear Mr McCallum

I am writing to inform you that I am no longer prepared to act as PhD supervisor for Jatinder Ahluwalia, and to recommend that he be removed from the Board's list of graduate students because I believe he has been inventing experimental results.

Jat joined my research group in August 1996, funded by a BBSRC studentship, and registered for a CPGS from 1st October 1996. Various members of my research group were involved in showing him how to carry out his project, with my guidance. During this time we had many discussions about his work, and he presented results in our research group lab seminars and showed me examples of his raw data. I specifically instructed him how to keep adequate records of his experiments. His CPGS thesis was examined over the summer and subsequently approved in October 1997. On 14th October 1997 I recommended (expressing some reservations) that he be registered for a PhD. These reservations were based on a loss of confidence in the data that he used for the CPGS.

I was away carrying out research and lecturing in Australia from late June 1997 to the end of August 1997. I was in intermittent contact with Jat by e-mail, and was aware that some discrepancies in his data had been identified, which he told me he sorted out on his own before submitting the CPGS thesis. When I returned we spent 3 days attempting to go through his experimental results together (19, 22, 23 September 1997). At that stage it became clear that his documentation of what he had done was at best totally inadequate and at worst very suspicious. I had told him to have all of his data to hand before our discussions, but despite sending him back to his room in Cherry Hinton three times on the same day to collect missing traces and data, he could not satisfactorily match data to his graphs. Because of the difficulty in working out what had been done, we were only able to go through a small part of his data in detail. For example, he had graphs in his CPGS thesis relating to experiments involving the use of rats and radioactivity, but examination of our animal house and radioactive use and disposal records showed no entries for the dates he claimed to have done the experiments (such records are a legal requirement that we take seriously). He also initially claimed to have measured the dry weights of each of his cell preparations, but on closer questioning it transpired that he had simply assumed these values. I pointed out that it

looked possible that he had been falsifying data and that this was a very serious matter that could not be tolerated. However, I was prepared to give him the benefit of the doubt and to put the problem down to incompetence and poor record-keeping. I asked him to go away and work out from his lab book records exactly what he had done on every experimental day since he started, and to produce a summary log of experiments and results that we could then use as a basis for further discussions.

We carried out experiments together from 26th September 1997 to 9th October 1997 (to establish reliable values for one of his experiments, and to teach him how to carry out the experiments correctly), and for this and other reasons we did not go through this log until 6th November 1997. The parts of the log we went through appeared to identify clearly what had been done on which date, and was cross-referenced to individual chart recorder traces and pages of his lab book. However, close inspection of some of the experimental traces convinced me that they had been falsified, perhaps to provide the data I was demanding to support the tables in his CPGS thesis.

Specifically, the experimental traces produced at this meeting by Jat and dated 9/12/96 and 11/12/96 were y-t strip chart recorder traces that display oxygen concentration in a cuvette as a function of time. The recorder moves the paper at a smooth fixed rate (giving the x-axis) underneath a pen that moves according to oxygen concentration on the y-axis. Although the speed can be changed to vary the scale of the x-axis, it cannot be set on our recorders to make time a variable, so essentially all the experimental noise must appear as pen movements in the y-axis. I have used this type of apparatus continually since 1971, and know its characteristics well. When additions are made to the experimental cuvette, spikes can sometimes occur on the oxygen (y) axis, but they do not occur on the time (x) axis. The traces I was shown by Jat show large spikes along the time axis at points representing additions to the cuvette. They also show smaller noise which runs along the time axis. For a recorder to produce such spikes and noise the paper would first have to come out of the recorder, then go back in, many times during an experimental run. This has never happened in my experience, and the recorder used by Jat for these experiments has remained in use in the lab since December 1996 and has not been found to be faulty.

These traces show other anomalies too; for example they are on two different numbered rolls of paper (B9 and C9) and Jat told me that they were produced in the order B9, C9, B9, C9, yet there was no reason to have gone through the clumsy procedure of changing the paper or chart recorder between runs and Jat has not claimed that he did so.

I also asked the senior postdoc in my lab, Dr David Rolfe, to look at the traces, without saying what I thought was wrong with them, and he independently made the same assessment as me - that they could not have been produced on our apparatus in the way that Jat maintains they were.

Jat has no explanation for these spikes on his traces. Indeed, I'm not sure that he understands why they show so clearly that the traces have been falsified. I offered him the opportunity to show the evidence to Professor Blundell, the Head of the Biochemistry Department, if he was in any way dissatisfied with my interpretation of the situation, but he declined. I then told him that if he could not come up with a satisfactory explanation of the genesis of the traces, I would not allow him to continue in my lab, and I would not recommend to any other

supervisor that he be allowed to work on some other project. He did not offer any convincing explanation. I have since written to him repeating the offer of an opportunity to demonstrate that he can produce such experimental traces on the same equipment before witnesses if he wishes.

The internal evidence that the traces were not produced as claimed is extremely strong and I cannot see reasonable doubt that they were falsified. Under the circumstances I am not prepared to continue to supervise Jatinder Ahluwalia's PhD studies and I recommend to the Board that they strike his name off the register of Graduate students.

Yours sincerely,

Copies to: Professor Tom Blundell, Dr S. Withington (Graduate Tutor, Downing College),
Jatinder Ahluwalia, BBSRC.