

## **Research misconduct investigation – Dr Jatinder Ahluwalia**

### **Summary**

Following a review of allegations of misconduct in the PhD research of Dr Jatinder Ahluwalia the presiding investigation panel has found no evidence to suggest fraud. It has, however, made a number of recommendations arising from the case itself and previous investigations.

### **Background**

Jatinder Ahluwalia was registered for a PhD from 1999-2002 in the Division of Surgery, Anaesthetics and Intensive Care in the Faculty of Medicine under the supervision of Dr Istvan Nagy. He was funded by an MRC CASE studentship with Novartis Institute for Medical Sciences where his industrial supervisor was Dr Marco Compagna. His PhD was awarded by the University of London in March 2003.

The Head of the Division of Surgery, Anaesthetics and Intensive Care at the time was made aware in December 2008 that allegations of research misconduct on the part of Dr Ahluwalia were being investigated by UCL. No direct allegation of fraud had been made at that stage with regard to Dr Ahluwalia's PhD. The Head of Division instigated an internal review of the PhD research Dr Ahluwalia undertook at Imperial plus the six scientific papers associated with the PhD, but no evidence of fraud was found.

Concerns were raised by UCL in March 2009 with regard to the paper published by Ahluwalia and others in the Journal of Neurochemistry 2003, 84, pp585-591. Following a review at Imperial an arithmetical error in the paper was identified, with a corrigendum submitted in June 2010. In August 2011 Ahluwalia's supervisor in consultation with the other authors withdrew the paper from publication as it had not proved possible at that stage to replicate the results of the experiments. All authors responded except Ahluwalia.

Because of the relationship of this paper to Dr Ahluwalia's Imperial PhD thesis, the College convened a panel to investigate possible research misconduct in his PhD research.

### **Investigation**

An investigation panel was established comprising the Pro Rector (Education), initially Professor Julia Buckingham, succeeded by Professor Debra Humphris; the Dean of Students (Professor Denis Wright); a Dean (Professor Simon Taylor-Robinson); a representative of the Head of Department (Professor Andrew George), the President of Imperial College Union, initially Scott Heath, succeeded by Paul Beaumont; and the Academic Registrar (Nigel Wheatley).

### **The scope of the investigation**

The scope of the panel's work was to:

- a) Investigate the original materials relating to the PhD research of Dr Jatinder Ahluwalia undertaken at Imperial College London. These materials consist of laboratory books held by Novartis, the industrial partner in Dr Ahluwalia's research.

The laboratory books relate to the anandamide experiments detailed in the retracted Neurochemistry paper.

- b) Consider any lessons to be learned from both the case in question and the process of investigating it previously

### **Investigation process**

Attempts were made to contact Dr Ahluwalia to assist with the investigation but his whereabouts remain unknown. An initial confidential review of the thesis and publications was carried out by a private firm contracted for the purpose and identified the need for further investigation. In parallel to this a protracted negotiation ensued between the College and Novartis for the panel to have access to Dr Ahluwalia's notebooks which were in Novartis' possession. Eventually supervised access to the notebooks on Novartis' premises was agreed by Novartis.

The panel deputed Professor Simon Taylor-Robinson to undertake the following:

- An interview with Jatinder Ahluwalia's supervisor, Dr Istvan Nagy.
- The examination of three sets of laboratory books, held by Novartis, on 17 December 2012.

Professor Taylor-Robinson's report is attached as Appendix 1.

### **Panel considerations**

The panel reviewed Professor Taylor-Robinson's investigation report at a meeting on 11 June 2013. It noted the report's findings, that:

- Nothing within Dr Ahluwalia's laboratory books suggests deliberate fraud.
- The discrepancies in the anandamide experiments appear to be the result of basic arithmetical errors and sub-optimal protocols.
- The experiment's methodology was ill-advised, and could have led to a series of inaccuracies in the results

### **Panel conclusions**

The panel determined that there was no evidence of research misconduct in Dr Ahluwalia's thesis. It noted that fraudulent activity by Dr Ahluwalia had been reported elsewhere but that this did not suggest that misconduct had occurred at Imperial. As no evidence of fraud or misconduct at Imperial had been identified, the award of the PhD should stand.

### **Recommendations arising from the case**

1. The laboratory books covering the work were held by a commercial company. It took considerable negotiation and time to obtain access to them. The College needs to be

able to access data generated by its students in fulfilment of its degrees when needed for legitimate purposes.

**Recommendation:** When making agreements with industrial partners either for joint supervision or for sponsored research the College must ensure it retains access to all data and laboratory books. The panel will share this recommendation with the College's working group on collaborative provision.

It would appear that in this case the work carried out in the commercial company was not fully integrated into the work overseen by the College.

**Recommendation:** Collaborative PhDs should always be truly collaborative, supported by strong communication between partners. The panel will share this recommendation with the College's working group on collaborative provision.

2. In general there is scope for improving how laboratory books are written up, and archived by research students.

**Recommendation:** Consideration should be given to what further training on data handling and research integrity may be appropriate for research students. The panel will share this recommendation with the Graduate School.

**Recommendation:** The College needs to complete its data handling policy, offering staff and students help with long term archiving of data. The panel will share this recommendation with the College Secretary and Registrar.

### **Recommendations relating to the investigation process**

3. The procedures for investigating alleged research misconduct under which this matter was first investigated were not as clear and comprehensive as they should have been, particularly where allegations related to activity undertaken some years previously as opposed to contemporaneously.

Update: The College Ordinance D17: Investigation of Allegations of Research Misconduct – has been revised and was approved by Imperial College Council in November 2012.

**Recommendation:** The procedures under the Ordinance require further promulgation within the academic and student community. The panel will share this recommendation with the Pro Rector (Research), the Chair of the Research Misconduct Response Group and the Graduate School.

4. It was not always possible to follow the investigation timeframes stipulated in the Ordinance.

**Recommendation:** The regulations should be examined to ensure that timelines are both realistic and effective in ensuring the investigation proceeds with a degree of urgency. The panel will share this recommendation with the College's Central Secretariat.

## **Distribution of this report**

This report is provided to the College Secretary and Registrar for his records and a brief summary will be submitted to Senate. This report is also expected to be made available to the following parties:

Dr Ahluwalia (if his current contact details can be obtained)  
Imperial Faculty of Medicine  
Imperial Department of Surgery and Cancer (previously the Division of Surgery, Anaesthetics and Intensive Care)  
UCL whence the original concerns had emanated  
MRC  
Novartis  
University of London (degree awarding body for the PhD)

## **Appendix 1**

### **Report on Additional investigation into the research work of Jatinder Ahluwalia**

#### **Background:**

A panel consisting of Professor Debra Humphris (the Pro Rector for Education), Professor Andrew George (Director of the Graduate School and School for Professional Development), Professor Simon Taylor-Robinson (Clinical Dean for the Faculty of Medicine) Professor Denis Wright (Dean of Students), Paul Beaumont (ICU President) and Mr Nigel Wheatley (Academic Registrar) deputed Professor Taylor-Robinson to investigate original materials relating to the PhD research of Dr Jatinder Ahluwalia. These consist of laboratory books held by the company Novartis, relating to the anandamide experiments detailed in the retracted Neurochemistry paper.

The investigator, Professor Taylor-Robinson, has had no prior involvement with the case but draws on more than 20 years' experience with NMR and mass spectrometry experiments in translational medicine.

The investigation included the following elements:

- An interview with Jatinder Ahluwalia's supervisor, Dr Istvan Nagy.
- The examination of three sets of laboratory books, held by Novartis, on 17 December 2012.

#### **Considerations from the interview with Dr Nagy**

On the atmosphere in the research group, Dr Nagy suggests that Jatinder Ahluwalia was under no pressure to publish or to produce results in Dr Nagy's group and Dr Nagy felt that a climate to produce fraudulent data did not exist, since there was no reason to produce papers in a hurry.

From discussions with Dr Nagy on the set-up of Dr Ahluwalia's supervision arrangements it appears that the separation between Novartis and Imperial may have led to errors in

supervision, where any mistakes that Jatinder Ahluwalia may have made in methodology and interpretation could not easily be checked.

On the methodology used, Dr Nagy suggests that Jatinder Ahluwalia may have followed protocols that would not be observed today, including failure to remove the superfusate, which could lead to inaccuracy and overestimation of results. This was apparently not detailed in the retracted Neurochemistry paper, due to lack of publishing space. He also suggested that the study design with the benefit of hindsight was flawed as there was no tritiated reference. Furthermore, the mass spectrometry machines available in 2002 at Novartis, lacked sensitivity and there were several similar compounds with similar mass-charge ratios to anandamide which could have been a source of error.

Dr Nagy suggests the methodology was careless by 2012 standards, given that the supernatant had not been discarded during the experiments. Dr Nagy maintained that the substance of the anandamide experiments were real phenomena and that his laboratory team at Imperial has now replicated the experiments using different methodologies, the results of which are in press with a toxicology journal (albeit with different levels of anandamide observed to the original calculations in the retracted Neurochemistry paper).

### **Considerations from the examination of the three laboratory books written by Jatinder Ahluwalia**

- Each experiment was clearly documented. Where mistakes had been subsequently noted, these were crossed out and cross-referenced to later explanations and experiments. The laboratory books were meticulous in their entries with each entry signed and dated by Jatinder Ahluwalia.
- The laboratory books provided a chronological reference and were easy to follow.
- The anandamide experiments were undertaken as the final series of experiments in April 2002. It appears that simple arithmetical errors were made in calculations from molar concentrations to SI units.
- There was no evidence of systematic fraud or any evidence that the experiments had been altered in an unusual way. The MS print-outs appeared genuine with nothing to suggest that the experiments did not take place.

### **Investigation conclusions**

Nothing within Dr Ahluwalia's laboratory books suggests fraud.

The discrepancies in the anandamide experiments appear to be the result of basic arithmetical errors and sub-optimal protocols.

The experiment's methodology was ill-advised, and could have led to a series of inaccuracies in the results.

The compartmentalisation of supervision between Imperial and Novartis appears to have left some gaps. Had Dr Ahluwalia been more closely supervised during these series of experiments at Novartis, the methodological and arithmetic errors could have been spotted at an earlier stage. This is something that should be addressed for future Imperial-industry collaborations.

