GRADUATE JOURNAL

Paris, here I come…

What do basketball players such as Allen Iverson and LeBron James have in common with me? We're young African-American males living and working in the United States. How do we differ? They shoot jump shots and slamdunks in the US National Basketball Association, I do HIV research.

Also, unlike me, they are multimillionaires. As I scratch my head at sports salaries, I can't help but think that something must be out of balance.

Perhaps I'm alone in this view. Yet it seems that until crowds of adoring fans flock to our labs to root for us as we do our experiments, and we are greeted by dancing cheerleaders and thunderous applause each time we clone a vital gene, budding postdocs like myself can expect only minimal financial compensation. This harsh reality has affected my outlook and helped me to decide whether to do my postdoc in France or here in the United States (see *Nature* **427,** 762; 2004).

I reckon that, if I'm going to have a low income anyway, I may as well take the opportunity to experience a different culture and live in a foreign country. After all, many say that working abroad is an invaluable experience. I am hopeful that my time in Paris will prove this to be true. Otherwise, I may have to put down my pipettor and start working on my vertical leap. ■

Tshaka Cunningham is a fifth-year graduate student at Rockefeller University in New York.

RECRUITERS & INDUSTRY

Back to the future

Hundreds of years ago, medical scientists were broad-based and cross-disciplinary. But in the mid-twentieth century, they became specialized. Postgraduates spent years studying single genes, proteins or molecules. Industry demanded scientists who identified themselves as chemists, biologists, cellular biologists or biochemists.

In the past decade, the pendulum has swung the other way. Automation, robots and high-throughput screening, combined with genomics, created a semi-industrialization of drug discovery — and enormous quantities of data. Disciplines such as chemical and biological informatics arose to deal with the information flood.

With these disciplines came the rebirth of an essential skill set. Industry again needs cross-disciplinary scientists. Today's professionals figure out how basic science and advanced technology fit together. The ball is in the court of scientists who can assimilate data from a variety of areas. We are moving towards systems biology and biosimulation to understand the complexity of human health.

Our ability to generate data has outstripped our capacity to study them. The challenge is how to use the data we generate. We need to learn ways to bring technologies to bear in a way that manages risk and reduces the cost of drug discovery. How do we translate opportunity to sort out the ineffectual compounds and push forward the winners? It is the balance of science and advanced technology that will determine where we find our answers.

Just a short while ago, if you could clone and sequence that was a great skill set to be able to put on your CV. Today, the scope of what the scientist needs to bring to the table has broadened. A solid molecular background will serve you well but you need to take the broader view, be able to work in teams, and collaborate with downstream partners.

To prepare for tomorrow, the bar will be set even higher. In another ten years we will see an increase in computer-aided drug-design applications of structural biology and protein engineering. This will be necessary because animal models are very expensive. Those who can adapt to this new environment will not only be able to forward their own careers, but at the same time move medical research closer to meeting our medical needs. ■

Michael Jackson is senior vice-president for drug discovery at Johnson & Johnson Pharmaceutical R&D in New Jersey.

MOVERS

Ali Raza, medical director, Renovo, Manchester, UK

As a PhD student, Ali Raza made two choices that had profound effects on his career. First, he opted to pursue pharmaceutical development rather than academic research. Second, he decided that earning a medical degree would be the best pathway to that destination.

Those decisions were informed by experience and personal contact. While Raza was in graduate school, several exposures to the pharmaceutical industry taught him that an MD's voice often carries more authority in pharmaceutical research than a PhD's — even though a PhD may be more knowledgeable about a particular drug or disease mechanism. That information triggered the subsequent "ten-year diversion" into his medical training.

And while in medical school, Raza also weighed up the merits of being a practising physician versus being a pharmaceutical scientist. In seeing patients, the rewards are immediate, but are also limited to interacting with a few hundred patients a year. In the pharmaceutical industry, the rewards — a successful treatment for disease — are delayed, and even uncertain. But bringing a successful drug into the market could potentially touch millions, Raza says.

His strategy paid off. Raza says that his MD/PhD research background helped him to speed AstraZeneca's anti-cholesterol drug Crestor from initiation of clinical trials to approval in several countries within five years.

Now, he is looking forward to a new challenge in his old stamping ground of Manchester, where he trained as a biochemist. But there are new challenges for him: he will be working at a small biotech firm with under 100 employees and in an area — wound healing — where he has little experience.

But he is happy to have traded commuting between continents for a ten-mile drive to central Manchester. He jokes that he is pleased to be reunited with the city's curry mile — a row of Indian restaurants. And he hopes he can replicate his drug-industry success in the biotech sector in the city where his career began. "It would be fantastic to build a billion-dollar company in my home town," Raza says. ■

CV

2003–04: Head of clinical sciences, AstraZeneca, Goteborg, Sweden
1997–2003: Executive global product director and global team leader, AstraZeneca, Wilmington, Delaware
1994–97: Head of the medical department, Zeneca Pharmaceuticals, Toronto, Canada
1990–94: Drug team leader, ICI Pharmaceuticals, Alderley Park, UK