



Profiles	Pharmaceutical research
Name	Oliver Howard
Age	26
Job	Associate scientist (synthetic medicinal chemist)

Medicinal chemistry was always going to be the area for me. The interactions generated with biologists are good, and getting biological data back on something you have personally made is always exciting.

Career path and qualifications so far

Having studied Chemistry, Physics and Maths at A Level, I completed a Masters degree (MChem) in Medicinal Chemistry at the University of Leeds and then went on to join a major pharmaceutical company as a research assistant. After 18 months I was promoted to my current position as associate scientist. Throughout my time here I have worked on a number of different projects, each one interesting in its own right. To progress further I have to keep learning medicinal chemistry – new techniques and approaches as well as the essential knowledge. This development is on going and comes with increasing job experience. I hope to have more impact on projects in the future by suggesting target molecule design and selection. I would also like to spend some time working in the US, which will allow me to work in a different culture and see how problems are tackled in a different country.

Has anything you've done been especially useful in your career?

In my third year at university I did an industrial year out at a pharmaceutical company. I really enjoyed myself during this time and it certainly helped me choose my future career. I returned to the company in the final year of my degree to work on my final year project.

It may seem a strange topic, but completing a GCSE in drama really helped me gain confidence to speak out and involve myself in open discussions, which is an important part of my career.

What is a medicinal chemist?

Medicinal chemistry is the application of principles of biology and chemistry to the rational design and synthesis of new drugs for treating disease. A medicinal chemist applies knowledge of chemistry, biochemistry, and physiology to generate solutions to health-related problems.

Day to day activities

In my day to day job I synthesise molecules (targets), typically aiming to get 100-200mg of pure final compound. This process begins with commercially available starting materials. If the series of compounds has never been made before, I have to research an efficient synthesis route. After I have made a sufficient amount of the pure final compounds, they are forwarded to the biologists for primary screening, *ie* the molecule is tested to see if it has any biological activity. When the results from the screening are returned, I discuss with my supervisor the best way forward. The work that I am involved in is at the cutting edge of drug discovery. I can either be working on a lead (target molecule) development project or at a slightly more advanced stage. I guess the best way to describe it would be: I am in the area of drug research which is approximately ten years away from the potential drug being prescribed/sold to the consumer.

Further qualifications

Since I started work my knowledge of practical chemistry has developed greatly. Although this doesn't amount to formal qualifications, on-the-job development of this kind is essential for my career progression.

Why medicinal chemistry?

Medicinal chemistry was always going to be the area for me. The interactions generated with biologists are good, and getting biological data back on something you have personally made is always exciting. With medicinal chemistry I could see where the topics I was learning at university fitted into everyday life. The fact that as a medicinal chemist in industry you might be making the next billion dollar blockbuster has a real buzz about it.

What do you most enjoy about your job?

The best bit about my job is that it is neither 100% office nor 100% laboratory based. I get to do a variety of work, and no day is ever the same – I also have to think about what it is I am doing and never switch to 'autopilot'. The company that I work in has a really good atmosphere and working environment; if ever I have a question I can ask anybody and never feel embarrassed.

What other skills do you need?

The ability to work in a team and also to be able to communicate effectively are probably the most important skills. As I am part of a fairly large team, I need to know what other people are doing on a day to day basis and how this fits in with my own work. I also have to adapt suitably to different situations, for instance, when a biological result comes back, the outcome can mean ditching two or three weeks work to start in another area.

Why is it useful to study a science subject at university?

The technical knowledge of medicinal chemistry and synthesis techniques I acquired at university gave me an essential foundation for this type of career. I am constantly using and developing that knowledge through my day to day job.

Further information/contacts

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