



Profiles	Medicinal chemistry
Name	Kate Mahalingam
Age	28
Job	Senior research chemist

I like being at the beginning of the drug discovery process and knowing that a new chemical I have synthesised in the laboratory might, one day, become a new medicine.

Career path and qualifications so far

Having studied Chemistry, Physics, Mathematics and General Studies at A Level, I continued my education at Loughborough University with a degree in Medicinal and Pharmaceutical Chemistry. This course included an industrial sandwich year placement in my third year which gave me a taste for working in industry.

After graduating, I began work at AstraZeneca in their medicinal chemistry department as a Research Scientist. I had to show that I was competent and productive in the laboratory environment. My communication and team-building skills developed, and my problem-solving skills improved enormously through reading literature and discussion with colleagues. These skills enabled me to be promoted to senior research chemist after just 3 years.

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

My industrial placement was spent in a medicinal chemistry department of a pharmaceutical company, working towards a Diploma in Industrial Studies (DIS), which forms an integral part of the degree at Loughborough and is awarded following successful completion of the year out. During this placement year I learnt many aspects of drug design and practical synthetic chemistry. Also, I found that hands-on experience working in an industrial environment gave me an advantage when I began applying for jobs as a new graduate.

What is a senior research chemist?

As a senior research chemist in the medicinal chemistry department, my job is to design and synthesise novel chemical compounds targeted to treat a variety of human diseases. These chemicals may have the potential, in the future, to become drugs that doctors can prescribe to patients. To do this successfully involves working with a wide range of specialists including biologists, molecular modellers, chemical engineers, safety consultants and patent attorneys.

Day to day activities

I spend the majority of my time in the lab doing hands-on practical synthetic chemistry, which involves carrying out a variety of chemical reactions. Once the reaction has been completed the chemical product must be purified to as high a standard as possible. A variety of analytical techniques are then used to confirm the correct chemical has been synthesised. As well as hands on practical synthesis, several pieces of automated lab equipment have been introduced to my laboratory to help me carry out my job thoroughly and more efficiently. Every reaction carried out must be duly recorded in a laboratory notebook.

Does your job involve travel or activities outside the office/laboratory?

Yes. In order to keep up to date with developments and expand my knowledge of chemistry, I attend external conferences and seminars, some of which may be overseas.

Why did you choose your current job?

Having spent a sandwich year in a medicinal chemistry department I soon realised that I thoroughly enjoyed practical chemistry. I also liked the idea of being at the forefront of drug discovery. Working in a large pharmaceutical company appealed to me because there is a well-defined job structure, career progression opportunities, the chance to travel within an international organisation and the possibility of working with interdisciplinary teams. The job security and pay were pretty appealing too!

What do you most enjoy about your job?

I like being at the beginning of the drug discovery process and knowing that a new chemical I have synthesised in the laboratory might, one day, become a new medicine. My job is different every day, and I am able to experiment with new ideas, using knowledge I have gained from reading about other research to make chemicals that have never been synthesised before.

What skills do you need, other than your scientific knowledge?

Skills such as time management and problem solving are essential, as is the ability to communicate effectively with other people (including those without a chemistry background). Computer literacy is important as computers are used to simulate molecules and to analyse data, and good manual dexterity is key to much of the practical work. Fortunately these are all skills I developed through studying a scientific discipline. You also need a fair amount of common sense and diplomacy.

Have you got any advice for people wishing to enter your career area?

Ensure you build up a good technical understanding of chemistry so that you have a good knowledge of the best methods to use to solve new problems.

Is a science degree essential for your area of work?

A Chemistry degree is essential to work in medicinal chemistry because this allows you, through the knowledge you have gained while studying, to make an informed decision on how to synthesise a target chemical.

Examples of other career opportunities in this area

Laboratory technician – technicians work in all sorts of organisations, from government agencies to industrial research laboratories, to academic institutions.

Analytical chemist – quality control departments employ a lot of analytical chemists but they may also work in research, customs, forensic science and a wide range of other areas.

Research scientist – researchers work on a wide variety of projects in many different organisations and companies, from large pharmaceutical firms to small and medium-sized enterprises, to research charities and academic institutions.

Clinical research assistant, clinical trials co-ordinator – scientists are involved in all aspects of clinical trials from administration and organisation to data management and analysis.

Further information/contacts

The Association of the British Pharmaceutical Industry (ABPI), 12 Whitehall, London SW1A 2DY
Tel: 020 7930 3477 www.abpi.org.uk

The Chemical Industries Association (CIA), Kings Buildings, Smith Square, London SW1P 3JJ
Tel: 020 7834 3399 www.cia.org.uk

Society of Chemical Industry, 14/15 Belgrave Square, London SW1X 8PS
Tel: 020 7598 1500 www.soci.org

For further information on careers in the chemical sciences contact:

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