What does the Pharmaceutical Industry do?

The pharmaceutical industry discovers, develops and supplies new medicines to prevent and treat illnesses. To achieve this, we employ talented and dedicated scientists who work together in collaborative, multidisciplinary teams.

Creating a new medicine

The process of creating a new medicine involves a number of stages. Success at each stage depends on teams of skilled scientists from many different backgrounds, for example those with degrees or postgraduate qualifications in biological science subjects, chemistry, pharmacy, engineering or statistics.

Research starts with identifying a disease that has no effective treatment, or where a better treatment for the disease is needed. Through working out what happens when someone suffers from the disease, identifying the right biological target, and designing molecules which have a specific effect on the target, new medicines are discovered. They must work effectively, whilst being safe and well tolerated. The science is evolving rapidly and new medicines may be biotherapeutics (e.g. monoclonal antibodies, vaccines or modified RNA) or traditional small molecules. Ways of diagnosing disease are also increasingly important.

Development. Typically, fewer than 1-in-20 of the discoveries from research become marketed medicines. These are the ones that have proved to be safe, effective in patients and cost-effective. Our challenge in Development is to work out which discoveries are likely to suceed and to ensure these get to the patient as rapidly as possible. This involves applying the latest synthetic, analytical and formulation technologies to make the new drug safely on a large scale without harming the environment, and creating a tablet, capsule, injection or other dose form that will deliver the medicine to where it needs to act in the patient. The medicine has to be tested in clinical programmes to find the right dose to use and to check for safety and efficacy. By the time it is available for doctors to prescribe it will have been tested on thousands of patients with the disease.

Roles and Skills

We employ scientists who are committed to applying and developing their expertise to fight diseases, and who want to develop a meaningful and rewarding career

If this sounds like you...

- can solve problems in unfamiliar contexts using scientific and mathematical knowledge
- uses practical experiments to test scientific ideas
- collaborates well with others
- committed to building upon your existing knowledge and skills
- enjoys scientific challenge
- excited by change
- able to lead

...there could be a great career for you in the pharmaceutical industry

To find out more

www.abpicareers.org.uk
www.rsc.org/studentzone
www.societyofbiology.org/education/careers

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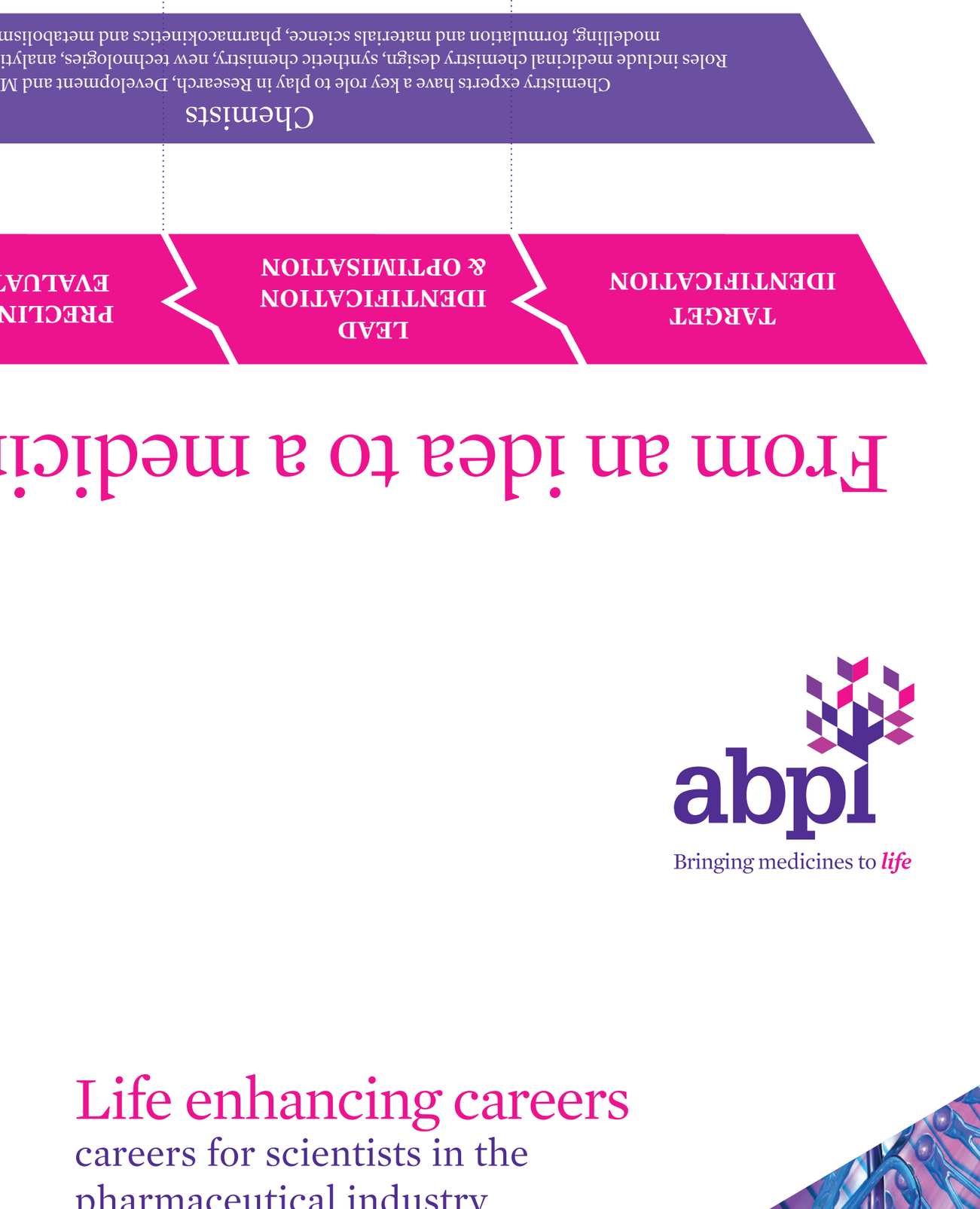
Bringing medicines to *life*

Life enhancing careers

careers for scientists in the pharmaceutical industry



From an idea to a medicine...

TARGET IDENTIFICATION | **LEAD IDENTIFICATION & OPTIMISATION** | **PRECLINICAL EVALUATION** | **CLINICAL EVALUATION** | **MARKET**

Biological scientists

Biology specialists including biochemists, pharmacologists, geneticists, microbiologists and toxicologists are employed throughout Research and Development.
They have a critical role to play in target selection, biological evaluation, project leadership and clinical research

Chemists

Chemistry experts have a key role to play in Research, Development and Manufacturing.
Roles include medicinal chemistry design, synthetic chemistry, new technologies, analytical methods, computational modelling, formulation and materials science, pharmacokinetics and metabolism, project leadership

Clinicians

Medically qualified people are an essential part of the team undertaking translational medicine and clinical research.
These include clinical pharmacologists, medical advisors and clinical research physicians.

Pharmacists

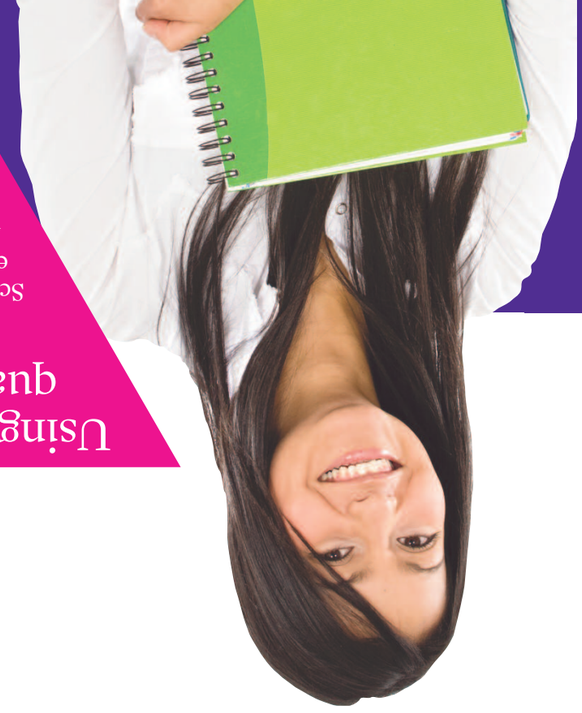
A variety of roles exist for pharmacists throughout pharmaceutical organisations.
These include formulation specialists, drug safety, clinical trials supplies and quality assurance

Statisticians, Engineers, Physicists, Vets, Pharmaceutical scientists, Health economists and other scientists

These roles also have vital parts to play in the development of a new medicine

Using your science qualifications in other ways...

Science specialists are also ideally equipped for non-lab based roles.
Amongst these are: science writers, patents, regulatory affairs, sales and marketing, finance, public relations and statisticians.



Chemistry... Pharmacology... Physiology... Pharmacy... Toxicology... Pharmaceutical science... Clinical Pharmacology...

These people all work in the UK pharmaceutical industry

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Bringing medicines to *life*

Charlotte, medicinal chemist
I work as a medicinal chemist at an early stage of the drug development process. I make compounds that could become new medicines on a very small scale. I have an MChem degree from Bristol University

Louise, animal technologist
I am responsible for the health and welfare of laboratory animals and for training junior animal technologists. It is very rewarding be able to work in science and care for animals whilst working for professional qualifications.

Varuna, medical representative
I promote the company's products to healthcare professionals including GPs, nurses, practice managers and retail pharmacists. I took A levels in Biology, Chemistry and Physics and went on to study for a degree in Pharmacology at King's College, London.

Panni, clinical data manager
I work on medicines that are being tested in clinical trials. My main role is around resource management. I took A levels in maths, computing and physics. I then went on to do a sandwich degree in computing and statistics.

Zan, statistician
I'm part of a department who provide statistical services for early phase clinical trials. I have a BSc in Mathematics and an MSc in Medical Statistics and did an undergraduate placement in industry.

Natalie, neuroscience knowledge advisor
I provide specialist medical information to healthcare professionals and patients about the company's neuroscience products. I am a medically qualified doctor, I graduated from the University of Bristol in 2008.

Qing, health economics and outcomes research manager
I have a PhD in health economics and use clinical and economic evidence to demonstrate the value of medicines.

Daniel, regulatory affairs associate
I create, file and maintain applications to carry out clinical trials and register new medicines and monitor their safety. I joined the pharmaceutical industry following A levels in science and studying pharmacology at university.

Justyna, industrial placement student
I am a fourth year MSci student in Biotechnology (Applied Molecular Biology) with Industrial Placement at the University of Aberdeen, I am currently doing a 12 month placement in a biopharmaceutical company.

Charlie, clinical research site manager
I look after new and ongoing clinical trials working both from home and in hospitals. My degree is in pharmacology.

Neil, pharmacokinetic /pharmacodynamic modeller
I use mathematical models to understand the relationship between the concentration of a drug molecule and the effect it has. I have a degree in Applied and Human Biology and am studying for an MSc in Modelling and Simulation.

Oz, financial analyst
I am on a graduate scheme where I get to rotate around the different functions in the Finance Department. I studied Business Economics at university, and before that took Economics, Maths and Biology A levels.

Alan, process chemist
I design chemical syntheses of small molecules that have shown potential as drugs. I have a BSc in Chemistry followed by a PhD and post-doctoral research.

John, study director, drug metabolism and pharmacokinetics
I use Accelerator Mass Spectrometry technology to study the pharmacokinetics of new chemical entities in man. I have a degree in Biochemistry and a PhD in Molecular Cell Biology.

Lyn, chemical biologist
I lead a chemical biology group that uses chemistry to understand the biological processes that cause disease. I did a PhD and postdoctoral research after obtaining a degree in Chemistry.

Marie, analytical chemist
I develop analytical and purification methods using chromatography to purify compounds before they go through to biological testing. I joined the company straight from school after taking A levels in Biology, Chemistry and Geography.

Sonia, formulation/ materials scientist
I create tablets and capsules for use in clinical trials. I did A levels in Biology, Chemistry and Maths before studying Pharmacy at Nottingham University.

Maxine, head of drug safety
I am responsible for the processes to manage medicine safety for my company. These are used to collect and analyse details of side events in patients which may be caused by one of our medicines.

To find out more about the jobs these people do, and many more, visit http://careers.abpi.org.uk/case-studies