

Starting Out in Industry

Kevin Back



WORLDWIDE RESEARCH & DEVELOPMENT
PharmaTherapeutics Pharmaceutical Sciences

My career so far



- ▶ 4 years
 - ▶ MChem



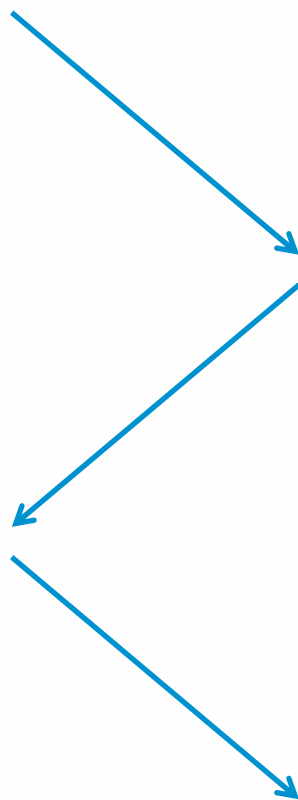
The University of Manchester



- 4 years
 - 3 years PhD
 - 1 year EPSRC Doctoral Prize



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- ▶ 5 years
 - ▶ 2 years analyst
 - ▶ 3 years solid state



- ▶ 4.5 years
- ▶ Principal Scientist, Materials Science

Pfizer at Sandwich

- Around 700 people employed at the Sandwich site
- Predominantly Pharmaceutical Sciences
 - Taking new molecules and making them into products
 - Drug Product Design
 - Analytical R&D
 - Chemical R&D
 - Producing clinical supplies
 - Regulatory submissions
- Work closely with colleagues globally
 - Particularly Groton and La Jolla sites in the US



My interview experiences

- Multiple rounds
- Final round
 - Presentation
 - Technical interview
 - ‘Competency’ interviews
 - Meals/tours
- Often looking for someone who they can develop into the role
- Preparation

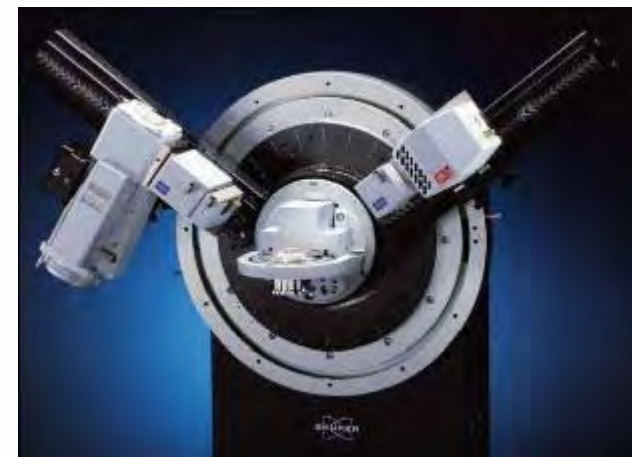
Starting out the first time – large companies

- Training
- Secondments
- Advantages of large companies
 - Training, social life, facilities, equipment, holiday
- Meetings
- Teamwork
- Deadlines



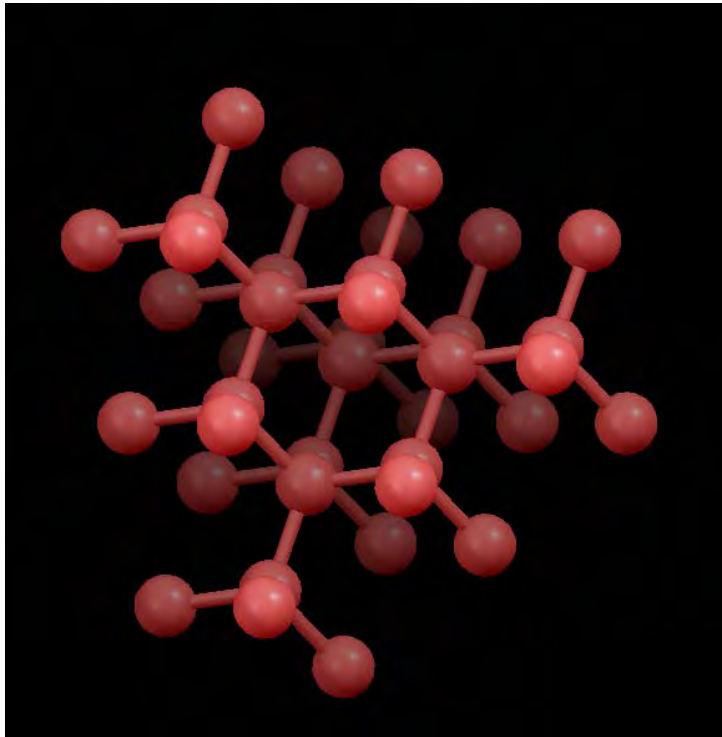
Experiences in my first job

- Started in analytical development (~75% time in lab)
 - Clearing materials for clinical trials
 - Stability studies
 - Method development
- Through my supervisor, learned a new technique
- Led into applying for a secondment in solid state

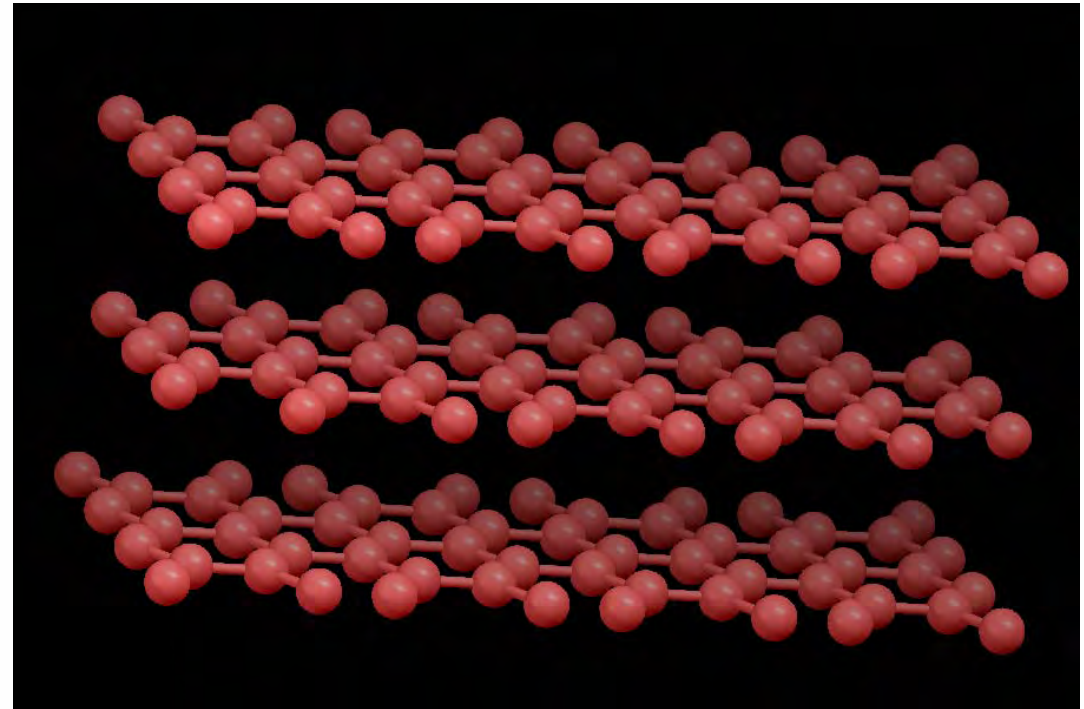


Polymorphism

Diamond



Graphite



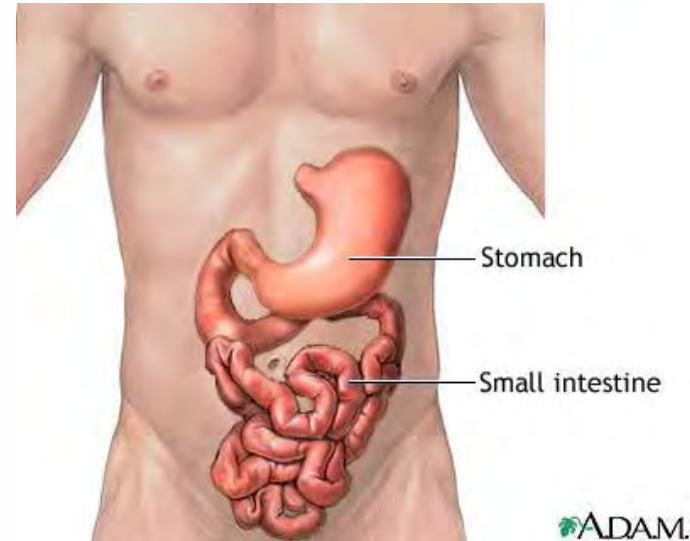
Why is the solid state important?

- Chocolate (or rather, cocoa butter) is polymorphic
- Many forms of cocoa butter, with various melting points:

Cocoa butter form	Melting temp (°C) (approximate)
I	13
II	17
III	22
IV	26
V	31
VI	34



Importance of the solid state in pharmaceuticals



- The structure of a drug form affects its solubility
- For tablets, the drug must dissolve to pass from the intestine into the blood stream



What I like about my job

- Use a wide variety of analytical techniques, combining the data to solve problems
- ‘Expert’ feel to the area
- Lab work
- Being an important part of the project team and influencing how it develops
- People



PhD or not?

- Advantages of starting as a graduate
 - Money
 - Working out what you're interested in
 - Industrial experience
 - Less specialised

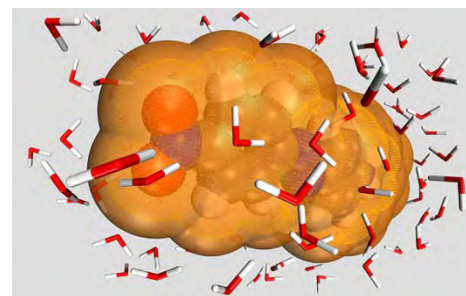
- Advantages of starting as a PhD
 - Start out at a higher level
 - Scientific career ladder
 - Experience in research gives you a different set of skills to apply to projects
 - Network – external facing role
 - Better chance of getting the job in your area (if it comes up!)

Starting out in industry post PhD – my experience

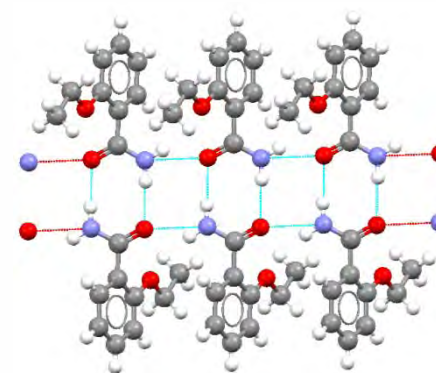
- Training
- Put onto projects quickly with greater responsibility
- Lab work
- Influencing scientific direction of the department
- Greater independence

Skills that have been important

- Communication of information
 - Meetings and 1-to-1
 - Written reports and experiments
- Working to Good Manufacturing Practice (GMP) standards
- Analytical techniques and mindset
- Good scientific base of knowledge
 - Thermodynamics
- Computational modelling skills from my PhD
- Crystallography
 - Becoming an expert in an area

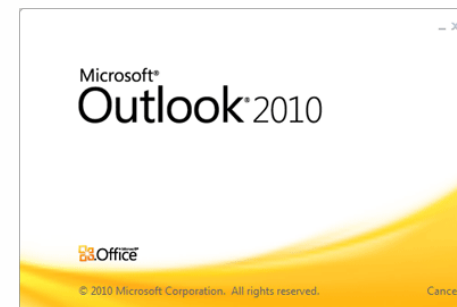


Biovia
Materials Studio



What does a typical day look like?

- 2-3 meetings
- Some lab work
- Write ups
- Reports
- Email, email, email...
- Informal questions and answers with colleagues



Chemistry jobs in the pharma industry

- Synthetic chemists
 - Discovery
 - Process development including large scale synthesis
- Analytical chemists
 - Method development, stability of both API and drug product
 - Including more focussed areas like spectroscopy, solid state
 - Quality Assurance
- Formulators
 - Some have a chemistry background and formulation experience
- Other roles
 - Project management, regulatory affairs, supply chain, documentation, QA advisors

Working in the pharmaceutical industry and why I like it

- New medicines are important
- Training, internal and external courses, conferences
- Plenty of opportunities to pursue new paths and find something that really interests you
- Work with clever and motivated people
- Can stay in a scientific role and stay close to the lab
- Pay and benefits

Plug

- <http://pfizercareers.com>
- Telegraph article “Inside Pfizer: From Molecule to Medicine”