361P MASTER OF RESEARCH (M.Res) IN BIOLOGICAL SCIENCES: THE MANCHESTER EXPERIENCE

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The changing nature of undergraduate education has led to a widely-held perception that studies to B.Sc. level no longer prepare a student with the appropriate skills to succeed as a biological scientist either within industry or as a direct prelude to Ph.D study. The concept of M.Res. was developed through consultations with the Office of Science and Technology and was aimed to satisfy the perceived need for graduates with a wider appreciation of the working environment and more research skills. In 1995-96 the School of Biological Sciences, University of Manchester (amongst 13 centres nationwide for BBSRC and MRC pilot schemes) ran its M.Res. programme for the first time.

In designing our programme we consulted widely with over 400 key members of the industrial community. Industrial input continues as the course develops with an Industrial Advisory Group, industrial contribution to taught elements of the programme, staff seconded from industry to take the M.Res. programme and the opportunity for research projects to be performed in an industrial environment. The M.Res is extremely important with respect to the training, and re-training, of pharmacologists and other specialists for the pharmaceutical industry and other biomedical research.

The key elements of the course are

- a rotation through three research projects that can take place either within academia or industry. The research projects occupy approximately 60% of the student's time,
- comprehensive modules to develop personal and professional transferable skills and basic research skills,
- taught modules to develop specialist theoretical knowledge,
- research training modules to introduce students to a range of techniques they may not encounter in their research projects,
- instruction in legislative matters such as would apply to the use of animals under a Home Office licence or genetically-manipulated organisms
- training in key skills such as computation, statistics, experimental design

We maintain a high level of flexibility in defining the details of these components to ensure that the training programme is tailored to the individual needs and aspirations of the students.
The M.Res. programme framework permits students to receive training in any of one of the sixteen areas of research strength defined in the School from Cell Biology to Pharmacology. Taught elements are assessed by examination and the final thesis incorporates the work of all three research projects.

The programme is now in its third year and, in all, we have admitted 83 students to the programme. 32 of these were supported by research councils, 12 by industry and the remainder were self-funded or supported in part by the European Social Fund.

Our limited outcome data (year 1 only) show that approximately a third of the students enter industry directly from M.Res. The remainder have continued training towards Ph.D. level. Our experience to date indicates that the M.Res. attracts very high quality applicants and delivers training which is valued by students and employers and is a very effective medium for technology transfer from university to industry.

362P DESIGNING LIGANDS FOR G PROTEIN-COUPLED RECEPTORS: GROWTH HORMONE SECRETAGOGUES - A CASE HISTORY

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In recent years, growth hormone releasing peptides (for e.g. GHRP-6; His-DTrp-Ala-Trp-D-Phe-LysNH_2) and peptidomimetics have received considerable attention as potential alternatives to injectable growth hormone (GH) replacement therapy. GH secretagogues present a number of opportunities for therapeutic intervention since these compounds can restore and enhance pulsatile GH secretion in humans.

The design of these peptidomimetics is interesting since they are agonists. Furthermore, their discovery was achieved without knowledge of the molecular target and without structural information concerning the endogenous hormone that they presumably mimic. We have disclosed an orally active GH secretagogue, MK-0677, that is currently in clinical trials. Only recently with the aid of peptidomimetic ligands that were derived from MK-0677 has the receptor for the secretagogues (GHS-R) been identified, characterized and cloned. The natural ligand has still not been identified. Therefore, the GHS-R is an orphan receptor.

This presentation will discuss the design and biological activities of MK-0677 and a series of novel probes that were useful in characterizing the receptor and in unravelling the cellular mechanisms that ultimately trigger GH release.

Finally, results from site-directed mutagenesis and molecular modeling studies will be presented that provide insights in to some of the structural requirements for activating the human GHS-R.