Metabolomics

Users are involved in understanding and developing diagnostic tools for childhood brain tumours and cancers of the colon, lung, head and neck, as well as inflammation, pain and metabolic disorders.

Metabolomics refers to the study of the dynamic concentrations of small biological molecules produced by living cells. It is used in pharmacology and toxicology research.

Recent firsts include:

- Users led by **Mark Viant (http://www.biosciences.bham.ac.uk/labs/viant/)** established the **Metabolomics Initiative (http://www.metabolomics.bham.ac.uk)** on campus, which encompasses eight labs which share NMR methods and software for metabolomics analysis.
- **Andrew Peet (http://www.rch.bham.ac.uk/staff/Peet.shtml)** and Theo Arvanitis have integrated NMR and magnetic resonance spectroscopy and imaging of clinical samples and tissues in partnership with the **Birmingham University Imaging Centre (http://buic.bham.ac.uk)**.
- Several collaborative users from local hospitals and medical centres are identifying disease biomarkers for brain, colon, lung and head & neck cancers with Ulrich Günther.
- **eTumour (http://www.etumour.net/)** is a decision support system for brain tumour diagnosis and prognosis led locally by **Andrew Peet (http://www.rch.bham.ac.uk/staff/Peet.shtml)**.
- MOTET (Metabolomics and Oncology: Transfer of European Technology) coordinated by Ulrich Günther provides NMR training for cancer research.
- Ulrich Günther's group has developed MetaboLab software for NMR data postprocessing and statistical analysis.
- Ulrich Günther and **Mark Viant (http://www.biosciences.bham.ac.uk/labs/viant/)** have jointly developed protocols for the preparation and extraction of cancer cell lines, plasma samples and tissues.
- Members of HWB•NMR have established fast 2D NMR methods for metabolite analysis, in particular J-resolved spectra and HADAMARD TOCSY (MR Viant et al, *Biochem Biophys Res Commun* 2003; C Ludwig et al, *submitted,* 2007).