Challenges of recording phenotype
The article by Nadkarni (pages 8–10) discusses how individual phenotypic parameters in a data set must be adequately described in order to be comprehensible and minimize the possibility of misinterpretation, and how even the nature of these descriptors depends on the broad category of phenotype that one is describing. The authors then consider the requirements of software tools to assist submission of phenotypic data to an electronic repository, and the means by which standardization of such software could be facilitated.

Current aspects on pharmacogenetics
Although impressive literature documents both a strong participation of genetics in the etiology of attention-deficit/hyperactivity disorder (ADHD) and a high rate of response to stimulants, surprisingly few studies on pharmacogenetics of ADHD have been conducted so far. The article by Rohde et al (pages 11–13) reviews two studies that add to the compelling literature indicating the role of DAT1 gene variability in the response to stimulants.

Pharmacogenetics: the ethical issues
Lipton’s article (pages 14–16) covers the consultation document issued by The Nuffield Council on Bioethics on ethical issues raised by developments in pharmacogenetics. The potential of using pharmacogenetics information to improve the efficacy and safety of prescribing medicines is clear. Some have even made the optimistic claim that personalised medicine — ‘the right medicine, for the right patient, at the right dose’ — will only be a matter of time. But both research in pharmacogenetics and its applications raise ethical, legal, social and regulatory issues, which must be considered as this field rapidly evolves.

Sequence variations in the UGT2B7 gene
The article by Holthe et al (pages 17–26) presents sequence variation data in the coding and regulatory regions of the UDP-glucuronosyltransferase 2B7 gene (UGT2B7) from a cohort of 239 Norwegian cancer patients, and analyses the impact of gene variants on morphine glucuronidation in vivo. Their results suggest that factors other than UGT2B7 polymorphism may influence the variability of morphine glucuronide to morphine serum ratios.

Gene expression in cd4-treated rats
The study by Young et al (pages 41–52) utilizes a new ADME Rat Expression Bioarray, containing 1040 metabolism- and toxicology-linked genes, to monitor gene expression from the livers of rats treated with carbon tetrachloride (CCl4).

Histopathological analysis, hierarchical clustering methods, and gene expression profiling are compared between the control and CCl4-treated animals. A total of 44 transcripts were found to be altered in response to the hepatotoxin, 19 of which were upregulated and 25 were downregulated.

Polymorphic CYP2B6 in cyclophosphamide bioactivation
The role of polymorphic CYP2B6 in cyclophosphamide (CPA) bioactivation was investigated in human liver microsomes. A total of 67 human liver specimens were first genotyped with respect to the CYP2B6*5 and CYP2B6*6 variant alleles. CYP2B6 apoprotein levels in 55 liver microsomal preparations. The results by Xie et al (pages 53–61) demonstrate that the polymorphic CYP2B6 is a major enzyme in the bioactivation of CPA. Moreover, the authors identified a strong impact of CYP2B6*6 on CPA 4-hydroxylation.