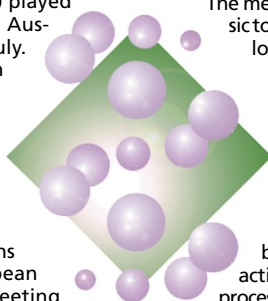


TOUCHINGbase

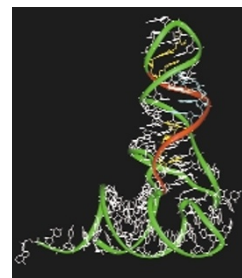
● Shifting spectra ...

The second European Cytogenetic Conference (ECC) played host to 897 attendees and 770 abstracts in Vienna, Austria, under a blazing sun in the beginning of July. Whereas a good number of the posters focused on the cytogenetic analysis of individual cases, there were many presentations concerning the use of cytogenetics to explore other kinds of biological questions, such as the requirement of chromosomal bouquet formation in budding yeast. Also notable for their inclusion were sessions on plant biology and evolution. Behind the scenes, there was some discussion of relations between the cytogenetic community and the European Society of Human Genetics (ESHG), whose annual meeting (held in May, in Geneva, Switzerland) was not as well attended as had been hoped. Some speculate that this was due to the close scheduling of both meetings and a perception among cytogeneticists that—as Oscar Haas (organizer of the ECC) suggests—the ESHG tends to “put cytogenetics aside”. The attendance of the ECC suggests that cytogeneticists are keen to support a forum that is geared towards their needs. It would, however, be to everyone’s detriment were the cytogenetics community to become further alienated from those with a more molecular focus; close attention to the coordination of future meetings might help to bridge this gap.



● The long and short of it

The melting and reassociation of nucleic acid duplexes are intrinsic to genetic processes. But the interactions between short and long strands of nucleic acids, such as antisense oligonucleotides and cellular mRNAs, are not governed by the same stability and free energy requirements as those between lengthier strands. In August’s issue of *Nature Biotechnology* (17, 788–792; 1999), Kalim Mir and Edwin M. Southern (of Oxford University) take a remarkably thorough look at the factors that influence duplex formation between short and long strands. The initial, transient pairing of a small number of bases is thought to nucleate the reaction, with the interaction then spreading outward from the nucleation site (a process known as ‘zippering’). Using the 76-nt tRNA^{Phe} as a model, Kalim and Southern synthesized every possible combination of bases within it, in lengths ranging from 1–20 nt, on the surface of a glass slide. The tRNA^{Phe} molecule was then hybridized to the array, and the strength of each interaction quantified. The researchers found that certain features, such as having both double-stranded stems and a single-stranded region within a target, fostered heteroduplex formation, whereas the presence of sharp turns, stable tertiary interactions, or competition from bases displaced from a stem inhibited hybridization. These findings provide the first comprehensive analysis of characteristics that influence short/long strand hybridization, and should prove invaluable in the design of new and improved antisense inhibitors.



● ... and a cytogenetic database

The Mendelian Cytogenetic Network database (MCNdb; <http://mcndb.imbg.ku.dk>) has been launched with a view to coordinating data to best effect. It was conceived by Niels Tommerup (of the University of Copenhagen) who became aware, while carrying out postgraduate work in cytogenetic laboratories, of the existence of thousands of analyses that ‘lie fallow’, hidden in the files of routine cytogenetic laboratories. The aim of the database is to collect and compare data on disease-associated balanced chromosome rearrangements, thereby facilitating the identification of breakpoints associated with specific disorders and ultimately, new ‘disease’ genes. In short, it is designed to extract information that can only be obtained by coordinating a large body of data gathered across the cytogenetics community. To this end, it allows a variety of searches for clinical traits in chromosome regions or specific bands. Participating laboratories from around the world—of which there are currently 287—are able to submit data on-line or by regular post; these are either made available to members of the network (and described as ‘public’ cases) or are ‘restricted’ and accessible only to the referring centre. Most of the cases that have been submitted to MCNdb so far (roughly 2,000) are public; the option of submitting restricted data may facilitate collaborative studies with other centres that have submitted similar, restricted data. Such collaborations will be suggested by the curator of MCNdb. The MCN (through the Max-Planck-Institute for Molecular Genetics in Berlin) also provides YAC probes for FISH mapping and will take on the task itself, on behalf of laboratories that do not have the resources or inclination.

“... it seems necessary to consider ... that scientific research is becoming skewed towards the mainstream media agenda ... Perhaps scientists should isolate the sucker gene which leads newspaper editors to believe anything attributed to a scientist.”

— Mark Lawson, *The Guardian*, 26 June 1999

“As avid readers of *Nature Genetics*, we at the North American subsidiary of DREADCO were insulted by Jim Watson’s statement claiming that very few scientists were “loony bins. A lot more of us are ... slightly evil.” Interestingly, a news item on the same page serves to prove that Watson’s statement is false. A contentious issue in the USA involves the collection of DNA samples from individuals involved in crimes. The FBI has calculated that, by knowing the specific combination of alleles from 13 different loci in the human genome, an individual can be uniquely identified from a national database. In a land where the Bill of Rights is part of its Constitution, this plan is unacceptable. In particular, all liberty-loving citizens risk having their identity unmasked by a trivial DNA test. Never fear—DREADCO [is coming] to the rescue! Our new product, IdentiGuard, will preserve the rights of citizens everywhere. We have collected DNA samples from a large population, with all possible alleles at each of the canonical 13 loci represented. IdentiGuard contains these DNA samples mixed together in a convenient spray-bottle form. Should a citizen stumble into an unfortunate situation, a few quick squirts from IdentiGuard will mask the citizen’s loci among thousands of others. We plan to market IdentiGuard soon at gun shops across the USA.”

—Dan Cahill