

## Meet and eat!

EMBL staff from all sites mingled to enjoy talks, posters, awards, a theatre production, music, food, drink and a football game on 10 June, this year's Lab Day. The winners of the poster prizes were the Steinmetz, Kaksonen and Gilmour labs, and the day also saw the launch of the Alumni Wiki, a valuable new resource for career development (page 8). The graduation ceremony was, as always, a moving occasion, as colleagues watched 11 of their friends and peers receive their certificates from new Dean of Graduate Studies Helke Hillebrand and celebrate reaching the end of a long and hard road (below).

"Overall it was a great day. There were really interesting talks by the postdocs showing the breadth of work at EMBL, from modelling microtubules and DNA atoms to functional genomics and computational approaches," said group leader Eileen Furlong, one of the organisers. "As for the non-scientific parts, it was standing room only for the Theatre Group's production, *Oedi* – and the Spain v. Russia match afterwards was popular, too!"



Photos: Christina Panagoulidis

## School's in for Monte

EMBL Monterotondo opened its doors to school students to enjoy daily activities on molecular biology in March and April.

Middle- and high-school pupils from the Rome area and further afield were absorbed by a forensic DNA fingerprinting kit, in which the students had to compare DNA from several suspects to identify a 'murderer' using DNA detection and amplification, restriction fragment length polymorphisms and fingerprint and blood type analysis. Another activity was the Nature's Dice kit, in which they analysed DNA samples from members of a family affected by a genetic disorder, assigned the proper genotype to each member of the family and then guessed the mode of inheritance of the disease. This led to discussions about the ethical issues behind parental screening.

"The visit requests from schools had been massive, so we decided to allocate a few weeks every year to them," explains Rossana De Lorenzi, science education officer at the EMBL European Learning Laboratory for the Life Sciences (ELLS). "The students took the tasks very seriously and were excited to visit a top research laboratory and perform wet lab activities wearing real lab coats!"



## High-res influenza virus protein image opens the way to antiviral drugs

Viruses are masters of cunning when it comes to hijacking the host cell. Now, in the case of the influenza virus, scientists are one step ahead.

The groups of Stephen Cusack and Darren Hart at EMBL Grenoble, in collaboration with others in the joint Unit of Virus Host-Cell Interaction (UVHCI), have identified and produced a high-resolution image of a key component of the polymerase – PB2 – that copies the genetic material of the virus and multiplies it. PB2 steals an important 'cap' molecule from host cell RNA molecules to direct the protein production machinery towards the synthesis of viral proteins, and binds it by sandwiching it between its amino acids. They then misguidedly allow viral proteins to be made at the expense of host cell proteins.

The atomic resolution image of a PB2 domain bound to a cap they generated reveals these amino acids for the first time. Whilst their recognition mechanism is similar to other cap-binding proteins, its structural details are distinct. The influenza virus uses this cap – a modified RNA base which must be present at the beginning of all messenger RNAs (mRNAs) to direct the cell's protein-synthesis machinery to the starting point – "like a password to gain access to the cell's protein-making machinery for its own purposes," as Head of EMBL Grenoble Stephen Cusack puts it. The viral polymerase binds to host cell mRNA, cuts the cap off and adds it to the beginning of its own mRNA.

Collaborators at the Centro Nacional de Biotecnología (CSIC) in Madrid then showed

that disruption of the PB2 cap-binding site prevents the influenza virus from replicating, and all the findings led to a paper published in the 4 May issue of *Nature*. "This suggests that the PB2 cap-binding site is a promising target for anti-influenza drugs," says Darren. "Our new insights will help us design mimics of the cap that would inhibit viral replication and hence reduce the spread and severity of the virus."

The UVHCI comprises EMBL, the University Joseph Fourier and the National Centre for Scientific Research, also in Grenoble, and was launched last year to strengthen the collaborative work going on in viral structure and host biology between the outstation and its neighbours. Ties with Grenoble Hospital will bring patients into the picture too.