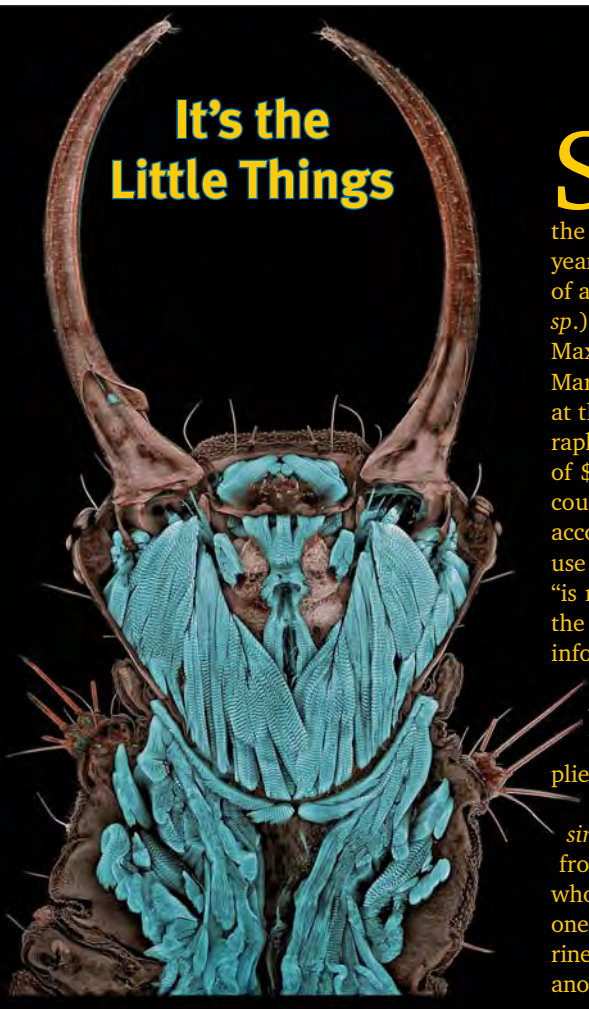
Picture of the issue

It's the Little Things

9th place: Jan Michel's marine copepod

11th place: Jan Michel's ant head

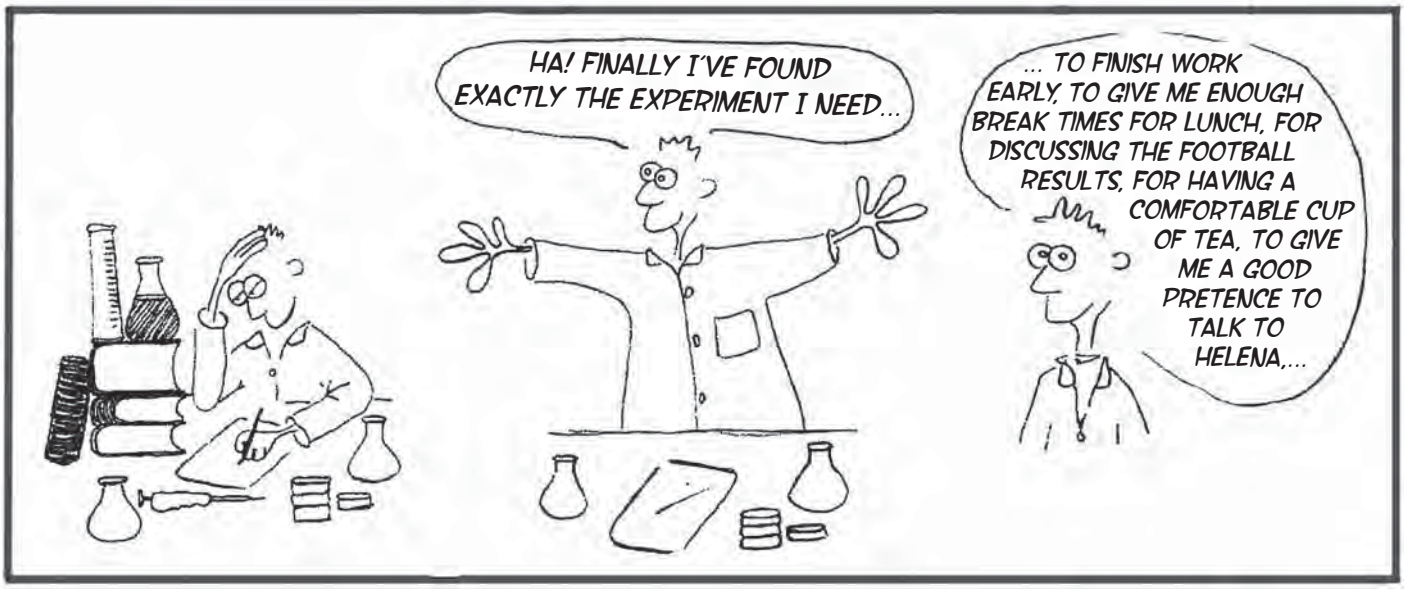


1st place: Igor Siwanowicz' green lacewing

Since 1974, Nikon has arranged a competition that awards pictures that let us take a sneaky peek into the 'small world' surrounding us. This year, the 20x magnified confocal image of a common green lacewing (*Chrysopa sp.*) taken by Igor Siwanowicz from the Max Planck Institute of Neurobiology, Martinsried, Germany swept first place at the Nikon Small World Photomicrography Competition. He's also the winner of $3,000, which he must invest in, of course, Nikon equipment. Incidentally, according to the rules of the contest, the use of Nikon equipment to take pictures "is not required". The jury, who picked the winners "on the basis of originality, informational content, technical proficiency and visual impact", was also wowed by the submissions of Frank Fox from the Trier University of Applied Sciences, Germany, who captured a living specimen of the diatom *Melosira moniliformis* (3rd) and Jan Michels from the University of Kiel, Germany who managed to hit the top 20 with not one but two images, one showing the marine copepod *Temora longicornis* (9th) and another one featuring an ant head (11th).

PAUL THE POSTDOC

BY RAFAEL FLORÉS



Recently Awarded

▶ For her paper "From Hair to Cornea: Toward the Therapeutic Use of Hair Follicle-Derived Stem Cells in the Treatment of Limbal Stem Cell Deficiency" (*Stem Cells*, 29:57–66) **Ewa Meyer-Blazejewska** from the University of Erlangen-Nürnberg, Germany was recently honoured with the $10,000 (€7,500)-endowed **Young Investigator Award** bestowed by the journal *Stem Cells*. Limbal Stem Cell Deficiency (LSCD) is a congenital or acquired condition, during which adult stem cells residing in the corneal limbus area (the border between the cornea and the sclera) of the eye are lost or dysfunctional. Without treatment, LSCD can lead to loss of vision. Meyer-Blazejewska *et al.* demonstrated that murine vibrissae hair follicle bulge-derived stem cells (HFSCs) can differentiate into corneal epithelial cells, even in an *in vivo* system. With an 80% success rate, the authors point out that the approach has "a strong translational potential". The award was presented to Meyer-Blazejewska at the *Stem Cell* Symposium at the University of Kragujeva, Serbia on October 15th.

▶ The Global Biodiversity Information Facility (GBIF) recently awarded the **Ebbe Nielsen Prize**, worth €30,000, to **Jens-Christian Svenning** of Aarhus University, Denmark. The award, given since 2001, honours "researchers, usually in the early stage of (their) career, who (are) combining biosystematics and biodiversity informatics research in an exciting and novel way". Svenning won this year's award because of his studies on how climate changes impact biodiversity. According to the award winner, studying past and present developments will help to "predict how biotic communities and ecosystems will respond to future climate change". Furthermore, Svenning believes that current estimates are "probably very conservative" and that "impacts are going to be more dramatic than most models predict". The Prize was awarded to him during a GBIF meeting in Buenos Aires in early October.

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Turkish Academy of Sciences

Against Tradition

Recently, the world of science has been "shocked" and "upset" by "disturbing changes" brought upon the Turkish Academy of Sciences, TÜBA. In late August, the Turkish government issued a decree that would make them, directly or indirectly, responsible for the election of academy members. Traditionally, academies are supposed to be self-governing, independent institutions. So said *Science* editor-in-chief, Bruce Alberts, in a recent editorial (vol 333), "A nation can expect to be successful today only if it strives to create a meritocracy, in which positions of leadership and responsibility are distributed to the most outstanding individuals, irrespective of social class or personal connections."

This, however, might not have been true for TÜBA. Taner Demirer, oncologist at Ankara University told Turkish Newspaper *Hürriyet*, "More than half of its members do not meet the necessary academic criteria, and once they become members they remain in the academy regardless of their performance". He added, "Many prestigious academics have also been kept out of TÜBA due to their political opinions. It has turned into a friends' club". The government now intends to turn that friend's club into a "place where more organised studies are made instead of a place where famous scientists only carry out individual studies".

But, according to *Hürriyet*, former rector of Sabanci University, mathematician Tosun Terzioğlu, believes that even though "TÜBA may have made questionable decisions and practices […] the solution […] is not the method introduced by this decree". He's still convinced that the "fundamental principle is that scientists should select the (academy's) members".

Meanwhile, in a public notice released on September 2nd, TÜBA has "suggested that all members of the Academy should immediately resign and an autonomous, new Academy should be established". Academies worldwide including the French Academy of Sciences and the UK's Royal Society have responded to the decree as well, sending letters and emails to TÜBA president Yücel Kanpolat and cc'ing President of the Republic of Turkey, Abdullah Gül. In their communications, the academies affirm their "utmost", "personal" or "full support" and hope that the government will "reverse" or at least "reconsider" their decision.

Photo: Fotolia/Floydine

No reason to give up meat, the research results were all fake.

Scientific misconduct

Fanciful Research

As reported on our website on September 28th, prominent social psychologist Diederick Stapel from Tilburg University has been suspended from his university over accusations of faking research results. Immediately after the possible fraud became known to the public, a committee was established (not only in Tilburg but also at the universities of Groningen and Amsterdam) to take a closer look at Stapel's collected scientific works.

Just a month later, an interim report by Tilburg University revealed that at least 30 publications were based on misconduct. Until now, Stapel was regarded by his colleagues as a "brilliant example for integrity". The results of the investigational report, however, suggest otherwise. "I find it important to stress that the errors that I made did not arise out of self-interest. I do not recognise myself in the image that is drawn of a man that tried to exploit young researchers for his own benefit", said Stapel when confronted with the findings of the investigation. Tilburg and Groningen are now considering legal action against him, while the University of Amsterdam is toying with the idea of taking away his PhD. *Science* immediately reacted with an 'expression of concern' about a 2011 paper by Stapel.

The work that set the hare running, so-to-speak, claimed that meat-eaters are selfish and anti-social. Allegedly, when study participants made to feel insecure were presented with three food choices, either a steak, fish or a vegetarian omelette, most of them went for the juicy steak, while the hungry mouths in the control group preferred one of the other two options. Thus, Stapel and co. came to the conclusion that "meat gives a boost to your status and ego", adding that "vegetarians and flexitarians are happier and feel better, and they are also more sociable and less lonely". ▶▶

▶▶ However, in light of the report from Tilburg University, meat-eaters can now sigh with relief, as they are, probably, as happy and sociable as everyone else.

For a more detailed coverage of the whole story, head over to *www.labtimes.org*.

Epigenome mapping

Building Projects

After the human genome, now it's the human epigenome's turn to be mapped. A new project called BLUEPRINT was launched at the beginning of October with the ultimate goal being to understand how DNA modifications like methylation influence health and disease. The project has an initial budget of €40 million at its disposal, with €30 million thrown in from the EC FP7 Cooperation Health programme. Project coordinator Henk Stunnenberg from the Radboud University Nijmegen, Netherlands told *www.epiexperts.com*, "It's an exciting time to be doing this type of work, and it will be giving us the 'blueprint' of our regulation. The genome hasn't told us everything yet. It's given us the building blocks and now we need to know how to use those building blocks to make buildings. That's why the consortium is called BLUEPRINT".

Photo: iStockphoto/Lepro

With the building blocks provided by the human genome sequencing project, the BLUEPRINT consortium now wants to get into some proper construction work.

So far, 41 partners and 52 PIs, representing 43 academic groups and 9 companies from 12 countries have signed up, including Epigenomics AG, Oxford Nanopore, the Max Planck Institute for Molecular Genetics, the European Molecular Biology Laboratory, Erasmus University Medical Center and the University College London to name but a few. According to the project's website *www.blueprint-epigenome.eu*, the research activities are divided into four Research Areas: 1. to generate at least 100 reference epigenomes, 2. to generate and utilise epigenome data to identify and validate epigenetic markers, 3. to develop novel technologies to improve epigenome analysis, resolution and efficiency and, last but not least, 4. to define epigenome-relevant drug targets involved in cancer and develop small molecule approaches for their inhibition.

The main focus will be on blood cells. Stunnenberg explains why, "First, one could say that it's low-hanging fruit because we have easy access [but] I think it's also clear that a large number of diseases including cancer manifest in blood.[…] Also, there's a large number of genome-wide association studies, linkage disequilibrium studies – everybody's using blood. […] Whether they're always reflecting the disease in the analysis of blood cells — that's a major question. We don't know." About the time schedule, Stunnenberg had this to say, "We hope to have the first few epigenomes defined by, say, half a year for the work, the writing and the analysis – about a year from now we think we'll have the first couple out". The official end of the project is March 31st, 2016.

In related news, the FarGen project, an international collaboration between the US genomics-sequencing company, Illumina, the Faroese government, the European Bioinformatics Institute in Hinxton, UK and scientists from the University of Oxford and Baylor University, Texas, are set to sequence the genomes of each of the Faroese islands' 50,000 inhabitants. According to programme director Bogi Eliasen, "This project is first and foremost about improving the healthcare for every citizen but of course it will be very valuable for research as well". The costs are estimated to be approx. €35 million.

University rankings

Divided Opinions

In earlier days, the QS World University Rankings and Times Higher Education (THE) were doing it together; two years ago, the partners split up and have since gone separate ways. The two fell out with each other because they couldn't agree what indicators were best suitable for their ranking.

Now, THE believes they "have created the gold standard in international university performance comparisons". They employed 13 separate performance indicators "designed to capture the full range of university activities". Crammed into five main categories those were Teaching (the learning environment; worth 30 % of the overall ranking score, Research (volume, income and reputation; worth 30 %), Citations (research influence; worth 30 %), Industry income (innovation; worth 2.5 %) and International outlook (staff, students and research; worth 7.5 %).

On the other hand, QS also claims that they have found six criteria – academic reputation (worth 40% of the point score), employer reputation (10%), faculty student ratio (20%), citations per faculty (20%), the number of international faculty members (5%) and the number of international students (5%) – that they "feel best indicate the quality of a university". Plus, they also declare that their ranking is one of the "most trusted university rankings in the world". As an innovation of their own, their listing now includes information about university fees. So how do the two compare?

Both lists are dominated by universities from the US, so far not a big surprise. Looking at the pole position, however, reveals huge differences. THE sees the California Institute of Technology (CalTech) at the top spot, whereas with QS, the University of Cambridge takes home the trophy – CalTech only comes in at place 12. Harvard University, however, takes second place on both lists. The opinions about the third 'winner' are again divided: Stanford University (THE) or the Massachusetts Institute of Technology, MIT (QS).

Besides Cambridge, the best European universities with both QS and THE were, once again, the University of Oxford (THE: 4th, QS: 5th), the Imperial College London, ICL (THE: 8th, QS: 6th), the ETH Zürich (THE: 15th, QS: 18th) and the University College London, UCL (THE: 18th, QS: 14th).

When narrowing in on Life Sciences and Medicine, with QS, the following top 10 in Europe emerges: University of Cambridge, University of Oxford, ICL, UCL, Karolinska Institute, University of Edinburgh, King's College London, ETH Zürich, University Heidelberg, University of Manchester.

The THE Life Sciences European top 10: University Cambridge, University of Oxford, ICL, UCL, Wageningen University, ETH Zürich, University of Edinburgh, LMU Munich, Uppsala University and Utrecht University. ▶▶

European PhD survey

Not a Bed of Roses

What is the actual situation of doctoral candidates in Europe concerning funding, social benefits and working conditions and what are the differences regarding the different types of doctoral education models across Europe. Those were the two main questions the European Council of Doctoral Candidates and Junior Researchers, EURODOC, intended to answer with their Eurodoc Survey I. The "vision" or "dream" behind the survey is that the assembled data "could lead to improvements on graduate education at the doctoral level throughout Europe". Its surprising and thought-provoking results were presented at the European Summit for Early Stage Researchers in Strasbourg, France at the end of September.

From December 2008 to April 2009, more than 7,500 doctoral candidates (out of about 100,000 queried) from 12 European countries (Austria, Belgium, Croatia, Finland, France, Germany, The Netherlands, Norway, Portugal, Slovenia, Spain and Sweden) sacrificed at least 30 minutes of their precious time to answer 77 questions, ranging from "How supportive do you find your supervisor in planning and reviewing your training?" to "To what extent are you working more for tasks not related to your thesis/dissertation as stated in your contract?"

After two careful analyses and evaluations of the data, done between August and October 2009 as well as between April 2010 and January 2011, the results were finally in.

Regarding funding, the survey found that "a high proportion" of doctoral candidates keep on working, even though they don't receive "appropriate" financial support, grant money often isn't enough "to make a living from it" and often, doctorates run out of funding before they are able to finish their thesis. This seems to apply everywhere in Europe. When it comes to quality of supervision, "most respondents do not think they discuss enough with their supervisors about training needs". A big difference in national traditions was revealed in the number of candidates per supervisor. In France, Norway, Slovenia and Spain, supervisors have one or two candidates to look after, while in Finland and Germany "supervisors appear to have, generally, five to nine candidates". Additionally, in some countries (Austria, Croatia, Finland, Germany, Portugal, Spain), more than 20% of respondents were "not aware" of a work contract – something, the survey described as a "disturbing fact". Another interesting finding was that "not only women feel disadvantaged in academia because of their gender (40-61%) but an even higher proportion of men declare to feel the same (70-92%)".

The full 342-page document can be downloaded at *www.eurodoc.net*.

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No Pain, Much Gain!

Italian researchers get behind the secret of how placebos exert their powers.

One can think about placebos what one wants but, at least, when it comes to pain treatment, they seem to "work some wonders" – certain pharmacological prerequisites provided. Thus, when a patient is "preconditioned" with an opioid drug like morphine, all it takes to make him/her feel better is a saline shot or a glass of milk. This so-called placebo analgesia is said to be due to the action of endogenous opioids as it can be blocked by the opioid antagonist naloxone. Placebo analgesia also occurs when pain is killed with non-opioid drugs like non-steroidal anti-inflammatory drugs (NSAID), e.g. Aspirin or Ibuprofen. A few studies have linked NSAIDs with endocannabinoids. So do these intercellular lipid messengers really play a role in NSAID-induced placebo responses?

Photo: Fotolia/Yvonne Bogdanski

Morphine or strawberry milk? You decide.

That's the question Fabrizio Benedetti and co. from the University of Turin, Italy wanted to clear up. In order to do so, they recruited probands, who not only had to endure the 'tourniquet test' but, what might have been even worse, they also had to "abstain from consuming coffee, tea, caffeine-containing drinks and alcohol for 48 hours before each session". For the pain tolerance testing, the brave study participants were, on four non-consecutive days, "reclined on a bed" and a blood pressure meter, placed around the upper arm, was inflated to a pressure of 300 mmHg. "After this, the subject started squeezing a hand spring exerciser 12 times" (with each squeeze lasting two seconds, followed by a two-second break). The authors assure that "this type of ischemic pain increases over time very quickly and the pain becomes unbearable after about 14 min". Luckily, some of the volunteers were under the influence of 100ml strawberry milk spiked with either morphine or the NSAID ketorolac.

A few days later, Benedetti *et al.* treated their subjects with either strawberry milk alone ("along with verbal suggestions that it was the same drug of the previous days") or milk plus the CB1 cannabinoid receptor antagonist rimonabant, which were both given after the "real" drug had been administered twice before, allowing pharmacological preconditioning. As expected, morphine induced placebo analgesia on experimental day three and, as was also expected, rimonabant didn't have any effect. The authors observed the same placebo response when the volunteers were preconditioned with the non-opioid drug ketorolac, followed by drug-free placebo milk. However, when rimonabant-containing milk was served, their pain tolerance significantly decreased, back to control levels (*Nature Medicine*, 17:1228–30).

Hence, the findings from Turin suggest that CB1 cannabinoid receptors indeed play a role in non-opioid placebo analgesic responses but, the authors write, "It is also worth noting that neurotransmitters other than endocannabinoids take part in placebo responses."

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(More research results from European labs on pp. 30-35)