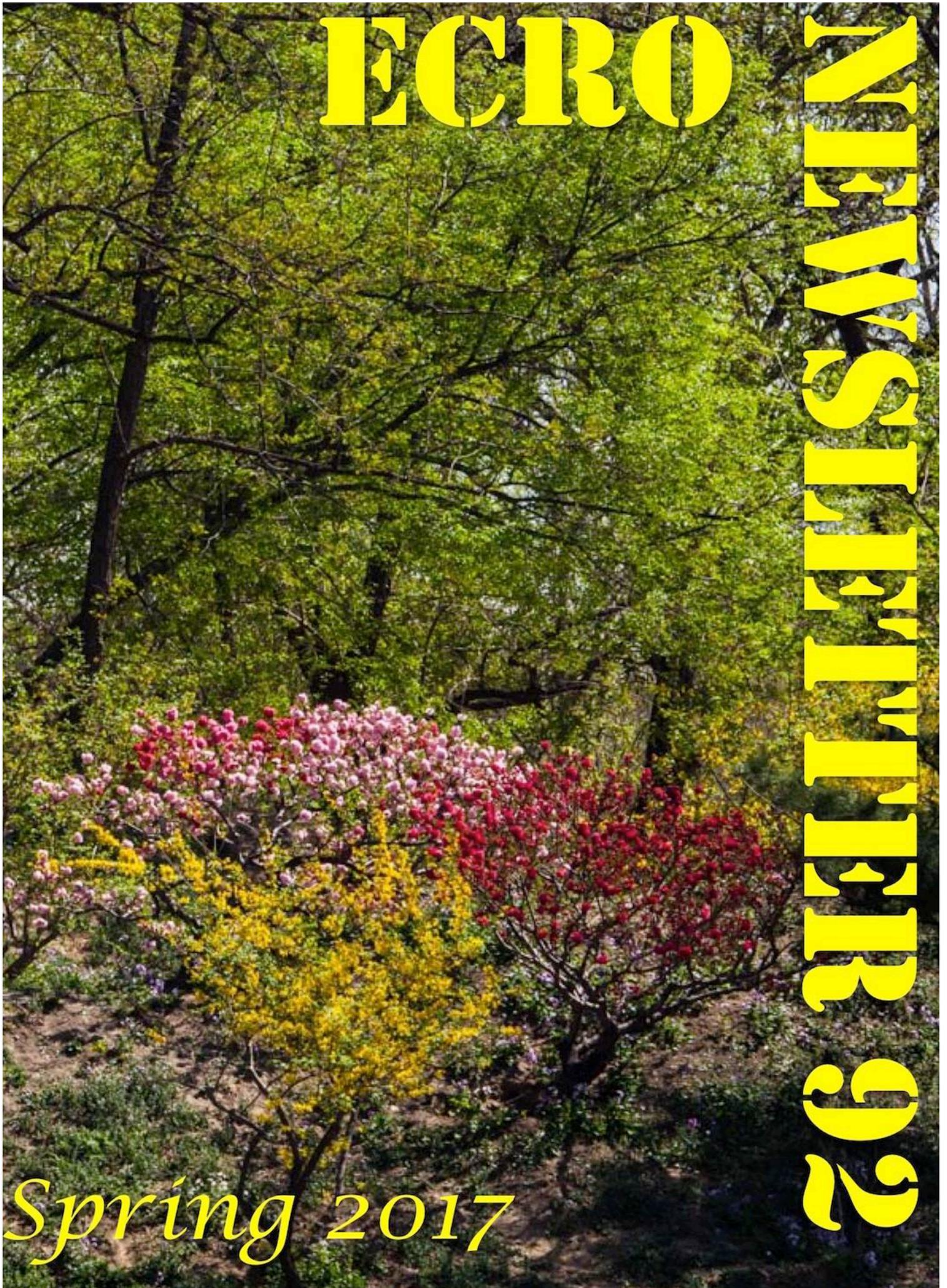


ECRO

NEWSLETTER 92

Spring 2017



in this issue...

Editorial	4
From the President	5
Treasurer's report	6
Students reports	17
ECRO Congress	18
Other Meetings	19



Smelly news and curiosities 7



Famous quotations 8

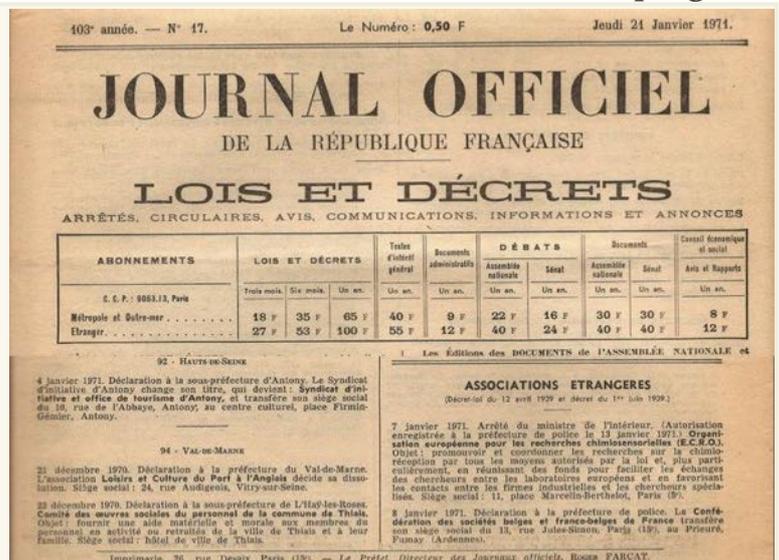
Recently published 10



Believing is seeing 14

ECRO was inaugurated in 1970 at the International Summer Course on Odour Perception, in Utrecht, with the aim of promoting and coordinating research in chemoreception.

It was officially registered in Paris in 1971 and although it began as a European venture, it now has members from outside Europe and sees its function as world-wide. The goal of ECRO is to promote fundamental and applied research in chemosensory sciences, especially olfaction and taste. ECRO is financed by individual member subscriptions and by donations from industry and research institutions. Since 1978 ECRO has been affiliated with UNESCO.



The birth certificate of ECRO, 1971

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Editorial

We are all aware that the methods and the objectives of biochemical sciences have drastically changed during the last decade, particularly since sequencing techniques became common and inexpensive.

Our field of interest, chemoreception science, has been strongly affected by these developments. The approaches are not those adopted a couple of decades ago, and the questions are of different nature.

One of the most obvious changes is the shift of attention from vertebrates to insects. In the beginning, research in olfaction was essentially focused on humans, using mainly chemistry and psychophysics to classify perfumes and food aromas. Biochemical research had been for a long time confined to mammals, because of the possibility of collecting enough biological material for extracting proteins and studying enzyme activity.

With the adoption of molecular biology techniques insects became a very large field of study, with a strong interest in potential applications for the population control of agricultural pests and disease vectors.

The easy and inexpensive ways of sequencing transcriptomes and even genomes has provided access to enormous amounts of data. At the same time, there has been a massive shift from protein to gene studies, due to the much easier way of monitoring their expression within the body and in different physiological conditions.

These facts have also produced a reversal in the approach to study olfactory phenomena.

At the beginning we would start with some behavioural observations or physiological phenomena and then move deeper at the molecular level to identify pheromones, proteins or other biochemical elements responsible for the observed phenomenon.

Now we are offered an incredibly large number of sequences and we are presented with the challenge to find a function for each of them.

As an example, instead of searching for the olfactory receptor mediating a certain observed behaviour, we now are challenged to find which olfactory receptors are tuned to sex pheromones or to specific plant volatiles.

In principle, both approaches are valid and interesting. However, now it is more frequent that scientists are tempted by the easy ways of collecting data (transcriptomes, genomes, real-time PCR) and, instead of using such information as a basis on which to build a research project, these data become the final objective of the research... and of the paper. A proliferation of journals and the expanded capacity of some journals, which only publish on-line, therefore without any limitation imposed by the paper, has encouraged such tendencies.

At the same time, the number of papers produced in one year by each scientist or each group has increased and is still increasing, while the quality obviously becomes an option. This large production has the effect of inundating the scientific literature with papers not only of poor quality, but often unreliable in the data they present. On one side, the pressure on the group leader to increase the number of published papers every year has the effect of delegating most of the tasks to the students, including that of verifying the correctness and reliability of the experimental results. On the other side, reviewers have to read an increasing number of manuscripts and sometimes do not dedicate to this duty the time necessary for a detailed critical examination.

Unfortunately, bad papers find their ways also inside good journals, as in the two examples reported in this issue.

Finally, I am grateful to Pete for soliciting in his President's address contributions to the ECRO Newsletters from other members and whoever feels like helping me in this work. I still greatly enjoy putting together this piece of information and entertainment, but the Newsletter could be much enriched by contributions from the various souls of ECRO.

Paolo Pelosi

From the President

Dear ECRO members, colleagues and friends,

Another six months have flown by and the ECRO 2017 Cambridge congress is fast approaching. As I'm sure that you know, this will be held at the Wellcome Genome Campus in Hinxton, which is a small village located just south of Cambridge in the UK. It is situated in 100 acres of parkland, adjacent to the research institutes of the Genome Centre and bordering the river Cam. It promises to be a wonderful venue, with new, purpose-built conference facilities providing the ideal environment to hear about the latest chemosensory developments, whilst being suitably intimate and self-contained to engender lively discussion and debate.

When I think back to the first ECRO meeting I attended in Blois (France, 1994) what struck me from the beginning was the friendliness and sense of community provided by ECRO, which for me is its greatest strength. Indeed, it was this community of friends (no doubt helped by the abundance of great wine and food!) that confirmed my long-term research direction in this wonderful field of chemosensation. Although the 2017 Cambridge meeting may not quite match the exceptional French gastronomy of Blois, I'm sure that it will more than make up for it in scientific interest. The local organizing committee of Darren Logan, Greg Jeffries and Simone Weyand have worked hard to put together a strong and interesting list of keynote speakers and symposia on far-ranging topics: from olfaction in early development to the interface of the senses, nutrition and metabolism; and across a variety of phyla, from the evolutionary basis of sensory perception in *Drosophilids* to clinical aspects of the patient perspective. I particularly hope that the programme will prove attractive to those with an interest in invertebrate olfaction. This is field that featured prominently in earlier ECRO congresses, and one that I hope can be more strongly represented in the future.

Once again, the congress will feature a Young Persons Symposium, providing an important platform for the ECRO community to hear from the up-and-coming generation of chemosensory researchers, which ECRO is so committed to supporting. The other main support that ECRO provides to young researchers and students is in the form of travel grants. 14 travel grants are available for young ECRO members, with preference given to those who are presenting. This is one of the benefits to be gained by being an ECRO member, so do either take advantage by applying yourself, if eligible, or encourage others to do so. In the future, the ECRO board are hoping to be able to increase support for young scientists via new sponsorship packages that are aimed at strengthen ties between the ECRO community and commercial partners. I hope to review how effective these prove to be at our 2018 General Assembly. This will occur during our 28th ECRO congress that is destined for Würzburg, which is a welcome return to Germany after the highly successful Erlangen conference in 2002. You will be able to hear further details about this at the forthcoming Cambridge congress.

I was slightly taken aback earlier this month to be approached by a conference centre advertising itself as an ideal venue for the 2024 ISOT congress! A bit premature perhaps, and way past my remit to decide, but it does remind me that it is time to start thinking about a venue for the 2019 congress. So feel free to let me or any other member of the ECRO board know if you have a suggestion for a suitable location, or want to be involved in its organisation. Finally, I want to thank Paolo Pelosi for his continuing work in putting together this newsletter. I hope that you find it interesting and thought provoking. But we would also welcome content from a greater diversity of ECRO members, so if you have any contribution or ideas for content that could be included in the future newsletters then please get in contact with me. The next edition will be out in the autumn. Until then, I hope that you enjoy the summer and look forwards to meeting you at the Cambridge congress in September.

Peter Brennan

Treasurer's report

We received a surprising letter from UBS bank in Switzerland. They have asked us to close the ECRO bank account in Switzerland and move it elsewhere. UBS have been under increasing international pressure and have decided to close a number of their banking operations. As a result, after over 50 years banking with UBS, we are currently in the process of moving our account from Switzerland to the Societe Generale in France where we already have an account. This is regrettable as previously we were able to give grants to students all over the world and transfer money to them quickly and easily. The new changes will affect somewhat how we transfer grants to students as it will take more time to generate bank transfers to non-SEPA countries.

Our assets at the end of March 2017 stood at 102,463 Euro and since then we have paid a deposit to guarantee the venue and accommodation for the ECRO 2017 Congress in Hinxton, Cambridge. A number of student grants will be available. Please see the ECRO website for instructions to applicants. The ECRO Congress preparations are advancing rapidly – see <http://www.ecro2017.uk>

We have been pleased to give financial support to the 2017 ICTP Conference On Frontiers in Olfaction, 24-28 July, Trieste, Italy and also to support two student grants to attend this event.

Similarly ECRO will be awarding 2 student grants to attend the Summer School Human Olfaction 23-28 July 2017 (Thomas Hummel).

We have only awarded 1 grant so far this year to Philipp Nahrath to attend the AChems meeting in Florida. However a number of awards are in the pipeline, and we expect to have awarded at least 15 grants by the end of the year.

We depend on our membership numbers to receive support from the Polak foundation. In autumn 2004, Ernest and Ghislaine made a large endowment to ECRO and AChems, established as "The Elsjé Werner-Polak Memorial Fund in memory of our niece, gassed by the Nazis in 1944 at age 7." The annual income from this endowment is distributed to AChems and ECRO proportionately to the number of members in each organisation and is pledged for

- Awards to students, post graduates or junior researchers
 - Student and invited speaker travel for annual meetings
 - Symposia, workshops and seminars
 - Seed grants e.g. to allow data to be collected for regular grant applications
 - Meeting attendance fees for students
 - Other similar purposes such as outward reach
- Our membership numbers for the year 2016 were lower than normal, so it is expected that our income this year from the Polak foundation will also be lower. We encourage all of you to sign up for ECRO and encourage students to join ECRO.

Krishna Persaud (ECRO Treasurer)





Smelly news and curiosities

Olfactory molestation

The “Court of Cassation” in Roma, the supreme Italian judicial authority, has ruled earlier this year that cooking smelly food can be a crime, defined as “olfactory molestation”.

A couple in Monfalcone, a city in north east Italy, close to Trieste, was found guilty of “antisocial behavior” after they refused to put a lid on their pan while frying fish, and were condemned to the payment of 2,000 euros.

The crime has been declared to be similar to the throwing of dangerous objects or to the release of noxious gases in the environment.

Another lady was also declared guilty of olfactory molestation, for the bad smell caused by her dogs kept in unhygienic conditions.

Every year Italian solicitors receive about 20,000 complains for olfactory nuisance, but this number is rapidly growing.

We all agree that it is an offence to invade the space of your neighbours with unwanted odours, but where is the limit? Odours are always present around us and most of the times are pleasant and welcome. The judges in Roma ruled that the smell was “beyond the limits of tolerability”. However such limits are subjective and difficult to define.

For instance, talking about foods and cooking, smells pleasant within a certain culture could be intolerable, sometimes just because they are not familiar. Certainly, the smell wafting in all the street of Seoul from the many kitchens cooking the pupae of the silkworm, is not pleasant to Western people.

On the other hand, we can understand if Eastern populations find repulsive the smell of Stilton or Camembert, so much appreciated by Europeans. What about the fumes of roasted meat emanating from the barbecue of your next-door garden? Or the lamb skewers being roasted along the streets in many countries and engulfing the air with mouth-watering smells?



Are we going to lose all this and live in smell-free world?

Even odours generally classified as objectionable or repulsive have their place in the environment and add character to different situations. The odour of manure reminds us of the countryside and conveys images of relaxed life.

Where does the offensive smell go beyond the limits of environmental odours and can be regarded as a crime?

Shall we delegate the decision in the future to an artificial nose? Certainly not, because, even when reliable instruments will become available, their software will be always be the product of human choices. In the end, only we humans can decide on what we like and what we don't.

If sometimes odours can become offensive to sensitive people, there is also a trend to recover the smell we are progressively losing in our aseptic and technologically regulated environments.

The smell of books is one that received a lot of attention and concern, and someone has gone as far as selling it in bottles, as I have reported in one of the previous issues of these Newsletters.

Better related to the above mentioned odour of fried fish, so repulsive and offensive for some delicate noses, is the smell of popcorn, which is so welcome and sought after that now you can buy spray bottles to be used in your home to give that typical atmosphere of a movie theatre... It looks like some people liked this idea, as it won its creator his first Michelin star.

Personally, I prefer the smell of fried fish, provided the fish is fresh and olive oil of the best quality is used.

Paolo Pelosi



Famous quotations about smell



Although smell is seldom the focus of novels and other works of literature, references to olfactory experiences are widespread in books. Here is a selection of few famous quotes, from the website: <https://www.poetrysoup.com/quotes/smell>

“For example, there is a species of butterfly, a night-moth, in which the females are much less common than the males. The moths breed exactly like all animals, the male fertilizes the female and the female lays the eggs. Now, if you take a female night moth---many naturalists have tried this experiment---the male moths will visit this female at night and they will come from hours away. From hours away! Just think! From a distance of several miles all these males sense the only female in the region. One looks for an explanation for this phenomenon but it is not easy. You must assume that they have a sense of smell of some sort like a hunting dog that can pick up and follow a seemingly imperceptible scent. Do you see? Nature abounds with such inexplicable things. But my argument is: if the female moths were as abundant as the males, the latter would not have such a highly developed sense of smell. They've acquired it only because they had to train themselves to have it. If a person were to concentrate all his will power on a certain end, then he would achieve it. That's all. And that also answers your question. Examine a person closely enough and you know more about him than he does himself.”

Hermann Hesse

*“What's in a name
That which we call a rose
By any other name would smell as sweet.”*
William Shakespeare

“Beauty is an ecstasy; it is as simple as hunger. There is really nothing to be said about it. It is like the perfume of a rose: you can smell it and that is all.”

W. Somerset Maugham

“If you are possessed by an idea, you find it expressed everywhere, you even smell it.”
Thomas Mann

“It is at Bombay that the smell of All Asia boards the ship miles off shore, and holds the passenger's nose till he is clear of Asia again”
Rudyard Kipling

*“I went out into the garden in the morning dusk,
When sorrow enveloped me like a cloud;
And the breeze brought to my nostril
the odor of spices,
As balm of healing for a sick soul.”*

Moses Ibn Ezra, 1060 - 1138

“Contrary to popular belief, life is like being thrown into a bed of roses. You get to smell the roses and feel the thorns”

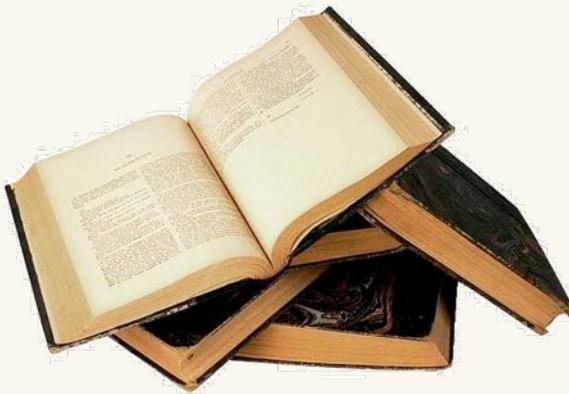
Anonymous

“I pity the poet whose literary genius is aroused by the smell of shit!”

Read on a restroom wall, under a poem



“As soon as I got into the library I closed my eyes and took a deep breath. I got a whiff of the leather on all the old books, a smell that got real strong if you picked one of them up and stuck your nose real close to it when you turned the pages. Then there was the smell of the cloth that covered the brand-new books, books that made a splitting sound when you opened them. Then I could sniff the paper, that soft, powdery, drowsy smell that comes off the page in little puffs when you're reading something or looking at some pictures, kind of hypnotizing smell.



Christopher Paul Curtis

“I know every book of mine by its smell, and I have but to put my nose between the pages to be reminded of all sorts of things.”

George R. Gissing

“So great is the economy of Nature, that most flowers which are fertilized by crepuscular or nocturnal insects emit their odor chiefly or exclusively in the evening.”

Charles Darwin

“Presently, we were aware of an odour gradually coming towards us, something musky, fiery, savoury, mysterious, -- a hot drowsy smell, that lulls the senses, and yet enflames them, -- the truffles were coming.”

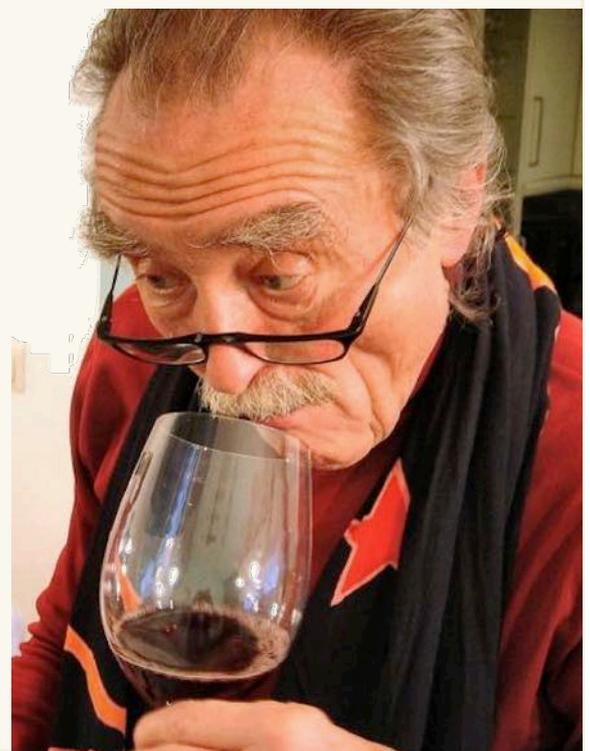
William Makepeace Thackeray

“Here comes the time when, vibrating on its stem, every flower fumes like a censer; noises and perfumes circle in the evening air.

Charles Baudelaire

“I hover over the expensive Scotch and then the Armagnac, but finally settle on a glass of rich red claret. I put it near my nose and nearly pass out. It smells of old houses and aged wood and dark secrets, but also of hard, hot sunshine through ancient shutters and long, wicked afternoons in a four-poster bed. It's not a wine, it's a life, right there in the glass.”

Nick Harkaway,



Recently published



Human pheromones? No, thanks!

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Research



Cite this article: Hare RM, Schlatter S, Rhodes G, Simmons LW. 2017 Putative sex-specific human pheromones do not affect gender perception, attractiveness ratings or unfaithfulness judgements of opposite sex faces. *R. Soc. open sci.* 4: 160831. <http://dx.doi.org/10.1098/rsos.160831>

Putative sex-specific human pheromones do not affect gender perception, attractiveness ratings or unfaithfulness judgements of opposite sex faces

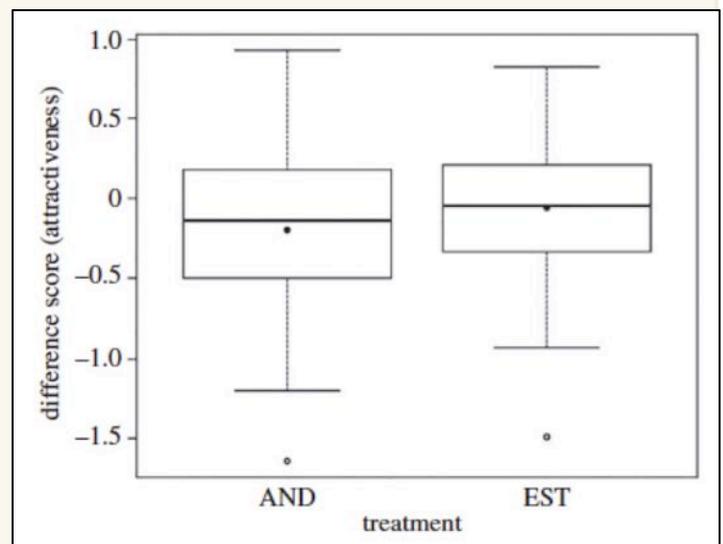
Robin M. Hare¹, Sophie Schlatter¹, Gillian Rhodes² and Leigh W. Simmons^{1,2}

In this work, the Authors first presented 22 female and 24 male subjects with five pictures of gender-neutral facial morphs and asked them to indicate the perceived sex. This was done in the presence of a neutral odour (clove oil) alone or mixed with AND or EST. In case of any pheromonal effect of the two steroids, one would expect differences in the perceived sex when AND or EST was included, compared to the control odour. In fact no differences were observed.

In a second experiments, 51 females and 43 males were presented with about 100 photos of young males or females, respectively and asked to rate attractiveness and unfaithfulness scores. Again, this was done in the presence of a neutral odour (control) or one or the other steroid compounds. Also in this case no differences were recorded.

Myths and beliefs can survive well long after having been disproved by experimental science. If they are attractive and meet the dream of the ordinary person, they are extremely difficult to be eradicated. Belief becomes a stronger argument than experimental evidence, and there is no argument to counteract belief. It is enough to recall that a large part of the human population still rejects evolution in favour of creationism theories.

But we do not want to enter in such thorny and widespread discussion. Rather, being smell our focus, we come back once more to the myth of human pheromones. This time we have a good clear paper, based on sound experimental evidence, that two steroid molecules, androstadienone (AND) and estratetraenol (EST), claimed to possess magic powers of attracting females or males, respectively, and widely sold in the market for such properties, are not up to their advertised reputation.



These experiments were designed to match closely the protocols used in a previous work (Zhou W, Yang X, Chen K, Cai P, He S, Jiang Y. 2014 **Chemosensory communication of gender through two human steroids in a sexually dimorphic manner.** *Curr. Biol.* **24**, 1091–1095. doi:10.1016/j.cub.2014.03.035), claiming significant effects of AND and EST to support



the assumed function of these two molecules as human pheromones.

The five regular readers of ECRO Newsletters may recall that I had commented negatively on this paper in the Spring 2016 issue (ECRO NL90). It is regrettable how easy it is now to smuggle unreliable data and getting them published

also in journals of high reputation.

Certainly it is good news that sound science is applied to verify published doubtful data, but sometimes it would be desirable that more strict and rigorous reviewing processes be applied to manuscripts, as in the case of another example of bad science that I report in this issue (Son *et al.*, *Anal. Chem.*, 2016).

We need to commend the Authors of this paper for being very cautious in drawing conclusions and generalizations. They still leave a door open for the existence of human pheromones, while clearly stating that both AND and EST cannot be listed among them.

I have already discussed this topic in previous issues of the ECRO Newsletters and elsewhere and expressed my opinion that human pheromones are not likely to exist, if we refer to volatile chemicals detected by the olfactory system and able to directly modify our behaviour, independently from our rational decisions.

Of course, we are aware of the fact that all odours can affect our behaviour, from the captivating smell of roast coffee to the repulsive stench or rotting meat. Scents can also make people more attractive to the opposite sex, but everybody agrees that we are not dealing with pheromones.

However, we must conclude that the jury is still out on this subject, and there is still a hidden corner where human pheromones might still be concealed and that's where we should look for such molecules: relationships between mother and newborn. Benoist Schaal has already produced great work in this area and we expect exciting discoveries.

Paolo Pelosi



Don't show the way to the enemy

PROCEEDINGS B

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Research

Check for updates

Breaking the cipher: ant eavesdropping on the variational trail pheromone of its termite prey

Xiao-Lan Wen^{1,2,3}, Ping Wen², Cecilia A. L. Dahlsjö⁴, David Sillam-Dussès^{5,6,†} and Jan Šobotník^{4,†}

Here is another interesting case of finely tuned eavesdropping. Three species of termites use (Z3)-dodecen-1-ol as a trail pheromone to show the way to food sources. One of these species, *Odontotermes yunnanensis*, however, has a sophisticated way of modulating the signal with another structurally similar pheromone, (Z3, Z6)-dodecadienyl-1-ol. This second compound is released when the track has been well established, likely indicating a large supply of food, and has the effect of recruiting large numbers of termites.

The predator ant, *Odontoponera transversa*, can detect both pheromones to find their termite preys, but can recognize the second compound and become much more active.



The trail pheromones are detected by all three species of termites, but only *O. yunnanensis* releases it in significant amounts. In fact, the ants were more attracted to this species of termites than to the other two.

Distinguishing

between the two trail pheromones enables the ants to locate the paths most frequented by termites, therefore the richest sources of food. This comes to a cost, however. While foraging, the termites are guarded by troops of soldiers, more numerous when the roads get crowded. But, in the end, the ants prefer taking a higher risk for a larger benefit. In social insects, the individual is readily sacrificed for the sake of the community.

This reminds of similar situations in the human society. Terrorists know where large crowds are going to assemble and prefer striking there, despite the increased security measures and the large employment of police forces.

Paolo Pelosi



Cats get high



Responsiveness of cats (Felidae) to silver vine (*Actinidia polygama*), Tatarian honeysuckle (*Lonicera tatarica*), valerian (*Valeriana officinalis*) and catnip (*Nepeta cataria*)
Sebastian Bol, Jana Caspers, Lauren Buckingham, Gail Denise Anderson-Shelton, Carrie Ridgway, C. A. Tony Buffington, Stefan Schulz and Evelien M. Bunnik
 BMC Veterinary Research 13:17 (2017)

We are all familiar with the funny and peculiar behaviour of cats when they come across a plant of catnip (*Nepeta cataria*). They become excited, sniff, stroke their chin on the leaves and roll over in the plant. It has been observed that the smell of catnip has stronger drive for cat than food or even sex.

What's so magic about this plant? A mixed team including scientists from Texas, California, Florida and Germany, decided to investigate the phenomenon in more detail and found that catnip is not the only plant, and not even the best, able to mesmerize cats. Silver vine (*Actinidia polygama*), Tatarian honeysuckle (*Lonicera tatarica*) and, to a lower extent valerian (*Valeriana officinalis*), all elicit the strange intriguing reaction produced by catnip.

In particular, the galls of silver vine seem to have the strongest attraction. All these plants, this study found, produce compounds structurally similar to nepetalactone, and the fruits of silver vine, when attacked by gall midge *Pseudasphondylia matatabi* become much stronger appeal for cats than the healthy fruit. The Authors found that the presence of the parasite produces a dramatic increase in several volatiles, including actinidine, isodihydronepetalactone and iridomyrmecin, all in the same family with nepetalactone.

The conclusion of the study is that, if you want to make your cat happy there are even better alternatives to catnip, the best probably being silver vine.

But the main question still remains unanswered: why do these chemical produce such thrilling effects on cats?

One of the hypotheses the authors suggest is that such volatiles, produced by the plant in response to attack, might act as repellents for insects. The cats

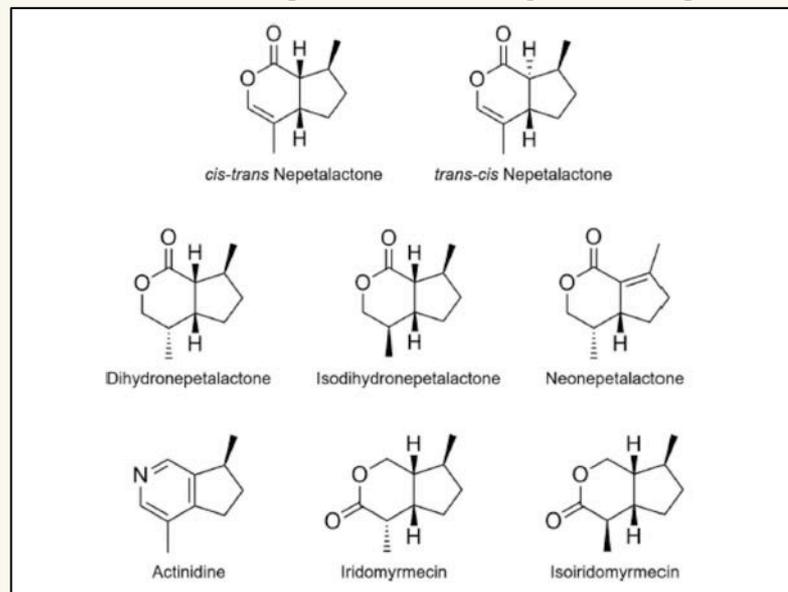
could just use them for the same purpose. But even the authors are rather doubtful. There are hundreds of plants producing volatiles as efficient as nepetalactone in keeping insects away, but cats are not interested.

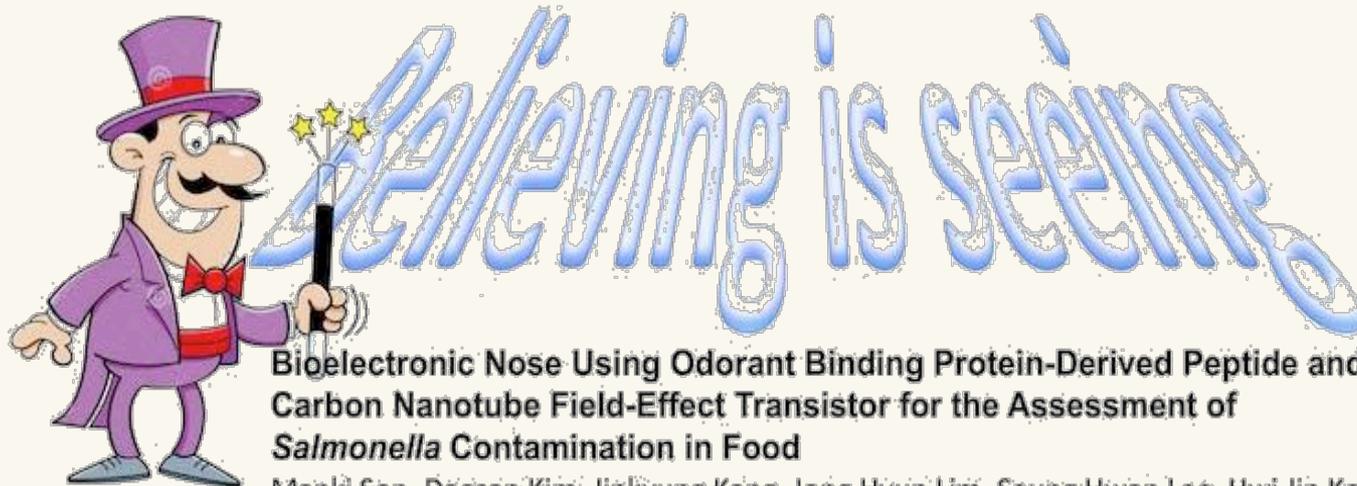
Is it a drug for cats? This is even less likely. We do

not expect the chemistry behind neural transmission in the brain to be so different between man and cats. Besides, these "drugs" seem not to be working, according to the same paper.

Nepetalactone certainly remains an intriguing puzzle, being the aphid pheromone, a cat attractant and a mosquito repellent.

Paolo Pelosi





Bioelectronic Nose Using Odorant Binding Protein-Derived Peptide and Carbon Nanotube Field-Effect Transistor for the Assessment of *Salmonella* Contamination in Food

Manki Son, Daesan Kim, Jinkyung Kang, Jong Hyun Lim, Seung Hwan Lee, Hwi Jin Ko, Seunghun Hong, Tai Hyun Park. *Anal. Chem.* 88:11283-7 (2016)

There is a new trend in science. First you make a theory, a hypothesis a model, whatever you want to call it, then give it the credibility of a demonstrated and accepted truth... how? Very easy, the powerful tools of advertisement and propaganda can help a lot. What is important is to that your theory is appealing, that it is right what the people want to believe.

After establishing your truth on solid basis... of muddy waters, you start running experiments. The quality and reliability of the data are not really relevant, it would not even be necessary to provide

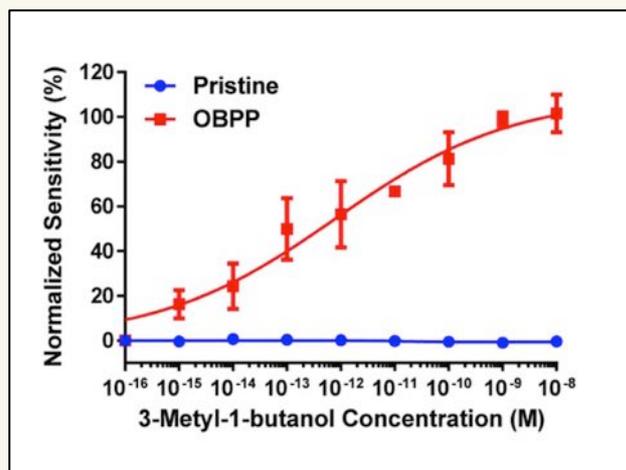
experimental evidence, if people are ready to believe, they will believe and support your "demonstrations".

Homeopathic preparations and human pheromones sell very well: do they work? Of course they must work, because people do believe they work.

Scientific papers are not immune from this very questionable way of thinking and sometimes provide amazing stories, as in this case.

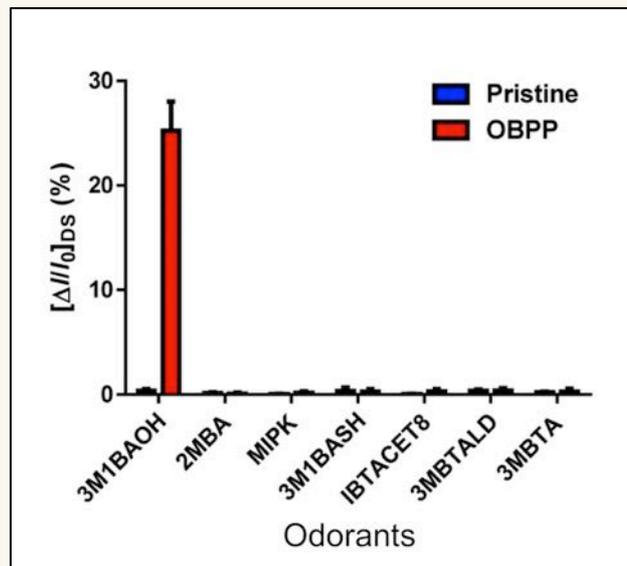
This paper illustrates the construction of a biosensor to detect alcohols, using as sensing element an odorant-binding protein of *Drosophila*, called LUSH. When this protein was first described, it was proposed to bind ethanol and trigger the avoidance behaviour of *Drosophila* to high concentrations of ethanol. This view was later supported when the three-dimensional structure of the protein was published with a molecule of ethanol in the binding pocket (Kruse et al (2003) *Nat Struct Biol* 10: 694-

700). However, this view was challenged on the basis of ligand-binding experiments demonstrating that LUSH binds large molecules instead that the tiny molecule of ethanol (Zhou et al. (2004) *FEBS Lett.* 558: 23-26) and the Authors of the previous reports decided to modify their view in favour of a new model, where LUSH specifically binds the large molecule of the pheromone vaccenyl acetate (Xu et al. (2005) *Neuron* 45, 193–200).



Unfortunately the Authors of this paper were not familiar with the more "recent" literature and stuck in their belief that LUSH binds alcohols. Accordingly, they synthesized a small fragment of LUSH, reproducing part of the binding pocket, while assuming that the specificity of the all binding cavity would be retained by this segment and that such small fragment would fold just like in the native protein.

The results are amazing! The sensor built on a wrong hypothesis works perfectly and performs very efficiently. Not only it detects an alcohol (3-methyl-1-butanol: 3M1BAOH, see Figure below), but it does it



very specifically, failing to detect molecules structurally very similar, such as 3-methyl-1-butanthiol (3M1BASH) and 3-methylbutanal (3MBTALD). It looks like a small fragment of an OBP shows much higher specificity than the whole protein.

However unexpected and surprising, we must believe these results. Science is based a lot on trusting our colleagues, if we question this point the all scientific literature becomes a shaky foundations on which make our projects and compare our results.

But to be trusted the Authors should give better evidence and provide likely explanations of the data they present. Some questions should be answered:

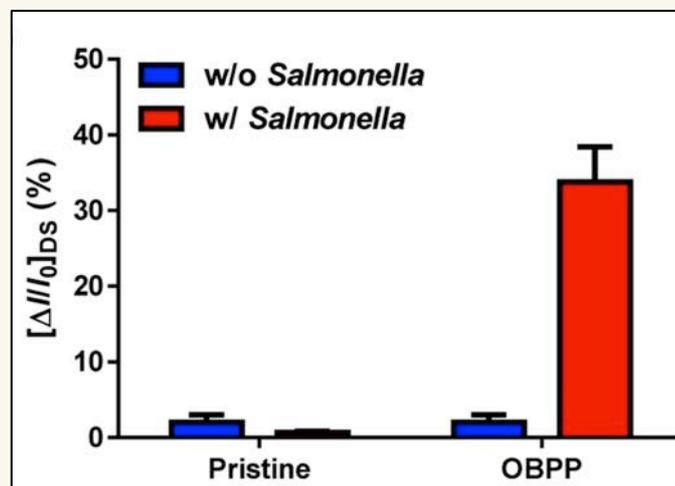
- what is the structure this fragment of LUSH assumes in solution?
- does the synthetic peptide bind 3-methyl-1-butanol with the same high specificity as the sensor?
- does the synthetic peptide bind 3-methyl-1-butanol with the extremely high sensitivity (femtomolar) measured with the sensor?

But apparently these are not important questions that bothered the Authors of this manuscript, nor (unfortunately) the reviewers, although most likely for different reasons.

The Authors very reasonably very afraid of introducing controls that would certainly disprove their “results”, the reviewers probably were too busy to dedicate some of their precious time to such boring activities as reviewing manuscripts.

Finally, to make a piece of research more valuable and interesting you should find a practical application. This shows that you have not wasted public money just for the sake of advancing our scientific knowledge.

Sure enough, the Authors of this paper do have an interesting application for their research. Believe it or not, this magic sensor can detect *Salmonella* contamination in ham with very accurate selectivity and high reliability.



What is the conclusion of this work? Most important is your belief: trust and follow what you strongly believe and the results will magically come out perfectly matching your dreams.

Another lesson to learn is that it is not worth to read the scientific literature, as you can get good results based on wrong reports. Just don't waste your time, belief is more important than evidence. But... sometimes results should not be *too good* to get better credibility.

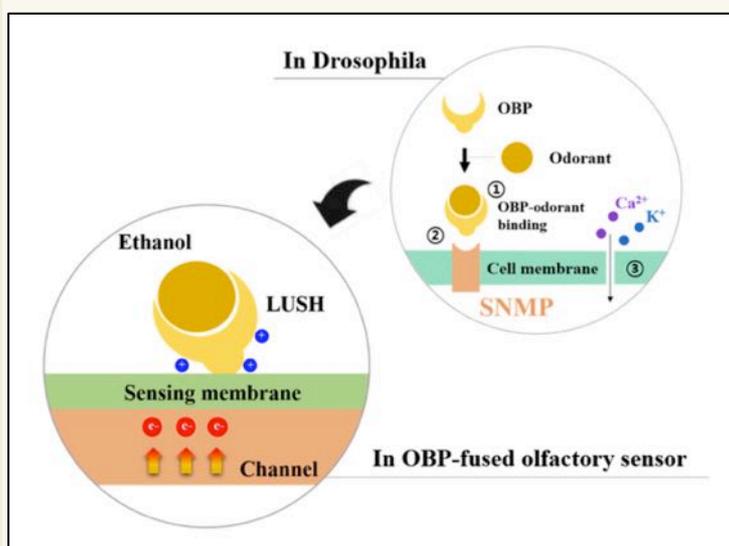
Paolo Pelosi

Field-Effect Transistor Biosensor Platform Fused with *Drosophila* Odorant-Binding Proteins for Instant Ethanol Detection

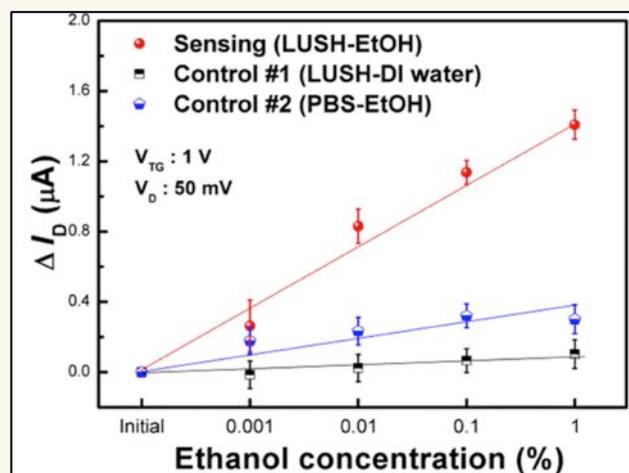
Lim, C-M, Kwon, JY and Cho W-J. ACS Appl. Mater. Interfaces 2017, 9, 14051-7

Here is another paper supporting the same belief which generated the previous report. Belief can propagate quickly and can rapidly achieve the dignity of established knowledge. From a certain point, no one will question any more the basic assumptions, they have been demonstrated by common belief.

This paper starts from the same wrong idea that LUSH is an OBP mediating detection of ethanol in *Drosophila*. The Authors not just failed to read important papers published subsequently and disproving such old idea, but gave their own interesting interpretation of olfactory transduction in insects. For those who still struggle to understand the role of SNMP in odour detection, the answer is in this colourful figure. SNMP is actually the receptor, and is activated by the complex of OBP-odorant. A bit of confusion? Never mind, as soon as the sensor works, all the theories and models are only there to give better credibility to the work, at least to the readers who are not familiar with the topic. Well, in this case we are more likely to believe that the sensor works and the results shown can be real. Unlike the previous paper, where the Authors claim to detect alcohols at concentrations in the femtomolar range, in this paper the achievements are more modest (and more reasonable).



The concentrations used are much higher, from 0.1 to 100 mM. At such high levels, ethanol (and many other chemicals) are likely to produce some effect on a protein conformation. This of course has nothing to do with a protein recognising a specific ligand, but we can just regard it as a solvent effect.



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The question of whether this is the case or not is easily answered, just include controls in your experiments, such as different chemicals and different proteins. But, we all know that controls can be dangerous and disprove what you want to demonstrate, therefore the Authors of this paper wisely avoided any control, and the reviewers apparently did not ask for them.

On the other hand, it is quite obvious that the effect reported in this paper is non-specific. In fact, the response of the sensor to ethanol does not show any sign of saturation up to concentrations as high as 100 mM.

Nevertheless, the Authors confidently state that:

*“These results indicate that our LUSH OBP fused olfactory sensor in the DG sensing mode has a **high sensitivity** and an **outstanding specificity** for detecting ethanol in a detection range of 0.001– 1%”*

To define high sensitivity a detection limit of 0.1 mM needs some very particular points of reference; but talking about “outstanding specificity” in the absence of data with other chemicals really requires a lot of imagination.

It is very regrettable that such reports find their way in journals of high standard and reputation, like the two here reported, with impact factors higher than 5 and 7, respectively.

Paolo Pelosi

Students' reports

Every year ECRO offers many students and young scientists the opportunity of attending Conferences or visit other labs for short periods, providing them with grants.

In this space, they report on their experiences, both scientific and human.

In this issue we have not received any student reports to publish.

However, we expect many for the next issue, from several Meetings that will take place in the second semester of this year.



IMPORTANT NOTICE

How to submit your reports

Students and young scientists who have received a grant from ECRO to meet the expenses for a Conference, a course or a visit to another lab are requested to submit a short report, which will be published in these pages of the next issue of the ECRO Newsletters.

Purpose of the report

Such reports are mainly intended for other ECRO members and readers, who might get interesting information from the experiences of their colleagues. They should not be regarded as polite and formal duties to thank ECRO for the help received.

Length and style

Therefore, reports should be useful, written in a simple, concise, but informative style with facts and data, rather than just emotional feelings (although personal experiences and their impact on the scientific formation of the reporter are welcome). Some information about home institution, type of scientific background and personal interests are important to complete the report.

As an indication, a length of 500-600 words could be appropriate, corresponding to about one page of the ECRO Newsletter, but this is not a strict rule and longer reports are welcome, provided they are written in concise and fluent style.

One or two pictures, even if not related to scientific events, can make the report more attractive and are strongly encouraged.

Reports are NOT edited and get published *as they are*.

PLEASE: send your text in plain Word (no PDF!) without any formatting and do NOT embed your pictures in the text.



The next ECRO Congress will be held in Cambridge from the 2nd to the 5th of September. You can find all information at the address:

[https://www.eventsforce.net/wgconferencecentre/frontend/reg/thome.csp?pageID=231&eventID=2&eventID=2&CSPCHD=001001000000RECh6eI14BWSM1YNuH\\$XQWHmyS6S\\$CQH99HkSV](https://www.eventsforce.net/wgconferencecentre/frontend/reg/thome.csp?pageID=231&eventID=2&eventID=2&CSPCHD=001001000000RECh6eI14BWSM1YNuH$XQWHmyS6S$CQH99HkSV)

On behalf of ECRO, we are pleased to invite you to attend the XXVII meeting of the European Chemoreception Research Organization on the Wellcome Genome Campus, near Cambridge, UK between 2nd and 5th September 2017.

The Genome Campus is home to some of the world's foremost institutes and organisations in genomics and computational biology, with world-class conference facilities in an idyllic location on the banks of the River Cam. Our congress dinner will be held in the iconic 16th century Hall of St. John's College in central Cambridge.

The 2017 congress will include keynote speakers and symposia addressing scientific topics of broad interest to the chemosensory community, including:

- The interface of the senses, nutrition and metabolism,
- Diseases of the chemosenses
- Smell, taste and appetite in non-model organisms
- Sampling and encoding of odour cues
- Chemosensation in early development
- Decoding chemical space
- Chemosensory transduction

A Young Scientist Symposium, with speakers selected from abstract submissions, will also feature in the main meeting.

We suggest you bookmark this website, and/or follow our Twitter account (@ECRO2017), as both will be frequently updated as the scientific programme is finalised.

Local organisers -

Greg Jefferis
Darren Logan
Simone Weyand

The closing date for poster abstracts is: 23 July 2017

Keynote speakers include:

Charles Spence, University of Oxford
Vanessa Ruta, Rockefeller University
Giles Yeo, University of Cambridge
Richard Benton, University of Lausanne
Julie Mennella, Monell Center



ESITO European Symposium for Insect Taste and Olfaction

ESITO XV

September 17th - 22th, 2017

Villasimius, Italy

Contact: esito2017@uni-wuerzburg.de

Registration Deadline: July 3rd, 2017

<http://www.ice.mpg.de/esito/>



Program

Program will be uploaded after the registration deadline is closed. An announcement will be sent via e-mail.

General meeting Schedule

	SUNDAY Sep 17	MONDAY Sep 18	TUESDAY Sep 19	WEDNESDAY Sep 20	THURSDAY Sep 21
MORNING 9-12		SESSION I	SESSION III	SESSION V	SESSION VI
AFTERNOON 15-18	Arrival & Registration	SESSION II	SESSION IV	BOAT EXCURSION	SESSION VII
after DINNER	Keynote Lecture	POSTER	POSTER		BANQUET



TOPICS	INVITED SPEAKER
Key Note Lecture	John Hildebrand
Evolution of Olfaction	Steffen Harzsch
Modulation & Plasticity	Jean-Marc Devaud
Olfactory Coding	Martin Nawrot
Olfactory Circuits	Silke Sachse
Odor-guided Behavior	Markus Knaden
Gustation	Geraldine Wright
Receptor Function	Richard Benton
Chemical Ecology	Thomas Schmitt
Multimodal Integration	Martin Strube-Bloss





Conference on Frontiers in Olfaction

24 - 28 July 2017
Trieste, Italy

Further information:

Activity URL: <http://indico.ictp.it/event/7979/>

E-mail: smr3135@ictp.it

It might be a bit too late for advertising this important Conference, but you still have a few days for registering. Deadline: June 1st, 2017

The Conference is organised by:

A. Celani, ICTP

A. Menini, SISSA

V. Murthy, Harvard University

M. Vergassola, University of California, San Diego

From the poster:

The task of olfaction is challenging; it depends critically on the ability to rapidly detect, identify, categorize, and prepare for memory storage myriad odorants that vary in molecular structure and concentration. Yet, olfactory processing is achieved by relatively few layers of neurons, with anatomical structures and physiological mechanisms that appear repeatedly in widely divergent species. Thus, a study of olfaction offers the promise of insight into a successful and perhaps optimal biological algorithm for processing complex information. Driven by novel experimental techniques, including next-generation sequencing, optogenetics, and imaging/recordings in awake behaving animals, the experimental data is undergoing an explosive growth. At the same time, a variety of computational and theoretical models ranging from labelled-line to spike coding have been proposed to explain the data. This workshop will bring together researchers in physics, chemistry, biochemistry, computer science, behavioural sciences, neurophysiology, basic biology, and genomics in an attempt to evaluate the current state of the field.

List of speakers:

F. ALBEANU, CSHL
 U. BHALLA, NCBS
 L. BUCK, HHMI
 A. CARLETON, GENEVA UNIVERSITY
 M. DICKINSON, CALTECH
 S. FIRESTEIN, COLUMBIA UNIVERSITY
 A. FLEISCHMANN, COLLEGE DE FRANCE
 C. A. GREER, COLUMBIA UNIVERSITY
 B. HANSSON, MPI JENA
 T. HOLY, WASHINGTON UNIVERSITY IN ST. LOUIS
 A. KOULAKOV, CSHL
 P. LATHAM, UCL GATSBY LONDON
 Y. S. LOMVARDAS, COLUMBIA UNIVERSITY
 P. M. LLEDO, INSTITUT PASTEUR, PARIS
 P. MOMBAERTS, MPI FRANKFURT
 D. RINBERG, NYU
 A. SCHAEFER, THE FRANCIS CRICK INSTITUTE
 A. SEMINARA, UNIVERSITÉ NICE SOPHIA ANTIPOLIS
 N. SOBEL, WEIZMANN INSTITUTE OF SCIENCE
 P. SZYSZKA, KONSTANZ UNIVERSITY
 L. VOSSHALL, THE ROCKEFELLER UNIVERSITY
 T. WYATT, UNIVERSITY OF OXFORD

Online application:

<http://indico.ictp.it/event/7979/>

Women in Olfactory Science

October 5-6, 2017 – SISSA, Trieste



WIOS was founded in early 2016 by chemosensory research scientists Valentina Parma (IT), Sanne Boesveldt (NL), and Veronika Schöpf (AUT), and is a new organization that aims to create a network of women working in human olfactory science in Europe, to foster scientific collaborations, advance career perspectives, promote equal opportunities and inspire the future generations of researchers.

WIOS represents the **first international forum to unite women scientists in olfactory science** with the objective of strengthening their role in the development and promotion of their representation among the leaders in the field of the chemical senses. WIOS provides a stage to validate women research achievements as well as networking opportunities for women scientists at different stages of their career.

Anyone is welcome to register as an attendee by clicking on the [Registration](#) menu, on the right. A poster session will not be available in this first edition of the event. Nevertheless, networking events have been thought to allow for the sharing of personal research interests from all attendees.

<https://indico.sissa.it/event/18/>

Author List

- ARZI, Anat** (Cambridge, UK)
Olfactory associative learning during human sleep: Interplay between sleep stages, slow wave oscillations and behavior
- BUETTNER, Andrea** (Erlangen, Germany)
Considerations on structure-odour activity relationships in humans
- FREIHERR, Jessica** (Aachen, Germany)
Cognitive load alters neuronal processing of food odors
- HAWKINS, Sara Joy** (Göttingen, Germany)
The Amphibian olfactory system as a model to study neuroregeneration
- LAUREATI, Monica** (Milano, Italy)
Olfaction and food: an unforgettable experience
- MAJID, Asifa** (Nijmegen, The Netherlands)
A cross-cultural perspective on olfaction
- MENINI, Anna** (Trieste, Italy)
From odors to brain: how odor binding is transduced into electrical signals traveling to the brain.
- OHLA, Kathrin** (Psychophysiology of Food Perception, German Institute of Human Nutrition Potsdam-Rehbruecke Potsdam, Germany)
Food in the brain: taste and smell processing before and during eating
- PETER, Moa** (Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden)
Multisensory Integration and Cerebral Reorganization in Anosmia
- RODRIGUEZ-RACKE, Rea** (Diagnostic and Interventional Neuroradiology, University Hospital, RWTH Aachen University, Aachen, Germany)
Reinforcement by reward enhances discrimination of odor stimuli
- SEUBERT, Janina** (Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden)
Multisensory influences on olfactory perception during food consumption
- SMEETS, Monique** (Utrecht, The Netherlands)
Pheromones: fashion fad or fact?
- SPEHR, Marc** (Aachen Germany)
Signaling mechanisms in the accessory olfactory system