

ECRO

Newsletter 88

New Year issue



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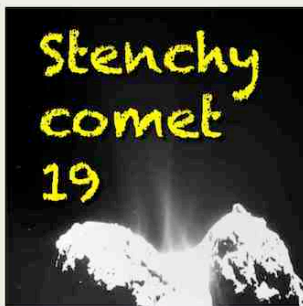


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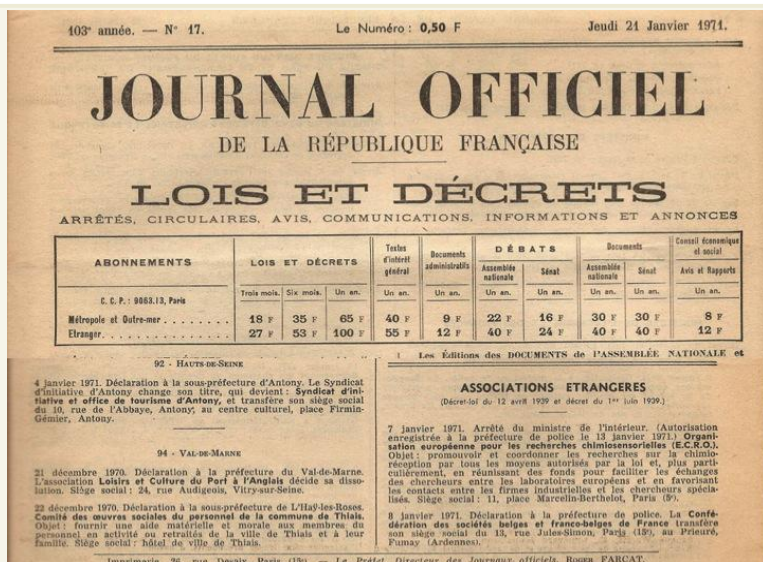
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ECRO was inaugurated in 1970 at the International Summer Course on Odour Perception, in Utrecht, with the aim of promoting and coordinating research in chemoreception.

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

## The ECRO Board (2014-2016)



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## Editorial

I think the five readers of the Newsletters (I do not expect all the ECRO Board Members to be regular readers) have become used to the erratic schedule of publication. In principle, there should be a Spring issue and an Autumn issue every year... this issue comes right in between. It should be the Winter issue, but I preferred to name it "The New Year issue", just to be more unpredictable. As scientists, we like being surprised now and then to break the predictable regularity of planned experiments and the boring of curves perfectly fitting the experimental data. After all, many of the most innovative discoveries were made by chance and we should be prepared to welcome surprises.

All this long nonsense is just a way to apologise for being late once again and hope my five readers will forgive me for my laziness.

The cover of this issue reproduces one of the many artistic patterns into which some bacteria can grow. It is a perfect combination of art and science, showing how these two activities of the human intellect are often combined to produce the best results.

But there is much more. If bacteria can develop such regular and diverse patterns, it means they can talk to one another, and this is the basis for the idea that sometimes they may represent a sort of superorganism. And then, from bacteria to cancer cell it is just a short jump: can cancer cell talk to each other and get organised? They do express olfactory receptors and we might be able to eavesdrop their conversations and upset their plans. Surprised? not any longer, but we certainly were surprised when we first heard of olfactory receptors expressed outside the nose and almost in every organ. You can find more about this topic in this issue.

The subject of smell is getting more and more popular and people are becoming increasingly aware (and sometimes concerned) of the odour dimension around them.

This phenomenon is perceivable in small details and initiatives we find in the news, from the "smell" of a comet (few years ago probably a different terminology would have been used) to the smell of books, something we feel we are about to loose with the spreading of e.books, Kindles and smart phones, and of course above all the flavour of foods.

This time we do not have anything to report about junk pieces of cheap sorcery smuggled as science of olfaction, from spray lotions to turn you into a Casanova or the Princess of the disco to devices to send smells through the computer and phones.

Instead, we have a very nice piece of research on electronic noses. The coordinator of this work is our treasure Krishna Persaud – congratulations, Krishna, and thanks for keeping our accounts so efficiently and for so many years – in collaboration with a group in Bari, Italy. The double interest of this work, just published in Nature Communications, is that they found for the first time an OBP able to discriminate enantiomers (not a new OBP, actually a very old one, which still has some surprise to show) and they managed, using this OBP in a transistor, to discriminate enantiomers, again for the first time, with an electronic nose.

Congratulations also to Tristram Wyatt, who was awarded an important prize with the new edition of his book, now a classic and a reference point in the field of pheromones.

We have nothing in this issue about episodes of corruption in science. Not because we have nothing to report, but at the beginning of the year we want to be optimistic and full of hopes that at least scientist might adopt an ethical and honest behaviour to avoid that science might become a market in a world where corruption and violence seems to be the rule.

Happy New Year to all of you and in particular a warm welcome to Wolfgang Meyerhof as the new President of our community.

## From the President

Dear ECRO members, colleagues and friends  
 In September 2014 the new ECRO board has been set up. Elected members are Wolfgang Meyerhof (Nuthetal), president; Peter Brennan (Bristol), president-elect; Anna Menini (Trieste), past-president; Didier Trotier (Jouy-en-Josas), general secretary; Krishna Persaud (Manchester), executive secretary and treasurer; Teun Dekker (Alnarp), elected member. Heinz Breer (Hohenheim) and Milagros Gallo (Granada) left the board. Many thanks to both of them at this place for their long lasting and sustained support! In November 2014 Stefan Fuss (Istanbul) and Marika Kapsimali (Paris) have been coopted to the board as organizers of the next two ECRO meetings. In September many of us came together in Dijon on the occasion of the annual ECRO meeting which certainly is a highlight of the scientific year. Attendance of the 2014 Dijon meeting resembled that of the previous meeting in Leuven. Luc Penicaud and his colleagues from the Centre des Sciences du Gout et de l'Alimentation have put together an attractive program well-balanced over the various chemosensory disciplines and overall organized a successful meeting. The participants enjoyed 4 days of scientific exchange. Even the cancellation of one of the keynote speakers on very short notice caused no major obstacle as John Prescott (Sydney) spontaneously agreed kindly to fill the slot and presented his data instead.

In the meantime preparation of the XXVth Annual ECRO Meeting in Istanbul, September 1-5, is progressing. We are going first time to Turkey. The meeting venue is the scenic Bagazici University campus above the banks of the Bosphorus. Istanbul is a lively, multicultural metropolis and I am certain that we will go home with unforgettable social, cultural and scientific memories. Stefan Fuss is an enthusiastic and diligent organizer and all relevant information can be found on the ECRO webpages (<http://www.ecro-online.com/ecro2015/>).

Currently the call for symposia is open until March 2. The society needs the input and support of its members and the quality of the meeting critically depends on it.

Therefore, I would like to encourage you most strongly to support our organization by submitting symposia proposals and later on abstracts of your work to be presented (until June 30). And of course I am looking forward to meeting all of you there in person in September. Also the venue of the XXVIth ECRO Meeting 2016 has been fixed. It will take place in Athens, Greece, definitely a place that offers also numerous exciting attractions. Many of us have appreciated reading the tales about Greek mythology and ancient history. Fall 2016 will give us the opportunity to visit the historical sites and see the artifacts of these periods in local museum. The meeting will be organized by Marika Kapsimali. She is from Greece and knows the local conditions well and has efficiently started with the first preparations.

However, 2016 may also create conflict of interests as also another important event for the chemosensory research community happens. The 17<sup>th</sup> International Symposium on Olfaction and Taste (ISOT2016) will be held in Yokohama, Japan, June 5-9. Our Japanese colleagues and friends of JASTS with Yuzo Ninomiya (Fukuoka) as symposium president and Kazushige Touhara (Tokyo) as program chair have started organizing this important scientific event. Many of us may well remember the good time we had at ISOT2004 in Kyoto and are looking forward to a similarly pleasing conference. All information is to be found at (<http://www.isot2016.com/>). Also in case of ISOT2016 the call for symposia is open and, of course, the local team and I as well hope many of you send their proposals and will go to Japan.

In summary, exciting events are close ahead of us!

For now I hope you had a good start into 2015 and wish you that the year continues to be healthy, prosperous and successful,

*Wolfgang Meyerhof*

## Treasurers Report December 2014

For the year January-December 2014, ECRO had 215 active members, a small increase over previous years. Our total assets at the end of November 2014 were 64456 Euro, together with another 19186 Euro in our conference account that will be used to support future conferences. ECRO was able to support 16 students during the year to attend conferences and travel to other



laboratories. The ECRO Congress in Dijon was a success and we thank Luc Pénicaud and his team for the excellent job that they did, and especially the great care they took to balance the accounts exactly. We are now working with Stefan Fuss to prepare the next ECRO Congress in Istanbul. This will be an exciting new adventure for ECRO and our members and we look forward to it.

We are pleased to announce the following recent grant awards and we encourage young scientists to apply to ECRO for grants - full details are available on the ECRO web site.

Wishing all members a happy and successful year ahead.

### RECENT ECRO 2014 GRANTS AWARDED

**Claire de March, France for travel to the USA**

**Geraldine Coppin , Germany - Chemoreception Conference in Dresden**

**Aline Pichon, Switzerland - Chemoreception Conference in Dresden**

*Krishna Persaud*

*(Executive Secretary and Treasurer, ECRO)*



The media are full of news related to smell, it just requires a bit of patience to search the web. But the reward is worth the trouble, not a few are quite funny and amusing. Here is a small selection for your enjoyment. Not all of them are quite up to date. Actually the first one we offer is the reply of Mark Twain to an article by a reverend who was complaining about some subjects among his congregation who disturbed pious attendants with their smell. It is more than a century old, but still very actual. Here is an excerpt from his article.

**ABOUT SMELLS**  
BY MARK TWAIN

In a recent issue of the "Independent," the Rev. T. De Witt Talmage, of Brooklyn, has the following utterance on the subject of "Smells":

*I have a good Christian friend who, if he sat in the front pew in church, and a working man should enter the door at the other end would smell him instantly. My friend is not to blame for the sensitiveness of his nose, any more than you would flog a pointer for being keener on the scent than a stupid watch-dog. The fact is, if you had all the churches free, by reason of the mixing up of the common people with the uncommon, you would keep one-half of Christendom sick at their stomach. If you are going to kill the church thus with bad smells, I will have nothing to do with this work of evangelization.*

We have reason to believe that there will be laboring men in heaven; and also a number of negroes, and Esquimaux, and Terra del Fuegians, and Arabs, and a few Indians, and possibly even some Spaniards and Portuguese. All things are possible with God. We shall have all these sorts of people in heaven; but, alas! in getting them we shall lose the society of Dr. Talmage. Which is to say, we shall lose the company of one who could give more real "tone" to celestial society than any other contribution Brooklyn could furnish. In the better world we shall not even have Dr. Talmage's "good Christian friend." For if he were sitting under the glory of the Throne, and the keeper of the keys admitted a Benjamin Franklin or other laboring man, that "friend," with his fine natural powers infinitely augmented by emancipation from hampering flesh, would detect him with a single sniff, and immediately take his hat and ask to be excused.

*From "THE GALAXY" May 1870*



## Good smelly cheese is not for everyone's nose

The manager of a Swiss fondue restaurant has won a three-year legal battle over the smell of his cheese after a court decided he did not have to pay a £135 police fine.



The fine was imposed on Florian Kurz after two boutique clothes shops either side of his Zunfthaus zur Zimmerleuten restaurant in Zurich complained that the smell of melted Swiss cheese was driving their customers away, contaminating their products and ruining their business.

Kurz refused to pay the fine. Then his neighbours stroke back and brought a speciality smelly fish from Norway into the restaurant and started eating it in front of customers.



### ***A regular battle with smelly weapons!***

The court ruled that the fine should be cancelled and ordered the two neighbouring businesses to pay Kurz £2,600 in costs and £100 in personal damages. "Sure, they are serving cheese fondue, but the smell is not excessive," he said. "The judge decided that it was normal, and that they have the permission to serve what they want."

[theguardian.com](http://theguardian.com) 27 March 2014

## The smell of death

**Dutch scientists at Breda University have used smells and sounds in a macabre and questionable project to reproduce the atmosphere at the deaths of some most famous personalities.**

"We all have seen the images of JFK's assassination, but what did it smell like?" asks Frederik Duerinck, from the Communication and Multimedia Design Faculty of Breda's Avans University of Applied Sciences (...hummm... is this science?)

"Who cares?" is our answer. Perhaps only disturbed minds and maniacs with a morbid taste.

However, if your thirst of knowledge really needs to be quenched with such objectionable experiences, you will be invited to lie in one of four silver metal boxes similar to those found in a morgue.

The boxes, which are pitch-dark inside, are rigged with pipes leading to bottles containing pressurised smells. The perfume of Jacqueline Kennedy is mixed with the odour of blood (does blood have an odour?), while the smell of cocaine, bath cleaner and olive oil recreate the death of Whitney Houston together with the sound of splashing water.

Those witnessing Gaddafi's final moments find them considerably less peaceful. "*I almost felt myself being hunted*" said one visitor.

Given the strong evocative power of smells, if such experiences have success we must conclude that the visitors had already experienced the same real situation.

In any case, we can think there of better ways for wasting research funds.

December 2014





## About the smell of hydrogen telluride

Enjoy this conversation between Linus Pauling and Matthew Meselson (*discoverer in 1958 of the semi-conservative replication of DNA, among other outstanding achievements in the field of molecular biology*). At the time of this conversation Meselson was applying for a PhD in Linus Pauling's lab.

LP: Well, Matt, you know about tellurium, the group VI element below selenium in the periodic chart of the elements?

MM: Uh, yes. Sulfur, selenium, tellurium ...

LP: I know that you know how bad hydrogen sulfide smells. Have you ever smelled hydrogen selenide?

MM: No, I never have.

LP: Well, it smells much worse than hydrogen sulfide.

MM: I see.

LP: Now, Matt, Hydrogen telluride smells as much worse than hydrogen selenide as hydrogen selenide does compared to hydrogen sulfide.

MM: Ahh ...

LP: In fact, Matt, some chemists were not careful when working with tellurium compounds, and they acquired a condition known as "tellurium breath." As a result, they have become isolated from society. Some have even committed suicide.

MM: Oh.

LP: But Matt, I'm sure that you would be careful. Why don't you think it over and let me know if you would like to work on the structure of some tellurium compounds?

He thought over and accepted the position.

## But even sulphur can cause trouble

Here's what happened when workers at the Esso Research Station in England were trying to make thioacetone from trithioacetone.

*"Recently we found ourselves with an odour problem beyond our worst expectations.*

*During early experiments, a stopper jumped from a bottle of residues, and, although replaced at once, resulted in an immediate complaint of nausea and sickness from colleagues working in a building two hundred yards away. Two of our chemists who had done no more than*



*investigate the cracking of minute amounts of trithioacetone found themselves the object of hostile stares in a restaurant and suffered the humiliation of having a waitress spray the area around them with a deodorant.*

*The odours defied the expected effects of dilution since workers in the laboratory did not find the odours intolerable ... and genuinely denied responsibility since they were working in closed systems. To convince them otherwise, they were dispersed with other observers around the laboratory, at distances up to a quarter of a mile, and one drop of either acetone gem-dithiol or the mother liquors from crude trithioacetone crystallisations were placed on a watch glass in a fume cupboard. The odour was detected downwind in seconds."*

January 2013



## THE LOST SMELL OF BOOKS

We have reported in one of the previous issues how the introduction of e.books has left book lovers without an important character of paper books: the smell. A perfume company promptly produced a fragrance named "Paper Passion: perfume for booklovers" (ECRO NL84).

Now we are witnessing a proliferation of such products with fine differences. You can choose between the smell of an old musty book from your bookshelf and that of books you find in a bookshop where the aroma coffee and cakes add some special character. Or you might prefer to enjoy your book with a glass of wine and select the fragrance "Book cellar", or else "Oxford library" might be more appropriate to your distinguished taste.



There are also candles scented with the smell of books, which promise exciting experiences. Just an example of the alluring messages:

*Modern Alchemy "Ex Libris" Scented Candle. This aromatherapy candle, one of the Modern Alchemy's most exceptional products, is a promise of bringing a medieval library to your home. The candle is "infused with scents of antiquated leather-bound volumes of handsome papers and parchment permeate, sure to seduce the senses".*



They must be really special with prices ranging from £ 15 to 47. If you are ready to be seduced and feel your wallet is too heavy to carry, you can find a large selection of such products at the website:

<http://ebookfriendly.com/book-smell-perfumes-candles/>



I want my husband to pay more attention to me. Got any perfume that smells like a computer?"

# IgNobel Prizes 2014

The **Ig Nobel** Prizes honor research that first make people **laugh**, and then make them **think**



As usual we present a concise report of the IgNobel Prizes assigned last September at the 24th First Annual Ig Nobel Prize Ceremony, at Harvard's Sanders Theatre.

No research on the sense of smell was awarded with a prize this year, which is probably a good sign. On the other hand, we did not find this collection of selected pieces of research particularly amusing and original.

The PHYSICS PRIZE went to Japanese scientists who measured the amount of friction between a shoe, a banana skin, and the floor, when a person happens to be the victim of this classic accident.

*REFERENCE:* "Frictional Coefficient under Banana Skin," Kiyoshi Mabuchi, Kensei Tanaka, Daichi Uchijima and Rina Sakai, *Tribology Online* 7, no. 3, 2012, pp. 147-151



The NEUROSCIENCE PRIZE was awarded to a

Chinese team, who claim to know what is going on in the brains of people who see the face of Jesus in a piece of toast. These kinds of studies remind us of another IgNobel Prize, assigned in 2012 for a piece of research demonstrating that, if you use complicated instruments and the appropriate statistics, you can observe full brain activity in the brain of a dead salmon

*REFERENCE:* "Seeing Jesus in Toast: Neural and Behavioral Correlates of Face Pareidolia," Jiangang Liu, Jun Li, Lu Feng, Ling Li, Jie Tian, Kang Lee, *Cortex*, vol. 53, April 2014, Pages 60–77.

The PSYCHOLOGY PRIZE recognised the work of Peter K. Jonason, Amy Jones, and Minna Lyons, for amassing evidence that people who habitually stay up late are, on average, more self-admiring, more manipulative, and more psychopathic than people who habitually arise early in the morning.

*REFERENCE:* "Creatures of the Night: Chronotypes and the Dark Triad Traits," Peter K. Jonason, Amy Jones, and Minna Lyons, *Personality and Individual Differences*, vol. 55, no. 5, 2013, pp. 538-541.

The PUBLIC HEALTH PRIZE was assigned to Jaroslav Flegr, Jan Havlíček and Jitka Hanušová-Lindová, David Hanauer, Naren Ramakrishnan and Lisa Seyfried for a piece of serious and significant research on the hazard of getting toxoplasmosis from pet cats.

*REFERENCES:* "Changes in personality profile of young women with latent toxoplasmosis," Jaroslav Flegr and Jan Havlíček, *Folia Parasitologica*, vol. 46, 1999, pp. 22-28.

"Decreased level of psychobiological factor novelty seeking and lower intelligence in men latently infected with the protozoan parasite *Toxoplasma gondii* Dopamine, a missing link between schizophrenia and toxoplasmosis?" Jaroslav Flegr, Marek Preiss, Jiří Klose, Jan Havlíček, Martina Vitáková, and Petr Kodym, *Biological Psychology*, vol. 63, 2003, pp. 253–268.

"Describing the Relationship between Cat Bites and Human Depression Using Data from an Electronic Health Record," David Hanauer, Naren Ramakrishnan, Lisa Seyfried, *PLoS ONE*, vol. 8, no. 8, 2013, e70585.





the BIOLOGY PRIZE.

*REFERENCE: "Dogs are sensitive to small variations of the Earth's magnetic field," Vlastimil Hart, Petra Nováková, Erich Pascal Malkemper, Sabine Begall, Vladimír Hanzal, Miloš Ježek, Tomáš Kušta, Veronika Němcová, Jana Adámková, Kateřina Benediktová, Jaroslav Červený and Hynek Burda, Frontiers in Zoology, 10:80, 27 December 27, 2013.*

The evidence is not really overwhelming and the Authors themselves indicate other factors that might influence the dogs' behaviours, such as the position of the sun, air currents, smell, temperature. As a matter of fact, we do not even know whether dogs can sense the magnetic field. The occurrence of this sixth sense in animals is a very fascinating topic, but unfortunately the literature contains too many dubious reports mixed with few pieces of excellent research, like the role of cryptochromes in birds navigation.

The ART PRIZE (but we think Psychology would have been a more appropriate category) went to Italian researchers for measuring the relative pain people suffer while looking at an ugly painting, rather than a pretty painting, while being shot in the hand by a powerful laser beam.

*REFERENCE: "Aesthetic value of paintings affects pain thresholds," Marina de Tommaso, Michele Sardaro, and Paolo Livrea, Consciousness and Cognition, vol. 17, no. 4, 2008, pp. 1152-1162.*



A work claiming that dogs prefer to align their body with Earth's geomagnetic field when performing their corporal duties was selected for

We all have experienced that in the presence of a strongly distracting stimulus we perceive pain with reduced intensity. Why the Authors have chosen art work as the distracting elements, instead of more powerful stimuli, such as freshly baked cakes or sizzling bacon presented to hungry subjects or the news that a paper has been accepted... or else the seduction of an attractive individual of the appropriate sex?

The Italian Government's National Institute of Statistics well worthily secured the ECONOMICS PRIZE for proudly taking the lead in fulfilling the European Union mandate for each country to increase the official size of its national economy by

including revenues from prostitution, illegal drug sales, smuggling, and all other unlawful financial transactions between willing participants.

In our opinion, this is the best, among this year's Prizes to meet the crazy, absurd and ridiculous aspects to

fully qualify for an really ignobel idea.

*REFERENCES: "Cambia il Sistema europeo dei conti nazionali e regionali - Sec2010", ISTAT, 2014. "European System of National and Regional Accounts (ESA 2010)," Luxembourg: Publications Office of the European Union, 2013.*



The MEDICINE PRIZE recognised the magic power of bacon strips in stopping "uncontrollable" nosebleeds.



*REFERENCE: "Nasal Packing With Strips of Cured Pork as Treatment for Uncontrollable Epistaxis in a Patient with Glanzmann Thrombasthenia," Ian Humphreys, Sonal Saraiya, Walter Belenky and James Dworkin, Annals of Otolaryngology, Rhinology and Laryngology, vol. 120, no. 11, November 2011, pp. 732-36.*



However funny might this treatment appear, it works and seems reasonable that aromatic compounds produced during the curing process might favour the coagulation process. After all, such treatment had been already mentioned almost 40 years ago by Jan J. Weisberg (Arch Otolaryngol. 1976;102:385.): "...the patient was discharged with salt pork packing still in his nose. I initially saw the patient 11 days following this, and he gave a history of bleeding small amounts daily, which he controlled with self-packing."

There is a new category of prizes this year, the ARCTIC SCIENCE PRIZE assigned to Eigil Reimers and Sindre Eftestøl, for testing how reindeer react to seeing humans who are disguised as polar bears.

*REFERENCE: "Response Behaviors of Svalbard Reindeer towards Humans and Humans Disguised as Polar Bears on Edgeøya," Eigil Reimers and Sindre Eftestøl, Arctic, Antarctic, and Alpine Research, vol. 44, no. 4, 2012, pp. 483-9.*

Finally, the NUTRITION PRIZE to Raquel Rubio, Anna Jofré, Belén Martín, Teresa Aymerich, and Margarita Garriga, for their study titled "Characterization of Lactic Acid Bacteria Isolated from Infant Faeces as Potential Probiotic Starter Cultures for Fermented Sausages." reminds us of another recognition to excrement research. In 2007 the Chemistry Prize went to Mayu Yamamoto for extracting vanillin from cow dung, a flavour ingredient proudly used by a Boston ice cream maker.







## Manchester police recruits 20,000 noses to smell grass

Have you ever smelled cannabis? Police in Manchester believe most of citizens have no idea what cannabis smells like and want to fill this gap by distributing more than 20,000 scratch and sniff cards.

Once citizen have been instructed and became able to recognise the scent of “grass”, they could help the police in revealing sites where the plant is grown illegally. The initiative has spread over England, where more than 200,000 cards have been distributed and more recently also in Northern Ireland.

A recent report estimates that 500,000 people grow



cannabis in the UK – roughly one person on every street. It looks like you can grow cannabis worth £80,000 in three months if you have an average terrace house. So how can you tell if your neighbour is raising a crop? Follow your nose!

Volatile compounds making up the scent of cannabis are mostly terpenoids, commonly found in plants, which do not really smell particularly distinct. But, apparently, the bouquet of the many ingredients present in appropriate proportions is unique and recognisable.

If you search the web for description of this odour, there is no general agreement, to witness the difficulties in defining smells in general and specifically in this case in which a plant should be distinguished by its odour from other plants.

The volatile fraction of cannabis contains several terpenes, such as myrcene, limonene, pinenes, ocimene among others. We would predict a fresh balsamic scent, but sometimes a different description is given:

*I can't really describe it, but when people say it smells like skunk, that's probably the closest they can get to it with actual words, and they're really talking about how it smells BEFORE it's smoked.*

*The sweetest most wonderful skunk with a hint of earth if its good weed.*

*Smells like great grandma's house after you blow out all the stinky candles she burns.*

*If it's anything good, it'll smell like freshly released skunk funk with a lemony or mint smell with it.*

*To me, it smells like someone has never showered in their life, just a large amount of armpit stench.*

The fact is that cannabis crop takes about three months to produce and during this period the odour changes, in the last month the plants stink and the cured leaves smell much different from the fresh ones. Then, when it is smoked it really stinks. What do the police sniff cards contain? It is a mixture of volatiles released by the growing plant, because they want to detect illegal farms.

The initiative has not been favourably welcome by citizens, who are very skeptic on the results and believe it is just another way of wasting money.





# RECENTLY



# PUBLISHED

## A fish smells like corals to hide from predators

Brooker RM, Munday PL, Chivers DP, Jones GP. 2015. You are what you eat: diet-induced chemical crypsis in a coral-feeding reef fish. Proc. R. Soc. B 282: 20141887. <http://dx.doi.org/10.1098/rspb.2014.1887>

In vertebrates the phenomenon of mimicry and camouflage to escape predators is not uncommon, but generally regards vision. Animals change colour to match the environment or look and behave like unpalatable or poisonous species for the predator.

Certainly camouflage strategy using chemical cues have been developed among vertebrates, but research in this field is at its very beginning. The case reported in this paper is apparently the first example of such phenomenon.

Among insects, however, and particularly when looking at relationships between plants and insects deception by chemical signals is widely present and documented. We can just recall the cases of several orchid flowers and honey bees or the foul odour of some plants used to attract carrion flies.

The filefish *Oxymonacanthus longirostris* feeds on corals. Its main problem is not to become a prey of the cod. To do this, it apparently has developed a mechanism to retain the odour of its food and emit it through the body. In other words, this fish ends up smelling like the corals it is eating.



To check this hypothesis, the Authors asked the collaboration of two species of crabs, both regular customer of the same restaurant, but with different tastes. Both crabs are obligatory feeders each on a different species of coral. In behaviour experiments the Authors asked the crabs to chose between their preferred coral and the filefish fed with the same coral. The results were quite clear: the crab could hardly tell the coral-scented fish from the real coral.

Finally, the Authors tested whether the predatory cod could distinguish between the coral and the coral-fed filefish and found that when the fish smelled like the coral, cods were less interested that when the fish was fed with a different species of coral.

The short simplified conclusion is that the cod cannot clearly distinguish the fish from the background coral on which it had been feeding. In other words, the filefish managed to become chemically invisible.

# A step forward to an electronic nose

## Biochip discriminates enantiomeric carvones

Mohammad Yusuf Mulla, Elena Tuccori, Maria Magliulo, Gianluca Lattanzi, Gerardo Palazzo, Krishna Persaud & Luisa Torsi (2015) Capacitance-modulated transistor detects odorant binding protein chiral interactions. Nature Communication DOI: [10.1038/ncomms7010](https://doi.org/10.1038/ncomms7010).

One of the most common criticisms to electronic devices trying to mimic the human nose is their poor specificity. Although the individual receptors in the nose are broadly tuned to groups of odorants, the complexity of the olfactory system with over 300 sensors in humans can perform very fine discrimination between structurally related odorants.

However, there is a limit to the magic we can perform with electronics and complexity. It is essential that the basic sensing elements possess some structural features enabling them to interact differently with different chemicals.

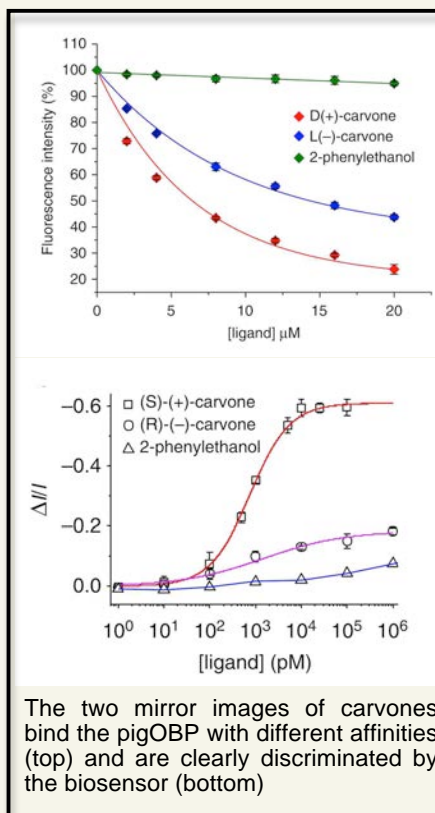
Enantiomers are usually taken as examples of extremely similar molecules, so similar that we cannot realise they are distinct structures until we try and superimpose one on the other.

In fact, enantiomers are quite different, as different are our feet, a fact we are well aware of when we happen to fit them in the wrong shoes.

In nature asymmetry is the rule with amino acids and sugars usually occurring in only one of their two mirror images. Therefore, we should expect that olfaction should be highly discriminative towards enantiomers. In fact this is the case, but not with humans. By a series of events and coincidences, it appears that we have lost



such discriminative capacity, probably because we do not need it any more. By contrast, in insects the two enantiomers of the same compound can produce opposite responses, one being an attractive pheromone, the other a repellent.



But even our aged nose retains some skill in telling enantiomers apart. The best example is that of the two carvones, two terpenoids, both smelling minty, but with some different character. The (-) isomer occurring in the leaves of spearmint possess a

a clean minty note, while its mirror image, the (+) isomer smells a bit like caraway and is responsible for the pleasant fragrance of this plant. Our nose can tell them apart, but with some difficulty. In fact, the two molecules are rather flat and, looking at their

models, one would think they could both fit into the same binding pocket of a protein, just like you can put your left foot into the right

shoe, if this is more like a flexible slipper than a rigid shoe.

The Authors first found that, beyond the most optimistic expectations, a mutant of the pig odorant-binding protein (OBP) binds the two forms of carvone with markedly different affinities.

Then, they managed to incorporate the protein into a transistor, preserving its discriminating capacity.

Sensors able to distinguish between enantiomers are invaluable in many applications. Just think of the difficult procedures when analysing the enantiomeric purity of a compound or else monitoring a chromatographic separation of the two forms of an asymmetric chemical.

More important, by showing that this task is feasible with a simple electronic apparatus and a protein, this paper opens the way to a wide experimentation involving different OBPs and specifically designed mutants to meet all sort of requirements in natural product analysis.

## Can we whiff cancer cells into mass suicide?



Finding olfactory receptors outside the nose and gustatory receptors in all parts of the body is nothing new. In the last couple of years papers reporting the expression of olfactory and gustatory receptors in the most unexpected organs have been sprouting at increasing speed.

Heart, blood, liver, brain, gut, lungs... just name an organ and, if not yet reported, you are surely going to find several of the receptors so far believed to only help us to appreciate food and avoid dirty places.

We do not need to name sperm cells, the first place in the body outside our chemosensory organs where olfactory receptors were identified. We found this fact quite plausible, as sperm cells are guided by chemical signals to the egg and therefore must be equipped with their own "nose".

But what do they do in all other organs? Sure enough, all our cells communicate as the element of a superorganism, like ants in a large nest keep their community functioning through chemical signals. However, we already knew the signals exchanged between cells.

Neurons talk to each other using simple words, such as choline, dopamine, serotonin, glutamate and few others, which are detected by finely tuned receptors, not broadly responding olfactory receptors.

Going back to sperm cells and their olfactory receptors, there is another surprise. If it is easily understandable why sperm cells should be equipped with a nose, the function of other members of this large family of proteins seems to be quite different.

There is good evidence that an olfactory receptor is involved in controlling prostate cancer growth. This receptor, also expressed in the nose, can be regarded as a prostate tumor specific biomarker, as its expression increases in cancerous tissues. Hanns Hatt's group, who studied the first sperm receptor, found that this new one binds some steroids as well as some terpenoids.

In particular,  $\beta$ -ionone, a violet smelling natural compound, proved to be an inhibitor of this receptor and decreases the proliferation of prostate cells when added to their culture.

**Neuhaus EM, Zhang W, Gelis L, Deng Y, Noldus J, Hatt H. (2009) Activation of an olfactory receptor inhibits proliferation of prostate cancer cells. J Biol Chem. 284: 16218-25.**

Can we think of treating tumours in the future using perfumes and flower extracts?



The idea does not seem so strange and fanciful any longer. That is exactly what a recent paper is suggesting:

**Galle M, Crespo R, Kladniew BR, Villegas SM, Polo M, de Bravo MG.(2014) Suppression by geraniol of the growth of A549 human lung adenocarcinoma cells and inhibition of the mevalonate pathway in culture and in vivo: potential use in cancer chemotherapy. Nutr Cancer. 66: 888-95.**

But how are ORs involved in cancer growth? It seems that cancer cells could be able to talk to one another by exchanging chemical messages and when this cross-talking occurs it means they are ready for making trouble.

If this is the case, can we adopt all the tools and strategies we use to control insect population in controlling cancer cells growth and proliferation? Can we eavesdrop and foul them with our messages?

This view also brings another idea: perhaps cancer cells behave at some stage like a superorganism, like a community of ants or honey bees? Are there other examples of communities of cells? Well, certainly, all through our body, but do communities of unicellular organisms exist, organised in a sort of society with differentiated tasks and a network of communication between individuals?

Certainly, slime moulds provide an excellent example.



These strange species exist as unicellular organisms as long as they have easy access to food. But, when food is lacking, they aggregate in a sort of multicellular organisms, which is able to move around as a single body, smelling chemicals and finding the way to food. Single cells of this organism can differentiate and form stalks and fruiting bodies, that release spores, thus propagating around.



But even bacteria can grow into complex patterns, revealing an organisation and communication between single cells. We are familiar with *E. coli* and similar species, which grow in our Petri dishes in random way, but other species are capable of incredible performances.



Eshel Ben-Jacob, at the University of Tel-Aviv, discovered two new species, *Poenibacillus dendritiformis* and *P. vortex*, which he rates orders of magnitude more “intelligent” than common bacteria. In fact, he found that they can talk to each other, sending messages of danger, when an antibiotic is around or information about the presence of food. In doing this, they grow into elaborate patterns which are real works of art.

You can visit the website:

<http://tamar.tau.ac.il/~eshel/image-flow.html>

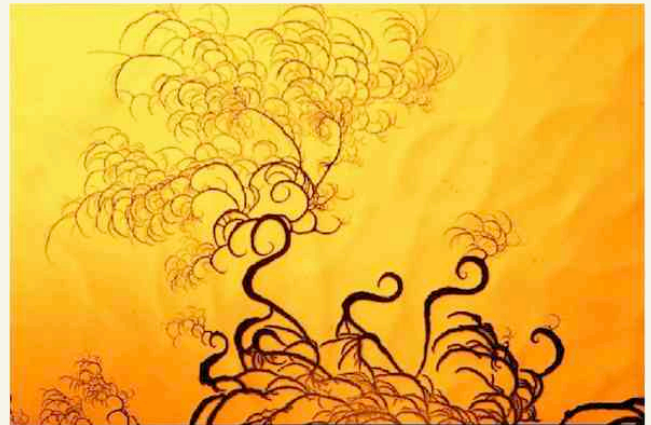
to watch and enjoy a selection of artistic performances of these bacteria, some of which are reproduced here and on the cover.

What all this has to do with cancer? Eshel Ben-Jacob believes that cancer cells send information between each other, just like these bacteria do. And as bacteria, provided they are smart enough, can build a community that helps them to find food, also cancer cell can become social, in order to accomplish their task, to proliferate and colonise new tissues.

We, as scientists studying olfaction and chemical communication, are beginning to understand how cancer cells exchange their messages and have even managed to use odorants to talk back to them.



Can we reach a stage when cancer can be fought with smells, like citronellal, beta-ionone and sandalwood? It seems we are heading in that directions.



Perhaps, there was a grain of truth in the ridiculous masks filled with strong pleasant scents the doctors of the Middle Ages were wearing during plague outbursts in the belief that as the disease produced a terrible stench, the same disease could be fought back with pleasant fragrances.



# The smell of a



Does a comet smell? You might think that a dirty snowball would not release gases, apart from water and carbon dioxide, but apparently the situation is quite different. The scientists analysing the data produced

by two mass spectrometers on board of Rosetta were quite surprised finding a rich bouquet as the odour signature of the Comet 67P/Churyumov-Gerasimenko (67P/C-G).

No perfumer is going to be inspired to create a special 67P/C-G fragrance. Just put together the most awful and deadly stench you can imagine and you got this comet's "body odour".

"The perfume of 67P/C-G is quite strong, with the odor of rotten eggs (hydrogen sulfide), horse stable (ammonia), and the pungent, suffocating odor of formaldehyde. This is mixed with the faint, bitter, almond-like aroma of hydrogen cyanide. Add some whiff of alcohol (methanol) to this mixture, paired with the vinegar-like aroma of sulphur dioxide and a hint of the sweet aromatic scent of carbon disulphide, and you arrive at the 'perfume' of our comet" Kathrin Altwegg, principal investigator for the team managing the Rosina flight mass spectrometer reported.

It is quite interesting that both the scientist who communicated the results of the analyses and the media always referred to *smell* and used the descriptors of sensory analysis to convey information about the chemical substances.

They talk about rotten eggs, almond and horse manure, while they report on the smell of the comet, rather than on its chemical composition.

Here are some of the titles chosen by the media:

- *Rosetta's nose sniffs rotten eggs*
- *Forget skunks. Comet 67P/Churyumov-Gerasimenko smells like...*
- *Comet smells like rotten eggs, horse urine, alcohol, bitter almonds*
- *The scent of a comet: Rotten eggs and pee*
- *Rosetta discovers comet smells like rotten eggs and horse poo*

This indicates that we are increasingly taking smell and olfaction as important aspects of our experiences and we become aware and concerned about the smells in our environment.



There is another interesting consideration. The language of smells may represent an easy and immediate vehicle to convey concepts like molecules, their chemical properties and the impact they have on our life. It might represent a way to make chemistry more immediate and acceptable.



# Recruit insects for a cleaner city



**Ants and other arthropods provide a great contribution to keep New York clean. This is what a research led by Elsa Youngsteadt of North Carolina State University has recently discovered.**

(Youngsteadt E, Henderson RC, Savage AM, Ernst AF, Dunn RR, Frank SD. *Habitat and species identity, not diversity, predict the extent of refuse*



*consumption by urban arthropods. Glob Chang Biol. 2014 Dec 2. doi: 10.1111/gcb.12791. Epub ahead of print).*

The Authors placed samples of various foods (potato chips, cookies, hot-dogs) at street crossings and parks. To make sure they only monitored the action of arthropods, they put the food in cages with small openings.

The research revealed that in a year insects and other arthropods could remove 4 to 6.5 Kg of junk food in a single street median. “We calculate that the arthropods on medians down the Broadway/West St. corridor alone could consume more than 2,100 pounds of discarded junk food, the equivalent of 60,000 hot dogs, every year - assuming they take a break in the winter” says Elsa Youngsteadt.

This represents a very important contribution in keeping the streets clean, also because insects make less food available for rats.

Arthropods removed as much as 59 per cent of the food within a day. More food was eaten at traffic islands than in parks, even though parks were more biodiverse. This may be down to the *pavement ant*, which lives in big colonies and likes these islands.

This species (*Tetramorium caespitum*) was introduced in the United States in the holds of merchant vessels during the 1700s to 1800s. These ships were filled with soil from Europe to provide ballast on the trip to the States. Once in port, the soil was removed, and goods were loaded on the ships to carry back across the Atlantic.



The pavement ant is a soil-nesting species that currently has a distribution from New England to the Midwest, and south through the Mid-Atlantic States to Tennessee. It is also found in parts of California and Washington.

# Smell in verses

The strong and immediate evocative power of olfactory experiences has provided writers with a unique way of narrating stories and conveying emotions. Proust is without doubt the best known and the most authoritative and example on the use of smell descriptions to create an atmosphere and communicate the feeling of the characters.

In more recent time, the short novel *Perfume* of Patrick Suskind is probably the most popular book dedicated to olfaction, but a large number of books are dealing with our sense of smell, from those introducing small children to the diversity of odours with pictures and scratch-and-sniff cards, to popular science books on the sense of smell, without mentioning of course technical books.

Poetry has also been contaminated by smells. Quite expectedly, given the direct connection of olfactory experiences with emotions, which are, after all, what poems want to communicate.

Quite interestingly, it is a sort of scientific concept that we find in a *haiku* by a Japanese poet of the sixteenth century, where he conveys the idea that smell is not a property of the odorous substance (we would say the odorant molecules) but is the product of its interaction with the perception system:

*It is not in the flower,  
but rather in the nose  
that the smell resides,  
so it seems to me*



Different are the uses of smell in poems describing feelings and emotions elicited by olfactory experiences, as in the one here reported. This poem by **Heidi Buys** is taken from the website <http://www.poetrysoup.com/poems/best/smell> where you can find other poems about smell

## *The smell of you*

*I light a candle for you this lonely night  
Vanilla scented footsteps from the past.  
The smell of your sweater a poignant delight  
I wonder how long the memory will last.*

*Lavender scent to ease the empty pain  
Potpourri of emotions in the smoky air.  
In honeysuckle flames I see you again  
Inhale the smell of aftershave in my hair.*

*Lose myself in pipe tobacco and peppermint  
Barbeque fumes from a long lost yesterday.  
Chocolate laughter that tease and hint  
Of watermelon wars in the dusty hay.*

*Coffee memories that taunt and tease  
Lost conversations in the smell of brandy.  
Dusty morning air after a hard freeze  
Your body heat so sweetly handy.*

*I light a candle for you  
this lonely night  
Vanilla scented  
footsteps from the past.  
Somewhere deep inside  
it's very tight  
I wonder how long is  
grief supposed to last.*

*Heidi Buys*





## Congratulations to Tristram Wyatt!

The new edition of "Pheromones and Animal Behaviour" wins the Best Postgraduate Textbook Award from the Society of Biology.

As we have reported in the previous issue of this Newsletter, the second edition of this very successful classic in pheromone science is much enlarged and enriched with respect to the first edition, it is also a completely new book.

The judges said:

*"Revised and extended since the first edition, this splendid, comprehensive resource covers both 'classic' ideas in the field of chemical communication as well as recent advances, such as the surprising discovery that the chemoreceptors of insects and vertebrates evolved independently. The attractive cover, featuring a ring-tailed lemur, hints at some of the delights to be found inside with the content aimed at both the serious researcher and those just wanting a good overview of the discipline. Despite being a serious text, it is very readable and bursting with examples. A particular strength of this text is the author's aim to integrate examples from across the animal kingdom so, for example, it is possible to read about nematodes, moths, snakes and mice in the same paragraph. Advice on methodology is given along with suggestions for further reading, both likely to be useful to anyone starting out in this field. Sufficient chemistry is helpfully explained in the appendix, so that those with less grounding in chemistry can follow the ideas. Abbreviations are also thoughtfully listed at the start. All in all, an outstanding textbook and a worthy winner of this year's Society of Biology Book Prize (postgraduate category)."*

All judges for the 2014 Society of Biology Book Awards

[Best postgrad textbook award](#)

If you have enjoyed the previous edition, don't hesitate to get this one as well.

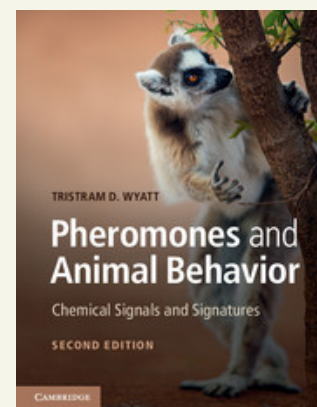
It is a new book under every aspect, well updated in a field moving very fast.

And don't wait to make up your mind. The discount of 20% has been postponed to the end of February.

Just visit the website:

[www.cambridge.org/WYATT14](http://www.cambridge.org/WYATT14)

to claim your 20% off the cover price of £ 45.



**Published: January 2014**  
**ISBN: 9780521130196**



# 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.

Please, go to the end of this section for some advices and suggestions on how to write your report ★★★



## ***Geraldine Coppin reports from the 2014 Clinical Chemosensation Meeting***

This meeting was composed of practical courses and demonstrations (November 20-21) as well as theoretical presentations about smell and taste (November 21-23) of the International Meeting of the Committee on Olfaction and Gustation of the German Society of Otorhinolaryngology, Head and Neck Surgery. It aimed at presenting an up-to-date behavioral and clinical knowledge about chemosensory processes, with a focus on interpersonal exchange between researchers. Both formal and informal discussions were welcomed. I am very thankful to the ECRO grant selection committee for supporting my travel expenses.

The meeting offered a current and complete overview of the chemosensory field. On November 20th and 21st, the hands-on courses and demonstrations took place. They covered various topics, such as olfactory and taste testing, anatomy, histology etc... All together, these courses and demonstrations brought a rich overview of the clinical knowledge and of experimental testing. In the afternoon of November 21st, the International Meeting of the Committee on Olfaction and Gustation of the German Society of Otorhinolaryngology, Head and Neck Surgery started.

The talks covered various and complementary topics of the chemosensory fields, such as olfaction training in Parkinson patients or the role of taste and odor in eating behavior in healthy individuals and in people with taste and/or smell disorders. I have learned a lot about chemosensory processes in clinical populations. My talk, entitled "*Flavor-nutrient conditioning is altered in overweight individuals*", was well-received. I have presented data collected during my post-doctoral stay at Yale University suggesting that overweight individuals are impaired in flavor nutrient conditioning. Many attendees have asked me more about it after the talk and were enthusiastic about the findings. As intended, I have networked with other researchers in chemosensory sciences. Several activities were organized to this purpose, such as a guided tour through the historic center, and a dinner with all the participants almost every night. I have notably met Kathrin Lübke a post-doctoral fellow in Professor Bettina Pause, that I am planning to meet again in few months. To sum up, this conference has been a wonderful experience, both professionally and personally.

*Geraldine Coppin*

*Liron Rozenkrantz from the ECRO Congress*

I would like to thank the European Chemoreception Research Organization (ECRO) for the generous support by the ECRO 2014 travel grant, which allowed me to attend the ECRO XXIV conference in Dijon, France.

This was my first ECRO meeting, and as a PhD student researching human olfaction in health and disease, this opportunity was important for several reasons; First, attending the relevant sessions and lectures, I became acquainted with the latest research in our field. While not many lectures dealt with human olfaction research, the few that did were very interesting, and among those who didn't, I found several inspiring topics. Second, the poster session enabled me to present my work to international audience, and discuss it with people who study similar subjects. I had several discussions that were highly relevant, and earned a few interesting comments. Finally, and perhaps most importantly, I got to meet in-person people whose work I know, leading experts in the field, and introduce my work and myself. I think this last point is the most valuable, since as a PhD student, creating contacts and networking can help me improve my current work, and might generate collaborations for future work.

Dijon was absolutely beautiful, and offered great food and wine, and of course superb mustard ☺. The conference was conveniently centrally located, and the opening ceremony took place in the city hall, once the palace of the dukes of Burgundy, which was a fine example of the rich historical nature of the city.

Once again, I thank the ECRO board for supporting my participation in the conference.

Sincerely,  
Liron Rozenkrantz, Weizmann Institute of Science.

*Iroki Saito from the ECRO Congress*

I appreciate the opportunity of having accepted GRANT ECRO. It was really helpful for me.

During my stay in Dijon, we traveled with 5 Japanese colleagues. We shared a house for a week, and lived together. At each meal, delicious foods and wines made our life happy.

In the ECRO congress, I could know the current issues and I got stimulated by symposiums of the famous researchers. Especially I had a personal interest in the taste receptor study.

Regarding my presentation, I haven't been used to speaking English, so I felt nervous before my poster session. However, during session, everyone tried to understand my bad English. By talking with experts of various study area, I could expand an understanding of my research.

Through the ECRO congress, I had a lot of valuable experience. Attending the ECRO congress made me develop confidence about my study. I want to draw on this experience for my research life in the future. I wish more young researchers will have a chance to attend a international meeting.

*Hiroki Saito*

*Jürgen Reingruber from the ECRO Congress*

I would like to thank ECRO for financial support to attend the 24th international ECRO meeting in Dijon, France from 10-14 September 2014. This was my first ECRO meeting and I admit that I was impressed. First, Dijon with its culinary and wine culture is a perfect choice for a meeting about taste and smell. Moreover, as we learned the first evening at the city hall reception, Dijon is the French city with the largest number of national monuments after Nantes. Second, the meeting had a manageable size which is very convenient to foster and establish personal contacts. Third, the organizers not only took care of the scientific quality of talks and posters, but also of the well-being of the attendees. One of the daily highlights was the delicious free lunch, where it became clear what happened with our registration fees. A further very important effect of the collective lunch was that it provided a perfect opportunity to connect and talk to each other. I attended the meeting as an invited speaker at the symposium organized by Anna Menini and Johannes Reisert. Since I am new in the field of olfaction, I took the opportunity to introduce myself to the community. I presented my work about modeling the electrical response of olfactory receptor neurons that I pursue in collaboration with Johannes Reisert. I think that my talk was well perceived, or as Michael Schmuker said afterwards: "One could notice that you are a physicist". I became acquainted with many researchers, and it was a pleasure to have detailed discussions with Anna Boccaccio, Tatjana Abaffy, Johannes Reisert, Michele Dibattista and Michael Schmuker.

The poster sessions and symposia provided an excellent overview about the scientific questions and methods in the field of olfaction and taste. I attended many very good talks, but I will surely never forget the presentation given by Giovanni Galizia. Giovanni not only gave a nice overview about his scientific work on olfactory coding in insects, but he also managed to include a short video from the Monty Python movie "The meaning of life", a picture of the previous pope Benedict, and a picture of the artwork "Artist's Shit" by the Italian artist Piero Manzoni. This was probably the most refreshing talk I have ever seen, thanks Giovanni. I would also like to mention the excellent closing lecture given by John Prescott about the human perception of taste and smell.

*Jürgen Reingruber*



*Sherlley Amsellem from the ECRO Congress*

I thank the ECRO selection committee for the financial support they granted me to attend this year's meeting.

The ECRO meeting in Dijon was for me the first opportunity to present the work that I have achieved so far as part of my PhD project. I study the psychological processes of odor-taste interactions in humans with a focus on the role of *congruence* (i.e., the perceptual correspondence between an odor and a taste) in subjective experiences such as intensity, familiarity and pleasantness.

The symposium organized by Noam Sobel was very inspiring to me; I found each of the presentations exciting, in particular that of Andreas Keller on the mapping of olfactory stimuli on a perceptual space as well as the talk given by Noam Sobel on the notion of olfactory space.

On the same day, I presented my poster to the fellow researchers and students, which resulted in lively discussions and constructive feedback. I am particularly grateful to Theresa White, John Prescott and Jordi Ballaguer for their time as well as their insightful and encouraging feedback.

I also very much enjoyed the talk and “nose-on” experiment offered by Christophe Laudamiel, for I learned the way an expert describes fragrances.

Finally, the closing keynote lecture given by John Prescott provided a very comprehensive overview of human chemosensory perception including odor-taste interaction and the questions that remain to be addressed. Through the various presentations, posters and discussions I benefited both professionally and personally from exchanges with peers as well as senior researchers which will support me during my future endeavors.

Thank you very much again for this enriching experience.

*Sherlley Amsellem,  
German Institute for Human Nutrition  
Potsdam-Rehbrücke, Germany*

*Aline Pichon from the ECRO Congress*

I would like to thank the European Chemoresearch Organization for generously supporting my travel expenses to attend both the Smell and Taste Course (20<sup>th</sup>-21<sup>st</sup> November) and Clinical Chemosensation meeting (21<sup>st</sup>-23<sup>rd</sup> November) that were jointly organized by Professor Hummel and the Committee on Olfaction and Gustation of the German Society of Otorhinolaryngology, Head and Neck Surgery at the Uniklinikum in Dresden, Germany. The Smell and Taste Course consisted in theoretical lectures on the anatomy, functioning and pathophysiology of the chemosensory modalities, covering behavioral, cognitive and genetic aspects. It also included practical demonstrations of the equipment and methodologies used in Prof. Hummel's lab, from the precise delivery of olfactory and gustatory stimuli with experimental equipment to diagnosis procedures, such as nasal endoscopy. The Clinical Chemosensation meeting followed the Smell and Taste course. Initially designed for German speakers, the meeting has recently been opened to international attendees by being held in English. The topics covered ranged from the role of smell and taste and the influence of sensory perception in behavior and cognitive performances, to olfactory disorders and clinical studies, presenting new and exciting data collected by leading experts in the field. Coming from fundamental research on healthy individuals, I was able to learn a lot on olfactory dysfunctions and disorders such as Alzheimer or Parkinson diseases, where olfactory symptoms are at stake and could be used as a tool for early diagnosis and prevention.

I have a deep interest in olfactory related clinical issues and this meeting, which encouraged networking by featuring several social events, was a wonderful opportunity to get in touch with researchers in the area and envision my professional future in the short and long terms. I also gave an oral presentation of my recent work on the effects of attention and emotion on olfactory perception in the brain. The results obtained suggest that attentional modulation of odor perception is different from the other sensory modalities, and depends on the emotional nature of the stimulus. This was the last fMRI study of my Doctorate, and I was very glad to receive feedback and discuss the data with the other attendees. The contributions will of high be value for the paper I am currently working on. In summary, I would like to stress that I particularly appreciated the multidisciplinary and the transversality of the approaches presented in both the course and the meeting as well as the accessibility of the clinicians and researchers involved, which enabled fruitful scientific and personal exchange.

Thanks again for your support.

*Aline Pichon*

### *Antonella di Pizio from the ECRO Congress*

Thanks to the generous support of an ECRO travel grant I had the opportunity to attend the XXIVth International Conference of European Chemoreception Research Organization in Dijon.

I am a postdoc fellow at The Hebrew University of Jerusalem, I work on molecular modeling of bitter taste receptors. Coming from the computational field, I was very pleased to meet colleagues from different research areas: to analyze the same topic from different point of views is certainly the most enriching and productive way to do research, and one of the achieved goal of this meeting. The breadth of topics covered in the ECRO meeting was impressive and provided me with a complete view of the state-of-the art in sensing perception, from olfaction to gustation, in both humans and other species from mice to insects. The scientific program offered plentiful interesting contributions that were followed by stimulating discussions. The conference was structured in different sessions: plenary lectures, plenary symposia, parallel symposia in two different locations of the venue, and poster sessions. I appreciated a lot the plenary lectures, it was a great honor to listen the talks of experts, such as Jane Hurst, Kazushige Touhara, Giovanni Galizia and John Prescott. I attended the parallel symposia "Modeling olfaction: from odorant receptors to the olfactory bulb", organized by Johannes Reisert and Anna Menini, "Taste receptors and diet in wild and domestic animals", by Eugeni Roura and Scott McGrane, and "Molecular recognition and signaling in food sensing GPCRs", by Masha Niv.

I felt particularly involved in the last one, since it was organized by my supervisor: this symposia provided an interesting ensemble of studies on molecular recognition and signaling of receptors involved in L-amino acid (Hans Bräuner), fatty acid (Graeme Milligan), and bitter (Masha Niv) sensing. All parallel symposia were well focused on their topic. According to my research interests I enjoyed especially talks of Tatjana Abaffy, John I. Glendinning, and Maik Behrens.

Poster sessions were planned on Thursday 11th and Friday 12th and were divided in two times: one hour after lunch, and one hour and a half in the afternoon at the end of the conference day. I enthusiastically realized that all participants actively interact with the poster's presenters. I presented my poster on Friday and I could not expect it would elicit so much interest to other researchers. I had really interesting discussions with many of them, and I hope this would be useful to increase my network with people working in chemoreception and to improve my research activity.

This conference was a rewarding experience both on the academic and on the social level. The local organizers did a wonderful work: the location was great and the food amazing! And Dijon is a fantastic city, I managed to enjoy many of its attractions during my stay.

I would like, once again, sincerely thank the ECRO board which encourages the younger members of the scientific community to attend and participate in international conferences and congratulate the ECRO board for organizing such a successful event.

*Antonella Di Pizio*  
*The Hebrew University of Jerusalem*  
*Israel*

## **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.

**Remember: The reports are NOT edited and get published as they are.**