



## DANA foundation-FENS funded European Brain Awareness Projects Final Report 2019

### 2017

Armenia/Yerevan  
Bosnia and Herzegovina/Tuzla  
Croatia/Osijek, Zadar  
Denmark/Aalborg Øst  
Finland/Helsinki  
France/Grenoble, Valbonne  
Germany/Berlin  
Greece/Athens, Ioannina  
Hungary/Szeged, Budapest  
Ireland/Galway  
Israel/Jerusalem  
Italy/Trieste, Verona, Reggio Emilia  
Netherlands/Amsterdam, Rotterdam  
Poland/Warsaw  
Portugal/Lisbon, Coimbra  
Romania/Bucharest  
Russia/Perm, St.-Petersburg  
Serbia/Belgrade  
Spain/Barcelona, Sant Joan d'Alacant, Madrid  
Switzerland/Vaumarcus  
Turkey/Gebze, Izmir  
Ukraine/Kyiv  
United Kingdom/Denmark Hill, Cambridge

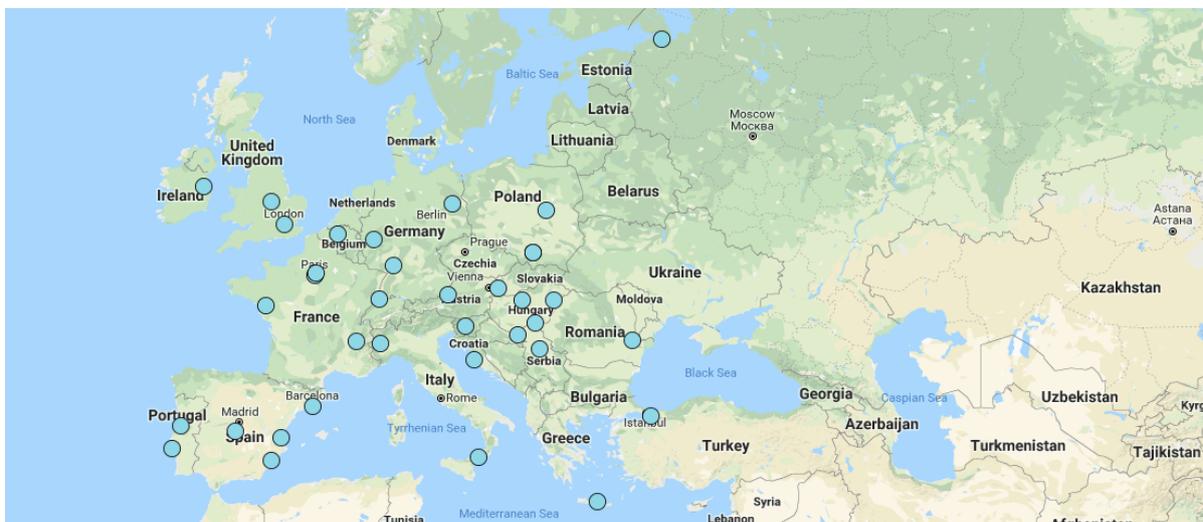
### 2018

Armenia/Yerevan  
Belgium/Leuven  
Croatia/Zadar  
Denmark/Aalborg Øst  
Estonia/Tallinn  
France/Bordeaux, Marseilles, Paris, Valbonne, Nouzilly  
Germany/Berlin  
Greece/Athens  
Hungary/Budapest, Pecs  
Ireland/Galway  
Italy/Torino  
Poland/Krakow  
Portugal/Coimbra  
Romania/Braila, 3 projects in Bucharest  
Russia/St.-Petersburg, Kazan  
Serbia/Belgrade  
Slovenia/Ljubljana  
Spain/Barcelona, Murcia, Burjassot  
Switzerland/Basel  
Turkey/Gebze  
Ukraine/Kyiv  
United Kingdom/Edinburgh, Cambridge

### 2019

Austria/Salzburg  
Belgium/Buggenhout  
Croatia/Osijek, Zadar  
France/Paris, Grenoble, Gonesse, Nantes  
Germany/Berlin, Bonn, Heidelberg  
Greece/Two events in Heraklion  
Hungary/Budapest, Szeged, Debrecen  
Ireland/Maynooth  
Italy/Messina, Torino  
Poland/Warsaw, Stare Miasto, Krakow  
Portugal/Coimbra, Lisbon  
Romania/Braila  
Russia/St.-Petersburg  
Serbia/Belgrade  
Slovakia/Bratislava  
Slovenia/Ljubljana  
Spain/Murcia, Valencia, Barcelona, Toledo  
Switzerland/Basel  
Turkey/Gebze  
United Kingdom/Leicester, London

### 2019 Awarded Projects – Geographical Distribution



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## 1. Introduction

The Dana Foundation is offering financial support of up to 1,000 EUR to those who organise a brain awareness event during the Brain Awareness Week period in March. The Dana Foundation has asked FENS to administer this support reserved for European organisations contributing to the Brain Awareness Week (BAW).

In 2019, the directors of The Dana Foundation once more approved a grant to FENS.

## 2. Selection procedure

FENS distributed the Dana grants in a competitive procedure. A call for applications was launched and the best projects were selected by a committee composed of:

- Malgosia Kossut (EDAB Executive Committee Member)
- Roland Pochet (Belgian Brain Council Secretary General)
- Eva Sykova (DABI and EDAB Executive Committees member)
- Dora Reglodi (FENS Secretary General-elect)
- Harm Krugers (FENS Treasurer-elect)
- Dervila Glynn (Chair of the FENS Communications Committee)

## 3. Selected projects

75 applications from 28 different European countries were submitted, of which 36 projects in 20 different European countries were selected for support by the Dana–FENS grants.

The following BAW projects (listed by country) were selected for funding:

1. How fast is our Brain? - Lara Bieler (Paracelsus Medical University Salzburg, **Austria**)
2. The Smell Challenge - Ann Van der Jeugd (KU Leuven, **Belgium**)
3. Mighty animal brains - Vedrana Ivic (Faculty of Medicine Osijek, **Croatia**)
4. The Moral Brain - Nataša Šimić (University of Zadar, **Croatia**)
5. BAW in Paris, France - Laurence Lanfumey (IPNP, **France**)
6. Everyday errors as a window into brain functioning - Marcela Perrone-Bertolotti (Univ. Grenoble Alpes, **France**)
7. Discover your brain - Evinaa Sellaiah (Sanofi Chilly Mazarin, **France**)
8. Series of Neuroscience events: from brain development to pathologies - Arnaud Nicot (INSERM, **France**)
9. Brain Awareness Week Berlin 2019 - Linda Tidwell (Einstein Center for Neurosciences, **Germany**)
10. 2019 Regionals Deutsche Neurowissenschaften Olympiade - LaShae Nicholson (Deutsche Neurowissenschaften Olympiade e.V., **Germany**)

11. Hellenic Society for Neuroscience activities during BAW2019: Educating students and the public about the brain - Kyriaki Sidiropoulou (University of Crete, **Greece**)
12. DendrITEs Workshop: Learn and remember the path! Forest of dendritic trees in brain! - Georgia Soursoy (Institute of Molecular Biology and Biotechnology (IMBB-FORTH), **Greece**)
13. The brain and the digital world - Emilia Madarász (Institute of Experimental Medicine of Hungarian Academy of Sciences, **Hungary**)
14. Alzheimer's disease, when your brain lets you down - Maria Deli (Biological Research Centre, Hungarian Academy of Sciences, **Hungary**)
15. Neuroscience for Teens: Know Your Brain - Szintia Szert (University of Debrecen, **Hungary**)
16. Painting Music: sound as vision via synaesthesia - Richard Roche (Maynooth University, **Ireland**)
17. What happened to Mr. Brain? - Donatella Ruggeri (Hafricah.NET, **Italy**)
18. The New Revolution: The Digital Mind - Artificial intelligence, big data and precision medicine in neuroscience - Giuseppe Zappala (CentroScienza Onlus, **Italy**)
19. Great discoveries in neuroscience and neuromedicine - Dorota Nowicka (Nencki Institute of Experimental Biology, **Poland**)
20. Stress in our brain and its meaning in our life - Joanna Gadomska (Economical and Service High School F. Chopin in Żychlin, **Poland**)
21. Neuroscience boat: Brain awareness on the river - Rafal Rygula (Institute of Pharmacology Polish Academy of Sciences, **Poland**)
22. Brain O'Clock – time to make it right! - Ana Viegas (CNC – Center for Neuroscience and Cell Biology and iCBR – Coimbra Institute for Clinical Biomedical Research, **Portugal**)
23. Brain Fair: Scientists and Community - Margarida Castro-Caldas (iMed.Ulisboa, Faculty of Pharmacy, University of Lisbon, **Portugal**)
24. Train Your Brain - Cristian Gurzu (National College Nicolae Balcescu, **Romania**)
25. 6th St.-Petersburg Brain Awareness Week "Brain in Motion" - Irina Sukhotina (Pavlov First St.-Petersburg State Medical University, **Russia**)
26. The life of brain - Marija Petronijevic (Student section of Serbian neuroscience society, **Serbia**)
27. Together against dementia - Dasa Cizkova (Institute of Neuroimmunology, Slovak Academy of Sciences, **Slovakia**)
28. Brain Awareness Week 2019: At the threshold of pain - Vesna Marija van Midden (SiNAPSA - Slovenian neuroscience association, **Slovenia**)
29. XVI BAW in Murcia. The musical brain: senses, emotion, memories & rhythm - Maria-Trinidad Herrero (University of Murcia, **Spain**)
30. Neuomascletà 2019: Meeting Neuroscientists In The Street During Fallas - Lucia Hipolito (University of Valencia, **Spain**)

31. BAW 2019 at the Department of Experimental and Health Sciences of Pompeu Fabra University - Mari Carmen Cebrián (Pompeu Fabra University, **Spain**)

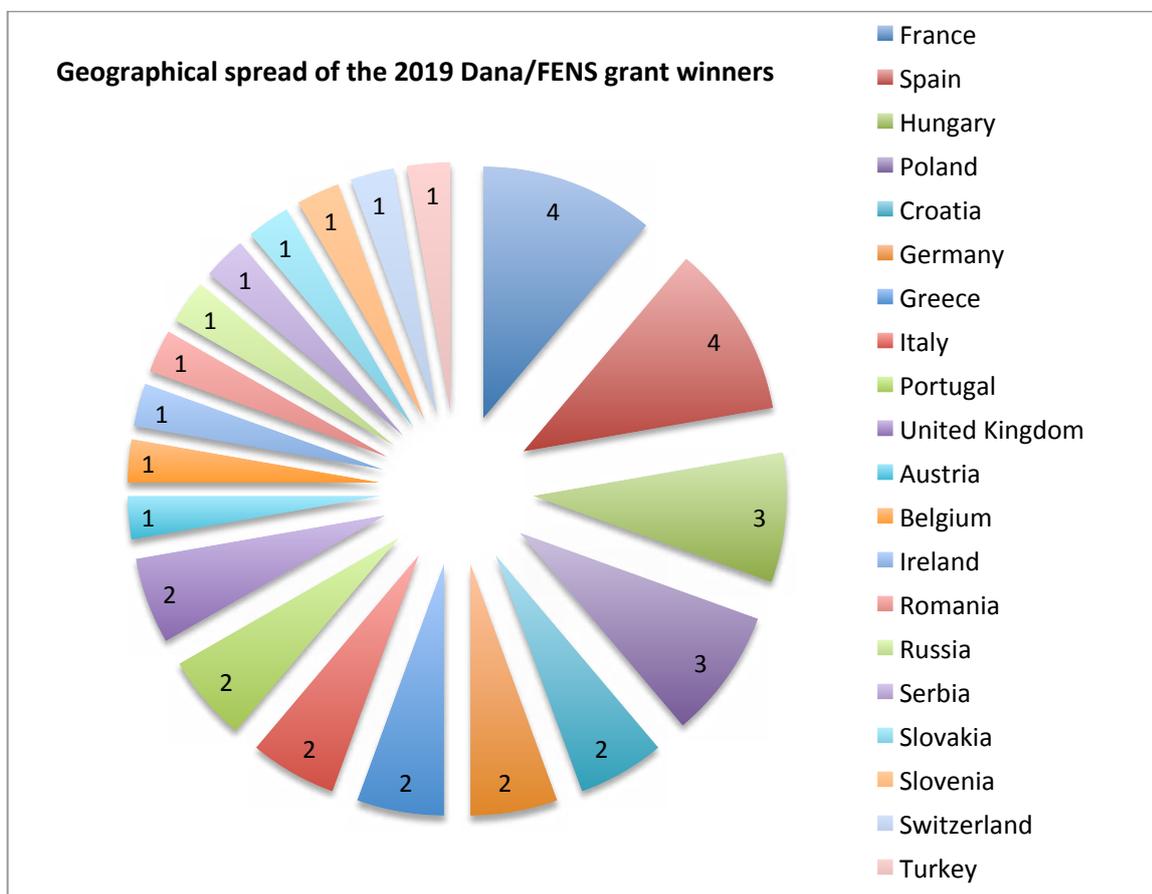
32. Brain Awareness Week 2019 at the Hospital Nacional de Paraplégicos: explorers of the damaged and healthy nervous system - Hugo Vara Rivera (Hospital Nacional de Paraplégicos, **Spain**)

33. From neuronal circuits to mental concepts, decisions and movement: Free public lectures and discussion platforms on current neuroscience research topics - Nicole Schaeren-Wiemers (University of Basel, **Switzerland**)

34. Our Brain Events in Greater Istanbul Kocaeli Region - Isil Kurnaz (Gebze Technical University, **Turkey**)

35. Brain, Behaviour and Beyond - Andrew Young (University of Leicester, **United Kingdom**)

36. Speak Red: workshops and a performance of work in progress - Finn Beames (Oedipa, **United Kingdom**)



**FENS warmly congratulates the grant winners!**

## 4. Reports of the selected projects

### 1. Neues Sehen - neu bewegen!

**Dates and Duration:** 14/03/2019

**Contact:**

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*Co-organiser*

Dr. Bruno Benedetti  
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Paracelsus Medical University Salzburg  
Institute of experimental Neuroregeneration

This year, your generous support allowed to organize an excellent workshop, where a team of five young scientists entertained and informed c.a. 100 high school students, during the Brain Awareness Week 2019. Our workshop (theoretical lecture and hands-on interactive demonstrations) took place at the museum „Haus der Natur“ in Salzburg, on 14th of March 2019.

During each session, highly interested pupils and their teacher listened to a short introductory lecture about how the brain is processing and filtering sensory input/feedback to accurately perform a guided movement. Afterwards the pupils were divided in four groups to perform hands-on experiments in smaller teams on rotation, so that everyone had the chance to see every station and be actively involved.

Most stations demonstrated how important our sensory feedback is even to perform well-known tasks. However, after interfering with the sensory input well-known tasks became rather difficult due to mismatching sensory feedback. E.g. the pupils had to trace a star following a guiding outline on paper. When they could watch their hand directly the task was easy and quick (c.a. 5 s), but it became much longer (c.a. 30 s) and harder when they could only see their hand at the mirror: Same motor task, but different sensory feedback. Adjusting to the new type of feedback could be trained and the best motor performance was eventually rewarded (with chocolate!).

In our newest station, made possible by your generous funding, we demonstrated how long our brain needs to react to an auditory or visual input. To do so, we used the „BackyardsBrain“ muscle spiker box pro (later referred to as EMG-Box) in combination with a reaction timer. The pupils placed electrodes on their flexor muscles on their lower arm and could observe EMG signals upon flexion of their own muscles, at a computer monitor. In a first experiment they had to flex the wrist as quickly as possible in reaction to an auditory trigger-signal. Everyone tried very hard to be the fastest of the

class, comparing reaction times amongst “competitors” with millisecond precision. In a second hands-on demonstration, additional electrodes were also placed on the other lower arm and connected to the EMG-Box. So, it was contemporaneously possible to measure EMG signals from the left and from the right arm. In this demonstration, our young guests had to react to a high tone by flexing their left wrist and to a low tone by flexing their right wrist. The alternative options required choosing between sensory signals to perform the appropriate motion. This significantly increased the reaction time due to the need to think about which wrist to flex. Reaction times were at least doubled by the need of increased mental processing.

The same experiments were done for visual inputs, showing that visual input processing is generally slower than auditory input processing. Furthermore, we demonstrated the differences between reaction time and reflexes, explaining why a reflex can be faster than any reaction, based on their previous experience. We had nice discussions with the pupils and they were very motivated to see more about what can be done with the EMG-box beside the actual experiments, questioning where/how they could buy/build one of those boxes. In conclusion, further than explaining to students about connections between motor coordination and sensory feedback, we could quantitatively show the different time and effort that are necessary to process various types of sensory information to control similar motor tasks.

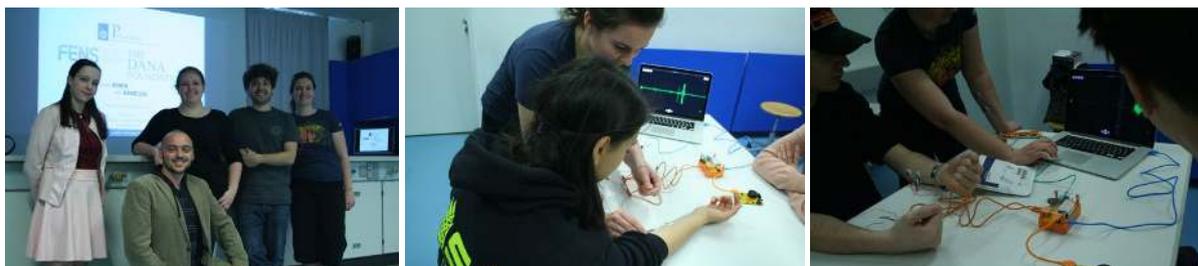
We repeated this workshop three times with different schools and we consistently received a very positive feedback by students and teachers.

Adding to the hands-on experiences here described, other small stations and “games” were organized (self-funded) and run in parallel, during each workshop session. In this regard, your support was not only crucial for increasing the excellence of our presentation, but it also allowed to act as catalyst, attracting more volunteers that participated to the workshop and presented their hands-on complementary demonstrations. Involving more young scientists to present at the Brain Awareness Week of Salzburg is one of our main long-term goals.

By purchasing new material with your support, we really could deliver a fascinating and expanded workshop. Stimulated by the success and by the rewarding feedback we already planned to create additional workshops, in the upcoming years, and further exciting outreach activities in Austria.

#### *Related Links*

- <https://www.hausdernatur.at/de/projektstage.html>
- [https://www.hausdernatur.at/files/media\\_hdn/downloads/vermittlung/Brain-Week-2019-final-screen.pdf](https://www.hausdernatur.at/files/media_hdn/downloads/vermittlung/Brain-Week-2019-final-screen.pdf)



## 2. #TheSmellChallenge

**Dates and Duration:** Wednesday 13 March and Friday 22nd of March, lecture + workshop

**Contact:**

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I hosted a workshop for Brain Awareness Week 2019. Over 250 kids participated in our event. I first gave a short lecture about the brain, rodent research, and how olfaction can help us in unravelling neurodegenerative disorders, such as Alzheimer's disease and other dementias.

Next, kids were invited on stage to take part in the Smell Challenge where they were blindfolded and had to recognize several smells, and tell them what they reminded them of.

Finally, kids could ask questions about my research. Some questions were: "How can mice and animal testing help us find a solution for Alzheimer's? How do you catch Alzheimer's mice? Do mice really like cheese?"

We've got a lot of positive feedback from the kids about the activity. They've indicated that they've learned a lot about the brain, neuroscience and Alzheimer's research in general.

I was featured in the national newspaper too and on several blog posts/twitters. This led to two new collaborations: one within the University of Leuven and one with a research institute in Belgium to make a citizen project of my workshop.

*Related Links*

- <https://annekevdj123.wixsite.com/intro/education-scicomm/battle-of-the-scientists-wetenschapsbattle>
- <https://www.facebook.com/anneke.vdj/posts/10218292264998614>
- <https://twitter.com/avdjeugd/status/1109057441126383617>



### 3. Mighty animal brains

**Dates and Duration:** The whole BAW Week (7 Days)

**Contact:**

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The main organizer of BAW in Osijek was Faculty of Medicine Osijek with its Student section for Neuroscience (SENZOS). Other participating organizers were University Department for Biology and Education Agency. Besides our main topic 'Mighty Animal Brains' additional topics 'Learning and Memory' and 'Brain and Ethics' were discussed during BAW in Osijek with general public, teachers and university, pre-, elementary and high school students.

BAW was announced on the national and local TV and radio stations (we were interviewed by HRT – TV and Radio, STV, Vinkovačka TV), via interesting countdown till the start of the BAW on Facebook page of SENZOS (<https://www.facebook.com/senzos.ideje/>), on the web-pages of Faculty of Medicine, University Department for Biology, Education Agency, City ZOO, popular news portal for Osijek and region [www.osijek031.com](http://www.osijek031.com), and in the elementary and high schools from Osijek and region. Also, our brain mascot was walking around the city to announce the event.

In Osijek we held 38 lectures, 34 workshops, 1 Pub quiz "Those wonderful creatures", 1 debate "Test – checking memory or knowledge?", 1 Science Café "Homo sapiens paradox – is nature protection meaningful", 1 art exhibition "Animals like us" by the students of School for Applied Art and Design, 1 workshop in the City ZOO, and there was organized walk of the dogs from City asylum. BAW was also organized in the two cities in the region – Vukovar and Slavonski Brod (7 lectures and 5 workshops).

There were 90 different events in total which showed to the wide public that humans and animals live together - we are the part of the same ecosystem and have similar brain structures which make us all capable for creative getting our way around the world. During BAW everyone was invited to learn about animal cognitive capabilities, decide whether man is really smarter than animals or not, does brain size matters, what are the threats to animal survival, which animals can sense our emotions, how can animals help us in treating brain diseases and how can we preserve brain health. In short, we have fulfilled our goal to present to the public that understanding of animals, their behavior, and social structure brings us closer to understanding threats to their survivor, but also closer to understanding development and function of human brain. Faculty of Medicine Osijek traditionally organize BAW in Osijek and region and plan to continue the same in the future because the public's interest in Neuroscience does not decrease here in the Slavonian region of Croatia. On the contrary it grows year-by-year.

*Related Links*

- <https://www.mefos.hr/index.php/hr/home/novosti/1805-tjedan-mozga-1>
- [http://www.osijek031.com/osijek.php?najava\\_id=76682](http://www.osijek031.com/osijek.php?najava_id=76682)
- [Video](#)



#### 4. The Moral Brain

**Dates and Duration:** 11-15/03/2019

**Contact:**

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This year's BAW in Zadar was consisted of seventeen activities that included public debates, lectures, workshops, demonstrations and experiments for different age groups with a special emphasis on the Moral Brain. Different age groups were also learnt about neuroscience, brain functions and producing different forms of behavior. These events were realized under the umbrella topic Neuroscience Factory.

On first day of BAW, professors and students of psychology visited two kindergartens and one primary school.

About 70 preschool children and 25 school children participated in our activities. The titles of the topics were: Mr/Mrs Good and /Mr/Mrs Bad and Brain House. Brain model, video and power points presentations, as neuroscience coloring books were used. For learning cortical and subcortical areas, didactic house was also used. The brain and its functions was presented to children as family members who lives in house with rooms upstairs (cortical areas) and downstairs (subcortical areas).

On second day of BAW, our activities were realized in three primary schools, the nursing home and public library.

About 90 school children learnt about brain, its parts and how it makes decisions and produces different forms good and bad behaviors. Different activities including discussions and solving moral dilemmas, matching of puzzles, neuro-quizzes were used. Several different topics were covered as: Journey through the Nervous System, Moral dilemma: am I ecologically aware?, Ecological Brain.

For elderly people (about 80) who live in nursing home, two main topics were prepared in the forms of lectures and workshops. One of them was Active Brain-Healthy Brain and the other one was related to Moral Dilemmas in Everyday Life- What's the Right Choice? With the aim of improvement brain functions, numerous suggestions and recommendations were given to older people.

The lecture The challenges of autism in the modern world-from stigma to modern technology was held in the public library, where about 60 audience members have been attended.

On third day of BAW, three secondary schools were visited. About 90 pupils participated in next workshops, lectures and debates: Morals and I, Teenage Moral Brain, Brain and Digital Technology.

On fourth day of BAW, activities were directed towards general public and university students.

In the public debate named (No)Moral Brain in (No)Moral Society, four professors from University of Zadar talked about morality with aspects of philosophy, psychology and neuroscience. This event in public library was well visited (about 80-90 audience members) and covered by local media. The audience showed great interest for similar activities in the future.

Students different university groups (about 60) participated in online experiment Moral Mashine at the Department of Psychology.

The workshop I choose a clean environment were realized in kindergarten (about 50 children).

On fifth day of BAW, invited speakers from Psychiatric hospital Rab visited Department of Psychology and then held lectures and workshops concerning biofeedback and neurofeedback with emphasis on clinical applications to therapeutic purposes in general and the treatment of mental disorders. These events were also well attended with more than 80 audience members.

During BAW, all our professors and students of psychology wore BAW t-shirts. As usual, all our activities were covered by local media (newspapers, radio stations, internet portals). Two our professors, including the main organiser Nataša Šimić, were invited in local radio show to present BAW and give answers on questions about morality, Moral Brain and brain functioning in general.

We thank FENS for supporting our activities.

#### *Related Links*

- [www.facebook.com/tjedanmozgaZD/](http://www.facebook.com/tjedanmozgaZD/)
- [www.unizd.hr/psihologija/tjedan-mozga](http://www.unizd.hr/psihologija/tjedan-mozga)
- <http://www.unizd.hr/psihologija/novosti/view/artmid/18395/articleid/37844>
- <https://radio.hrt.hr/radio-zadar/clanak/moralni-mozak-naslov-ovogodisnjeg-tjedna-mozga/192880/>



## 5. Brain Awareness Week in Paris

**Dates and Duration:** The whole BAW Week (7 Days)

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*Co-organiser*

Dr. Isabelle Dusart  
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For this Parisian edition of the Brain Awareness week, the largest French neuroscientific community proposed a vibrant, diverse and passionate program of events, which touched more than 15,000 people. This year, the project presented activities related to lab work ("Live from the lab") and the society ("Brain and Society").

Events took place every day in prestigious research centers, schools, science museums, bars, cafés, bookstores... Also this year, we met a larger public in the Parisian working class suburbs, in libraries, media libraries, where families come together, to screen films and propose debates to parents while children were welcomed by young scientists around fun and creative workshops. This allowed neuroscientists to meet people where they live and to present their work "at home". Around 125 experts, from young doctorates to retired neuroscientists, shared their passion and explained their research to a sizeable Parisian population.

*Related Links*

- <https://www.facebook.com/Semaine-du-Cerveau-%C3%A0-Paris-309797552411169/>
- <https://twitter.com/semainecerveau>



## 6. Everyday errors as a window into brain functioning

**Dates and Duration:** 5 days (11-15 March)

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38058 Grenoble Cedex 9, France

Tel: (4) 76825860

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Different events were organized all the week. Each event addressed the issues of “Everyday errors as a window into brain functioning”. These everyday errors were analysed at different levels, such as bodily phenomena a (e.g. tickling, hiccups, etc...), cognitive glitches (e.g. the tip of the tongue state, cognitive bias) and cellular troubles (e.g. intracellular trafficking, ageing, axonal regrowth). All events bring some information about this phenomenon in relation with artistic events and presentations (including cinema, theatre and illusionism). The events took place in a diversity of places (Grenoble and its suburbs) and contexts (academic, non-profit organisations, charities, private...) in order to meet with different audiences (from children to adults).

*Related Links*

- <https://neurocog.univ-grenoble-alpes.fr/retour-sur-la-semaine-du-cerveau-794911.htm?RH=62277192867226>
- <https://www.univ-grenoble-alpes.fr/fr/acces-direct/actualites/agenda/agenda-culture-cst/semaine-du-cerveau-2019-quand-les-molecules-derailent-le-cerveau-se-trompe-ou-est-malade--448976.kjsp>
- <https://france3-regions.francetvinfo.fr/auvergne-rhone-alpes/isere/grenoble/semaine-du-cerveau-grenoble-plonger-mysteres-sortileges-cette-machine-imparfaite-1636490.html>
- <https://fondation.univ-grenoble-alpes.fr/menu-principal/actualites/a-la-une/un-atelier-de-la-maison-pour-la-science-en-alpes-dauphine-lors-de-la-semaine-du-cerveau-476951.kjsp?RH=8614751154778185>
- <https://www.facebook.com/Lasemaineducerveau/>
- [Video](#)



## 7. Discover your brain

**Dates and Duration:** The whole BAW Week (7 Days)

**Contact:**

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*Co-organiser*

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The main objective of this project was to increase awareness regarding brain. In this sense, from the 11th to the 17th of March we are going to organize a series of talks, lectures, movie projections, and workshops for students, patients and families regarding the brain. Each day was around a different theme : nutrition, sleep, memory, emotions. This will be the first event during the brain awareness week in this city of more than 22 thousands of habitants. It was the first brain's week in this city.

On Monday afternoon, the inaugural lecture was in the auditorium at the hospital of Gonesse. The theme of the lectures will be on the relationship between alimentation and the brain. We had a lot of participants : between 40 and 60 participants during all the afternoon.

On Wednesday evening, Dr Chandrou Kumar did a talk in a coffee on the theme : “electronic device in your brain ”, and Dr Marie Lacroix, did a talk about memory process, and how to improve memory in our daily life. These two talks brought 40 participants, in a coffee shop, who was freely provided by the owners. The participants were curious, and asked a lot of questions during both interventions. The coffee place was a different way to interest locals without any or few background in science.

On Friday evening, a film projection took place at the city cinema about nutrition. There were 30 participants. All the participants stayed after the movie to talk with Dr Liana Kobylinska about the impact of fast food in our daily life, and how we can better eat in our life.

On Saturday afternoon, a cartoon projection took place at the city cinema on how emotions are processed in the brain. There were 80 participants, mostly kids. Dr Laurent Goetz did a question/answer session after the movie with the children. All of them asked both pertinent and interesting questions after the movie. Children were curious on how emotions were processed in the brain.

On Sunday afternoon, the closing event, entitled « Discover your brain » took place at the city event center. It regrouped all the intervenants of the week. Workshops around different themes was organized, together with stands for each of the following : optical illusions, the mechanism of

addictions, memory testing, emotional processing and the most common myths regarding the brain. They were also two talks : one on the myths, and one on hypnosis. A big brain was placed in the center of the event, where participants could explore the different regions of the brain. About 300 participants were present during this day.

During the event, different surveys were performed. In order to evaluate the efficacy of the information delivered throughout the week, a brief test was distributed on Sunday to each participant, and a draw will be organized for the chance to win a prize. Events-bags containing the main program of the event, the main information to retain about the brain, a list of movies and books about the brain and BAW materials were distributed to each participant.

Thanks to the grant, we had provided a coffee break with sweets and cookies and one of the intervenants came from Romania to do one of the talks. Sweets and cookies were offered to the participants for all the event. We could offer also four gift bags (with mug (thanks to the grant), chocolate (thanks to the grant), and information on the brain) for 4 participants, and for all the voluntary intervenants. We could also pay for the travel for 6 of the intervenants thanks to the grant, intervenants came from Marseille, Montpellier and Romania.

*Related links*

- <https://www.facebook.com/semaineducerveauGonesse>



**8. Series of neuroscience events in Nantes**

**Dates and Duration:** The whole BAW Week (7 Days)

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*Co-organisers*

Laureline Berthelot, Hélène Boudin, Sophie Talon from Inserm/Université de Nantes (UMR 1064, UMR 1235) and Pierre Da Silva with Camille Sicot from ADR Inserm Grand-Ouest

For this BAW 2019 (and future years), in addition to the french official national web site [www.semaineducerveau.fr](http://www.semaineducerveau.fr), we created “Semaine du Cerveau Nantes” ‘s facebook and “SDCNantes” ‘s twitter accounts to relay our special events and pictures. We had several events covering the whole week till the next Tuesday. The events were additionally advertised by posters and flyers distributed in the city- thanks to students- to attract a varied public.

1- Exposition "CEREBRAL": For the BAW 2019, we created a tablet app dealing with central and gut neuronal systems and related brain dysfunctions. Ten tablets were made available all week for the public and exposed on a specially designed cardboard brain model at the Museum in Nantes with special logo design and poster. Other animations were performed on Wednesday to attract children with neuroscience games and 3D video. The additional presence of neuroscientists from Nantes was held on certain hours during Wednesday, Thursday and Sunday to discuss freely with the public (generally 30- 70 years old). This event was organized by INSERM Grand Ouest, with the students from LISAA (L'Institut des Arts Appliqués) for the graphical and computer-based arts, and researchers from INSERM or INRA for the scientific part.

Public (scholars & adults): about 2000 the whole week.

2- Afternoon conference on different types of memory, neural substrates and Alzheimer disease at the Museum with 2 neurologists from the CHU Nantes Hospital followed by questions from the public. Public attendance: 60-70, students and retired people.

3- Evening event with theater on "Alzheimer" (great master piece from Avignon's festival) followed by one hour-debate/discussion with three Alzheimer specialists/researchers covering medicine and Alzheimer detection. Public attendance: 100.

4- As every year, we had an evening Science Café with informal discussions for students and adults. This year was devoted to "Microbiota influence on brain diseases" with three Nantes neuroscientists from INSERM or INRA Public attendance 60.

5- As every year, we had an afternoon at the Lecture Hall in University of Nantes for high school and undergraduate students. Various aspects are covered from classes and new technological approaches leading to study in neurosciences at the University, a neuroscience quiz prepared by the organizer, and examples of neuroscience research in Nantes research institutes by two PhD students. This is followed by 2 short conferences by MDs on sleep, circadian rhythm and effects of sleep deprivation. Public attendance: 160.

6- Another conference-interview on addiction with the local radio “ Prun’ ” and “Le labo des savoirs” was held on Tuesday evening with 2 researchers from Nantes-Angers University and INSERM. The event was recorded and is available on line as a podcast on the radio website. This was followed by off-line questions from the public. Public attendance: 150 at a famous cultural location in Nantes

7- We established a new collaboration with Mediatheque de Saint-Nazaire (60 km from Nantes) on Saturday morning with a neuroconference on “DYS” symptoms (dyslexia, dyspraxia,...) and cognition followed by several questions from the public related to advances in biological research in the field. Public attendance: about 80.

*Related Links*

- <http://semaineducerveau.fr/>
- <https://www.facebook.com/pg/SemaineduCerveauNantes2019/events>
- <https://twitter.com/SDCNantes>
- <https://www.facebook.com/InsermGrdOuest/videos/351492828793439/>



**9. Brain Awareness Week Berlin**

**Dates and Duration:** The whole BAW Week (7 Days)

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*Co-organiser*

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Our program of the Brain Awareness Week (BAW) 2019 was designed to address various target groups from pupils grade 10 to academia. With an introductory lecture on perceptual illusions that was held for high school students, Prof. Dr. Gabriel Curio started the BAW at the Humboldt-Universität zu Berlin. Afterwards, students were able to choose between seven different workshops on topics ranging from “Introduction into synapses with lab visit” to “fMRI – how does it work, what

can we do with it”, “New methods of multiple sclerosis diagnoses”. Some teachers come every year with their pupils to our pupil’s day (77 participants).

During the whole week, we showed the exhibition: “The Beautiful Mind”. It was displayed at the Einstein Center for Digital Future. This international photo exhibition shows photographs taken in international labs with nerve cells of different brain areas that have been especially stained in order to make structures visible. The large-sized photographs are illuminated from the backside, which gives them a special appearance (100 visitors).

During the whole week, we showed Manic VR: Accompanied by the voices of Felicia and François, the visitor embarks on a journey through the phases of a bipolar disorder: he gains an intimate insight into the constantly changing realities and states that are part of the typical clinical picture of a manic depression (100 visitors).

On Monday a talk was given at the St. Hedwig-Krankenhaus about the topic: „bipolar“ von Prof. Dr. Dorothea von Haebler (Psychiaterin, Neurologin) und Kalina Bertin (150participants)

On Tuesday, we offered a Workshop to schoolchildren (20 participants)

On Wednesday we organized a Talk/Discussion: (Un)visible worlds: Do our eyes communicate? A transdisciplinary discussion evening with Prof. Dr. Michael Bach, Prof. Dr. Brigitte Falkenburg and Ruben van de Ven (100 participants). Another Talk on Wednesday was at the Urania: “How does our diet affect the brain?” (100 participants)

On Friday, we organized a workshop called: The Shitshow – a workshop about shitty feelings. How can the reality of depression and anxiety be communicated to those who are not directly affected?

Our program was announced on TV screens at all the Berlin university cafeterias and in the underground TV system with more than 30 spots/day. We have a special website for the BAW events in Berlin ([www.baw-berlin.de](http://www.baw-berlin.de)). All our partner organizations promoted the BAW events on their own websites, on Facebook and on Twitter. Mathematics and biology teachers were contacted directly to inform about the special events for pupils.

We are very grateful to our master and doctoral students as well as our technical staff, and our faculty members, who made this program possible.

We would like to thank FENS for their generous support. The grant made it possible to organize a very diverse program and advertise it broadly with spots and flyers.

#### *Related Links*

- <http://www.baw-berlin.de/programm.html>
- <https://www.facebook.com/ECN.Berlin/>



## 10. 9th Annual Deutsche Neurowissenschaften Olympiade

**Dates and Duration:** 02.03.2019

**Contact:**

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*Co-organiser*

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On Saturday, March 2, 2019, over 100 talented high school students from all over Germany gathered in Berlin, Bonn, and Heidelberg to demonstrate their knowledge of the human brain in the 9th Annual Neuroscience Olympiad Regionals, hosted by the Deutsche Neurowissenschaften Olympiade e.V. (DNO e.V.). At each Regionals event, students participants engaged in a 5-stage neuroscience competition consisting of a written exam, patient diagnosis exam, neuroanatomy and histology exam, and 2-podium rounds led by a panel of local neuroscientists. Student participants were supported throughout the process by their family, friends, and teachers. The top 15 participants of each Regionals events earned the opportunity to enter into the Nationals Olympiad, taking place in Frankfurt, Germany on May 11, 2019. The 1st place Nationals winner will go on to represent Germany at the 2019 International Brain Bee Championships, taking place in South Korea. DNO e.V. is supported by the German Neuroscience Society as well as by the Hertie Foundation.

Parallel to our neuroscience competition, each Regionals event had a Neuroscience Expo with hands-on neuroscience activity booths and poster session, ran by PhDs students. Posters' offered interesting takes on neuroscience, covering topics such as "Our brain IS plastic but, of course, they are not MADE of plastic" and "how to boost your brain with aerobic exercise."

Activities were designed to teach event guests about various neuroscience concepts in fun interactive ways. Activities included motor learning tasks (Dart throwing Game with phase shift goggles), visual and language processing tasks (Stroop Test), and many others.

At the Regionals event in Berlin, students took a break from the competition and had an intimate discussion with the competition Judges and organizers about life as scientist. Students asked their career paths, fields of study, and how to balance life as a scientist and more. For example, Arabela Youlten from Berlin Brandenburg International School asked “What do you think is the biggest misconception about the field of Neuroscience”. Mandy Watson from DNO Berlin e.V. said: “It is now science is communicated to the general public. A lot of scientific information is communicated via a story or catchy headline, but the real underlying scientific information can sometimes not be clearly explained. I think, the scientific community in general has to improve how scientific information is present to non-scientific audiences.” Students also expressed high interest in the challenges faced by female scientists.

DNO e.V. aim is to reach and teach young students about neuroscience in fun yet challenges ways, giving them a foundation of scientific inquiry at the beginning of their careers. It is our goal to inspire young students to become creative scientists, motivated to push the boundaries of scientific knowledge and research to discover, treat, cure, and prevent neurological diseases.

At our 2019 Regionals event, this goal continued to be realized. Our participants expressed deep appreciation for this valuable opportunity to expand their horizons on neuroscience through the competition. Rachel Kiss (17 years old) said “...Being a part of the competition was really amazing because we got to see real examples of the brain.” Sanne van de Hoef (16 years old)— “...I really like the Patient Diagnosis section of the competition. It’s a great opportunity to go through the process of looking at a patient’s behavior, their history, and lab results to determine what neurological disorder they might have. It is a real take home message that many different factors contribute to a given person's disease and you have to look at and understand different pieces of information in order to treat a patient properly.”

#### *Related Links*

- <http://www.neurowissenschaften-olympiade.de/>
- <https://www.facebook.com/deutscheneurowissenschaftenolympiade/>
- <https://neurowissenschaften-olympiade.de/dno-blogs/>
- <https://www.facebook.com/deutscheneurowissenschaftenolympiade/videos/1209043972561650/>



## 11. Hellenic Society for Neuroscience activities during BAW2019: Educating students and the public about the brain

**Dates and Duration:** The whole BAW Week (7 Days)

**Contact:**

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*Co-organiser*

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*Other co-organisers*

Prof. Marigoula Margarity, Prof. Spyros Efthimiopoulos, Prof. Anastasia Tsingotzidou, Prof. Stella Giakoumaki, Dr. Foteini Delis

The members of the Hellenic Society for Neuroscience (HSfN) organized the following events for Brain Awareness Week 2019. In Athens, Members of the Hellenic Society for Neurosciences participated in two events at the Athens Science Festival that took place at Technopolis in Gazi from 3-9 April 2019: <http://www.athens-science-festival.gr/en/>. At the first event, neuroscientists, psychiatrists and pharmacologists talked to ~30 high school students about Addiction, based on a book they wrote for the general public. The second event was a “Science Café” regarding the “Neurobiology of Creativity” where Prof. Elias Kouvelas, Emeritus Professor at the University of Patras and founding member of the society, gave a talk with the youngest member of our society, Sofia Krokida, a medical student of the University of Athens. At the event there was translation in sign language for deaf students.

In Patras, students of High schools (20th Junior High School of Patras, General Lyceum of Lala, ileia, 2nd General Lyceum of Preveza, Epirus, 1st General Lyceum of Amaliada, ileia, Junior High School of Goumero, ileia, Junior High School of Goumero, 4th Junior High School of Pyrgos, etc., for a total of 500 high school students) visited the laboratory of Human and Animal Physiology at the University of

Patras. This visit was organized by Prof. Marigoula Margarity and included a presentation on the basics of how our brain works and observation of brain sections at the microscope. Dr. Margarity still accepts students at the Laboratory of Human and Animal Physiology, Dept. Biology, in the context of the activity “the schools go to the University “ introducing the topic “ Brain... the Director of our life”. The main event, entitled “ BRAIN. So Small... So Great ”, held at the Conference and Culture Center of the University of Patras on March 31st, 2019, included oral presentations, mini theatrical and musical performances presented by the students of 11 schools on various subjects concerning the human brain. A total of 450 people attended the event.

In Nafpaktos, the event organized by Prof. Spyros Efthimiopoulos took place was entitled “Emotions and mate choice” and included presentations by high school students and Prof. Marieta Papadatou-Pastou.

In Ioannina, Dr. Foteini Delis, visited Valaneio Grade School and gave interactive presentations to 50 primary school students on the following topics: 1) Where is the brain and how does it look like? 2) What does the brain do? 3) How should we protect the brain? And 3) What’s it made of?

In Heraklio, Crete, Prof. Kyriaki Sidiropoulou and the members of the Neurophysiology and Behavior Laboratory visited the 37th primary school of Heraklion as well as the High school in Malia, where 120 primary school students and 30 high school students participated, respectively. Dr. Sidiropoulou gave a presentation entitled “Learning about the brain”, while Ph.D., M.A. and undergraduate students demonstrated behavioural tasks used to study the brain, brain anatomy using brain models, imaging brain slices under a microscope and making a ‘brain-hat’. Furthermore, in collaboration with the Museum of Medicine of Crete the event entitled “Development of the adolescent brain” was organized with the participation of about 150 high school students. The events included presentations about the specifics of brain function during adolescence by several of HSfN members (Profs. Ioannis Charalampopoulos, Ioannis Zaganis, Kyriaki Sidiropoulou, Marigoula Margarity) and interactive activities with Prof. Margarity and members of the Neurophysiology and Behavior Lab.

In Rethymnon, Crete, the event “The Brain and the organization of behaviour” took place on Wednesday 13/03/19 at Xenia Hall. The aim of the event was to inform the public about the multidisciplinary field of Neurosciences and the relationship between drug addiction and the brain. Stella Giakoumaki, George Panagis and Andreas Kastellakis presented the current knowledge on drug addiction processes and interacted with the participants, which included the Scouts of Western Crete.

In Thessaloniki, two events took place: 1) The tender side of oxytocin and 2) Brain and gender: mutual dependencies. The first event was a one-day in depth presentation of the peripheral and central nervous system actions of the neuro-hormone oxytocin. Almost 80 students of the Art School of Thessaloniki attended the event, which included a talk by Prof. Anastasia Tsingotjidou on “The tender side of oxytocin” and a video presentation entitled “Tender Morality”, which was produced by the artist Stavros Panagiotakis. The second event included a presentation by Prof. G.

Papadopoulos, entitled "Brain and gender: mutual dependencies". The event was attended by about 200 university students.

*Related Links*

- <http://www.hsfm.gr/education/awareness/>
- [https://www.facebook.com/pg/%CE%9C%CE%BF%CF%85%CF%83%CE%B5%CE%AF%CE%BF-%CE%99%CE%B1%CF%84%CF%81%CE%B9%CE%BA%CE%AE%CF%82-%CE%9A%CF%81%CE%AE%CF%84%CE%B7%CF%82-%CE%9Cuseum-of-medicine-of-Crete-258078787581765/photos/?tab=album&album\\_id=2231174763605481&\\_tn\\_=-UC-R](https://www.facebook.com/pg/%CE%9C%CE%BF%CF%85%CF%83%CE%B5%CE%AF%CE%BF-%CE%99%CE%B1%CF%84%CF%81%CE%B9%CE%BA%CE%AE%CF%82-%CE%9A%CF%81%CE%AE%CF%84%CE%B7%CF%82-%CE%9Cuseum-of-medicine-of-Crete-258078787581765/photos/?tab=album&album_id=2231174763605481&_tn_=-UC-R)



**12. DendRITEs Workshop: Learn and remember the path! Forest of dendritic trees in brain!**

**Dates and Duration:** 14-15/03/2019

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*Volunteers*

Ioanna Pandi and Athina Karasavvidi

In the context of the BAW 2019, we, from the Institute of Molecular Biology and Biotechnology and Poirazi lab have organized a variety of activities for specific age groups to explain and explore the fascinating concept of how the brain works. Our team tried to make this week impressive and

memorable with two separate events. The events took place from 14-15.03.2019 in the Hospitality Center for male children and at SOS Children's Villages in Heraklion, Greece, respectively. The audience was comprised of elementary/middle/high school students. Prior and throughout the week, we disseminated the event through mailing lists and social media (Facebook, Twitter, Instagram), so as to grab people's attention.

Our activities were designed to address all the aforementioned target groups. With an introductory lecture on how the brain works we started the BAW at both events. The aim of the workshop was to familiarize children with the most important functional regions of the brain by focusing on the importance of learning and memory processes. For this purpose, a model of the brain was utilized alongside with the presentation and an interactive discussion with the students. Afterwards, students were able to choose between several hands-on activities, games and experiments, that reached across disciplines and age groups. Specifically, elementary students were engaged with making types of neurons with plasteline and painting neuroscience images, middle students observed nerve cells as an electrical circuit and played memory games, and high school students were making neural networks with the assistance of NEURONIFY. The latter was something fascinating as students were making their own network of excitatory and inhibitory cells, with their own stimulus - either current injection or external visual stimuli - so as to measure the response and count the spikes! There was also lots of general information and a memory quiz for each students to complete in everyone's workshop folder. The event was very well attended with the attendees interacting with our team, by asking many interesting questions. All children were retreated with chocolates, refreshments and sweets after completion of the events. Our main purpose was to make people of all ages and backgrounds understand more about the importance of brain research and spark curiosity about how the brain works and the role of dendrites as elementary units in the accomplishment of learning and memory processes. There was also an added value to our project, which was the engagement of these children, who have daily struggles in their families, in the BAW activities as an important stimulus of gaining more knowledge and having the chance to leave their routine for these two days and penetrate deeper into finding out our brain's secrets with us.

Overall, the events were well received. We have completed our mission of organizing BAW 2019 with excitement and satisfaction, and we hope this would continue in an annual basis from our home institution and lab. To this end, we would like to thank DANA foundation and FENS for this great opportunity.

#### *Related Links*

- <http://www.dendrites.gr/>
- <https://www.facebook.com/media/set/?set=a.1511351992331367&type=1&l=2d37b451c3>
- <https://www.facebook.com/dendrites.gr/>
- <https://twitter.com/dendritesgr/status/1105402213306900480>
- <https://twitter.com/MariaKaratsoli/status/1106202624439783425>
- [https://www.instagram.com/p/BvEG-rJnqD\\_kguoXhPyc2YmgzFHQSxCpuNBVhM0/](https://www.instagram.com/p/BvEG-rJnqD_kguoXhPyc2YmgzFHQSxCpuNBVhM0/)
- [https://www.instagram.com/p/BvG6P7HnjafsMiLfPTG\\_K28G0YM8SVUryEWbt80/](https://www.instagram.com/p/BvG6P7HnjafsMiLfPTG_K28G0YM8SVUryEWbt80/)



### 13. The digital world and the brain

**Dates and Duration:** 12th and 13th of March

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*Co-organiser*

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The four main program-packages were the followings:

1. “The brain in pictures and models” exhibition and handcraft centres. Handcraft desks offered brain models, tools to produce neuron and brain models from various material and to create molecule-models from Lego parts. Robot-models imitating the moves of mice and dogs were provided for looking and playing. Posters demonstrating the macro- and microscopic structure of the brain were exhibited in all venues.
2. The “Psycho-physiological Playground” provided workbenches for studying
  - i) animal behaviour in the basement of the Hall;
  - ii) human perception, motor and cognitive coordination in the Galery of the Hall.

Visitors “played” at 28 workbenches, each supervised by scientists and supplied with explanatory posters. The experiments on mice and rats included observations of animal behaviour in open-field tests, Skinner-boxes, labyrinths and social interaction boxes. Self-tests of human reactions could be studied in human brain-computer interface experiments, body-balance tests, as well as in optical and audio illusions.

3. Scientific lectures and discussions

In the Lecture Hall, scientific lectures were presented on:

- Novel techniques in brain research (Dr. Balázs Hangya; IEM-HAS)
- Clinical application of novel brain imaging techniques and brain prosthetics (Dr. László Halász; NICN)
- Socio-psychological impacts of human learning (Dr. József Topál; RCNS-HAS)
- Ethical aspects of application of novel methodologies in brain therapy (Dr. Ferenc Oberfrank; IEM-HAS)

In the Seminar Corner video presentations and discussions were organized on:

- Etorobotics: a fellow-robot is my friend? (Dr. Ádám Miklósi; ELTE Dept. Ethology)
- Automatic devices in studies of behaviour– Dr. Diana Balázsfi (IEM-HAS)
- Perspectives of robotics in clinical neurosciences (Botzheim Lilla, Dr. Laczkó József; Wigner Centre of HAS)

4. “History of brain research” tour in the Biology Museum of Eötvös Lorand Univ. (lead by Dr. Géza Zboray)

Visitors earned a confirmatory stamp at each play-station where they played. Visitors with more than 50% of stamps were awarded with small presents including pens, rulers, cardholders - all decorated with Brain Awareness logo. The role of FENS and DANA Alliance was made clear for all participants.

The event was really popular in this year. More than 1200 visitors, from 6-year olds to pensioners, played with us. Different media including Kossuth Radio, Inforadio, TV M5, Qubit, University TV, Brain Research at HAS internet magazine and many printed organs presented the event for the wide public.

#### *Related Links*

- [http://agykutatasnapjai.koki.hu/?page\\_id=15](http://agykutatasnapjai.koki.hu/?page_id=15)
- <https://www.facebook.com/events/2217946521793701/>



## **14. Alzheimer’s disease, when your brain lets you down**

**Dates and Duration:** 12/03/2019

**Contact:**

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*Co-organiser*

Dr. Andras Harazin

Biological Research Centre

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Our 10th BAW event was held on 12th March 2019 in the Biological Research Centre. The program was announced on posters and social media (Facebook, LinkedIn).

The lectures related to the main topic, Alzheimer's disease were held by experts in the field and reflected several aspects. Dr. Sára Kálmán, a neurologist, talked about a new diagnostic approach of Alzheimer's disease in human patients, speech analysis by a computer. Dr. Zita Gálik-Oláh demonstrated their new results on rotifers, microscopic animals, which can digest protein aggregations. Dr. Melinda Tóth introduced to the audience the animal models of Alzheimer's disease used in research. Prof. János Julesz presented how neurodegenerative diseases are reflected in arts through paintings, statues and his own and other poems. A quiz was held connected to the presentations, and six students were awarded for the correct answers. The lectures were followed by an audience of 150 persons from secondary schools, students from the University of Szeged and researchers from the centre.

The BAW playhouse, open all through the event, had several activities, including quiz, simple experiments, optical illusions, games and handcrafts and entertained 20 children and their parents. The laboratory demonstrations related to cell cultures, cell viability experiments, atomic force, fluorescent, laser dissection and two-photon microscopies, psychoactive compounds and research on fruit flies were also popular, more than 87 students had first-hand experience in brain research.

An art competition was announced for schools in Szeged with the Alzheimer's disease topic in February. Submitted art pieces were exhibited in the entrance hall of the research centre for two weeks and three winners received prizes based on the evaluation of a professional jury and a public vote. A teahouse with snacks, soft and hot drinks and opportunity for discussion with the speakers was organized, which was open during the whole event.

*Related Links*

- <https://www.facebook.com/events/302315747096409/>
- <https://www.linkedin.com/company/bbrg/>



## 15. Neuroscience for Teens: Know Your Brain

**Dates and Duration:** 11-13/03/2019

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The project I organized was aimed at approximately 550 high school students, aged 14-18, in Debrecen. In Hungary, there are limited possibilities outside of Budapest for students to learn science interactively. High school students especially, are only able to learn about anatomy and neuroscience in textbooks. As a high school sophomore interested in neuroscience, I believed that providing students with opportunities to learn neuroscience topics was needed. My BAW project took the science of our brain and nervous system directly to these students and engaged them with interactive lectures, competitions, mouse dissections, lab exhibitions and posters. Below are the lecture topics presented by professors from the University of Debrecen.

Lectures:

1. Dr. Péter Szücs: Sensing and Realizing Pain Requires Complex Neuronal Networks

Our knowledge about the neurons in these networks, their connections and their function in health and disease is still very limited. In this talk, Professor Szücs gave a short overview of "good" and "bad" pain and the technical possibilities and methods of studying neuronal networks responsible for processing pain signals.

2. Dr. Zoltán Kisvárdy: How Does the Brain See?

The visual system is one of the favoured objects in brain research because the basics of its anatomical connections and functional properties are reasonably well known. The aim of the presentation was to demonstrate the multiplexed nature of visual cortical signal processing using examples from animal experimenting and human psychophysics, from the possible functional role of neuron types through functional brain maps up to the reliability of visual perception.

3. Dr. Zoltán Mészár: Why Does Our Brain Age?

Neurons populating our brain maintain their plasticity throughout our lives, meaning that they can change their physiology and morphology upon variable environmental conditions. This ability decreases with age and in case of neurodegenerative diseases. What are the major steps of these processes and how we can examine them by using transgenic models, was the main focus of this lesson.

4. Dr. Aletta Harman: Stroke: Why Is Early Detection Important?

There are two types of cerebral stroke. Unfortunately, this disease in some cases causes permanent damage, so the patient may be bed ridden for all his life. The sooner the patient enters the hospital, the sooner the treatment can be started and the damage is less irreversible. Time is brain!

#### 5. Dr. Balázs Pál: Drumbeats for the Brain: The Reticular Activating System

The reticular activating system is comprised of a group of nuclei in the brainstem. Their role is relatively simple but important: They are responsible for regulating sleep and wakefulness. Their task is similar to the percussion instruments in a symphonic orchestra: They are probably not the most sophisticated ones, but they have a significant impact on the integrity of the whole symphony.

#### 6. Dr. Balázs Pál: Glial Cell: "Smartglue" or Partner in Thinking?

Besides neurons, the brain consists of non-neuronal cells known as glia. Their importance was underestimated in the past as they were considered as "glue" between neurons. In the last two decades, a quiet revolution of understanding glial functions took place and nowadays glial cells are known as important contributors to neuronal functions. However, the question is still open whether they are "smart devices" of the brain to provide neuronal functions or partners of the neurons in thinking.

#### 7. Dr. Attila Laczovics: We are Our Brain

In this lecture, the different anatomical regions of the brain were discussed. The physiology was explained, including regions like Broca's Area, Wernicke's Area and the various lobes. The lecture described different diseases.

#### 8. Dr. László Oláh: Cerebral Circulation

The lecture described the basic function and anatomical structures of the cerebral circulation. Dr. Oláh also gave a few clinical applications relating to it.

Dissection:

Dr. Péter Szücs: A mouse's nervous system was showed through a dissection.

The dissection was done according to the Directive 2010/63/EU of the European Parliament and of the Council of 22 September 2010 on the protection of animals used for scientific purposes (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010L0063>).

Lab Exhibition:

Dr. Zoltán Kisvárday: In the lab at the University of Debrecen, Dr. Kisvárday held a visual system exhibition explaining about the visual cortex and the neurological connections using experimental models.

In summary, a lot of students seemed very interested in the project. Many students interest towards research seemed to be awakened and many of them strengthened their goal of going into a medical field. The feedback from students and teachers alike, was very positive.

*Related Links*

- <http://teenagebrain.org/>
- <https://twitter.com/SzertSzintia/status/1115957332687691776>



## 16. Painting Music: Sound as Vision via Synaesthesia

**Dates and Duration:** 14/03/2019

**Contact:**

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*Co-organiser*

Prof. Aine Kelly  
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This special event to celebrate Brain Awareness Week “Painting Music: Sound as Vision via Synaesthesia” was organised by Drs Richard Roche, Maynooth University, and Áine Kelly, a neuroscientist in the Trinity College Institute of Neuroscience and the education and outreach officer of the national neuroscience research society, Neuroscience Ireland. “In this unique event, we illustrated the remarkable nature of how sensory information is processed in the brain by hosting a live simultaneous performance of musician Dr Svetlana Rudenko and painter Dr Timothy Layden in the beautiful surroundings of the College chapel. Both Svetlana and Timothy have a benign condition called synaesthesia – this is a type of sensory cross-activation that can result in people hearing colours or seeing sounds. We wanted to capture in real time Timothy’s visual interpretation of the music Svetlana was playing on grand piano”.

Difficulties in bringing the piano up the stairs to the originally proposed venue, Regent House, resulted in the event taking place in Trinity College Chapel, which proved an excellent alternative.

The evening began with a description of the neuroscience of synaesthesia by Prof Fiona Newell, Professor of Experimental Psychology at Trinity College Dublin. Fiona explained how studying the brain of people with synaesthesia has opened a window into our understanding of how sensory

information is processed in the brain. Svetlana then played 3 pieces on a Steinway grand piano – Sonata No. 5 by Scriabin, a series of preludes by Debussy, and finally Brahms’ Opus 117, Three Intermezzi. Timothy produced three very different canvasses in response to each piece of music and finished by describing the work he produced during a question and answer session moderated by Dr. Richard Roche.

The event was supported by funding from the Provost’s Visual and Performing Arts Fund and the Federation of European Neurosciences (FENS).

*Related Links*

- <https://www.eventbrite.ie/e/painting-music-sound-as-vision-via-synaesthesia-tickets-56346856966#>



**17. What happened to Mr. Brain?**

**Dates and Duration:** The whole BAW Week (7 Days)

**Contact:**

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During the whole month of the Brain Awareness Week 2019 more than 650 schools met Mr Cervello, a character born thanks to the creativity of more than 40 psychologists and scientific divulgators.

“Che fine ha fatto Mr Cervello?” is a voluntary, self-funded project that aims to talk about the latest researches and discoveries about the brain to kids and teenagers, covering topics such as functional anatomy, cognition and emotions, social relations and neuroscience, adolescence and the brain.

Schools from all over Italy have opened their doors to the neuroscientists that covered these topics following a booklet co-authored by our group of 41 psychologists.

Our goal for this 2019 edition was to involve the youngest generations in this annual discussion about the brain.

Our target was: kids in primary school (6-10), kids in middle school (11-13), teenagers in high school (14-18), educators, teachers, and parents.

Feedbacks were very positive, both from the schools' managers and from the target audience. Journals and magazines covered the news, telling how the youngest generations can be involved with practical workshops and fun, special lessons.

*Related Links*

- <https://www.facebook.com/settimanamondialedeicervello/>



**18. Digital Mind - Lectures, workshops, guided tours**

**Dates and Duration:** 11-16/03/2019

**Contact:**

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*Co-organiser*

Prof. Alessandro Vercelli

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Istituto Nazionale di Neuroscienze

The programme proposed a series of lectures for the general public, aiming to explore, according to different approaches, the contaminations between neuroscience and the new digital knowledge.

This edition of the BAW in Turin also included workshops for students of primary and secondary schools. Three hands-on activities have been proposed to further elaborate on neurosciences on different levels.

1. Guided Tour to Museum of Human Anatomy, and to The Cesare Lombroso Museum.
2. Lectures:
  - March 11, 2019 5:00pm  
Alessandro Mauro Dip. di Neuroscienze -Università di Torino  
**BIG DATA AND PRECISION MEDICINE IN NEURODEGENERATIVE DISEASES**  
For the understanding of the enormous amounts of clinical, neuroimaging, biological, genetic, epigenetic and environmental data collected during the analysis of subjects and patients at risk, big data analysis models are needed, such as machines and deep learning.
  - March 12, 2019 9:00pm  
Giovanni Petri, ISI Foundation  
**THE MIND IS SPOKEN: THE COMPLEXITY OF BRAIN CONNECTIONS.**  
A new frontier in neuroscience is the study of brain connectivity. The study of the enormous complexity of this network and its ability to continuously change over time is a great challenge.
  - March 13, 2019 9:00pm  
Maurizio Balistreri –Dip. di Filosofia e Scienze dell'educazione –Università di Torino  
Innocenzo Rainero, Dip.di Neuroscienze –Università di Torino  
Sergio Foà, Dip. di Giurisprudenza –Università di Torino  
**THE EXPLOSION OF DATA AND THE PRIVACY**  
Big data, precision medicine and data protection: what is to be shared and what is private. We have the right to protect our data, what is their value for the society and what is the economic value for the companies
  - March 15, 2019 5:00pm  
Alfredo Benso e Gabriella Olmo, Politecnico di Torino  
**THE DAWN OF A NEW ERA: THE UNIFYING POWER OF NEURAL NETWORKS**  
Biological brains contain billions of neurons, each with thousands of connections. These very complex networks are able to process, store, retrieve a large amount of information in parallel, which allows the animals to decode their environment and act appropriate behaviour. We are at the dawn of a new era dominated by the growing exchange between natural and artificial neural networks.
  - March 16, 2019 6:00pm  
Corrado Calì King Abdullah University of Science and Technology (KAUST) Saudi Arabia

**WALKING IN THE BRAIN WITH REALITY VIRTUAL** The computing power of the brain is still a mystery, which for the most part is based on its complex energy management system. The use of Virtual Reality allows scientists to explore the brain from the inside and investigate how its cell morphology is optimised to support its complex metabolism.

### 3. Workshops

- 03/11/2019 - 03/15/2019

**THE FIVE WONDERS** human perception, from world to our brain and back

The sense organs represent the interface through which the individual receives and translates information from the outside world. This initiative reveals the deceptions of the mechanisms of the physiology of sensory perception, exploring them with practical experiences. A journey to discover the mechanisms of perception and representation of the sensory world, through an experiential process, created by the bio-evolution and shaped by culture.

**SHUTTERED NERVES**

Through an interactive game, complemented by questions, answers and many curiosities, the workshop explores in detail our peripheral nervous system and its regeneration, dissecting its anatomical-sensorial complexity.

**A STORY OF SKELETON AND BRAIN**

The human skeleton is a support structure but also a document that can tell us the lives and stories of the men of the past. Whose skeleton was it? How old was he? Did he have any illness? What did he eat? These are some questions that the physical anthropologist can answer. With a particular focus on the cranial box, it is possible to deepen neurocerebral function also from the skeletal point of view.

- 03/14/2019

**BRAIN BRAIN AND MIND 1:** Luigi Rolando Museum of Human Anatomy

**BRAIN BRAIN AND MIND 2:** Cesare Lombroso Museum of Criminal Anthropology, two guided tours to explore the relationship between brain and mind through their collections.

This year's edition of the BAW was characterized by workshop activities for schools and guided visits to the Cesare Lombroso Museum and the Luigi Rolando Museum of Anatomy. This assortment of activities has been highly appreciated by the public, and the presence of the public has therefore grown. About 700 people attended the Digital Mind lectures cycle, with a prevalence of young people between the ages of 20 and 30, many of whom were university students. Workshops for schools were attended by over 300 young students and for guided visits to museums, the places available have been sold out immediately.

*Related Links*

- [http://centroscienza.it/settimana\\_cervello19](http://centroscienza.it/settimana_cervello19)
- <https://www.facebook.com/events/305063920156434/>
- <https://www.facebook.com/NeuroscienceInstituteCavalieriOttolenghi/videos/1049858191889857/>
- <https://twitter.com/search?q=centroscienza&src=typd>
- <https://compagniadisanpaolo.it/ita/News/Settimana-del-Cervello-2019>
- <http://www.nico.ottolenghi.unito.it/ita/News/Settimana-del-Cervello-2019-La-mente-digitale>



**19. Great discoveries of neurobiology and neuromedicine**

**Dates and Duration:** March 11-16th, 2019

**Contact:**

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Two bases of this years' program were: (A) five lectures in five consecutive days, aiming at adult and advanced student audience, (B) one day of games and presentations for primary and secondary school children, to introduce them to basic neuroanatomy, brain physiology and human brain evolution. Also, we organized a competition for pupils of primary and secondary schools for a project of an everyday object, using neurobiological motifs. We had 92 participants and even more projects of which 12 were rewarded.

(A) We planned to acquaint our audience with the scientific achievements, which we considered great discoveries of modern neuroscience. To this end, we invited 5 researchers who presented 5 lectures:

1. Dr Marzena Stefaniuk, Nencki Institute – “A journey inside the brain” – the history of microscopic discoveries of neural tissue.
2. Dr Ewa Kublik, Nencki Institute – “The electrical language of neurons”.

4. Anna Chabuda, Marian Dvoglio, Dept. of Physics, Warsaw University/Braintech - EEG presentations live.
3. Prof. Krzysztof Turlejski, Cardinal Wyszyński University – „HM – the most famous patient of the world. The boundaries of accepted risk in neurosurgery and psychosurgery”.
4. Dr Marta Obara-Michlewska, Mossakowski Medical Research Centre - "Clean brain is an agile brain - the role of glymphatic system".
5. Prof. Małgorzata Skup, Nencki Institute – “The case of Christopher Reeve”. Yesterday and today of spinal cord repair”.

(B) Displays and games:

1. Anatomy of the brain; a display of brains of various species. Demonstrators explained diversity and peculiarities of a variety of brains of vertebrates from various branches of evolution tree, e.g. marsupials, rodents, mammals.
2. Models of human brain and body; presentation of main brain parts coupled with information on their functions. Demonstrators were the students from Warsaw Medical University.
3. Morphology of the brain; histochemical sections of brains served to describe brain regions and make an introduction to brain function.
4. Microscopic observations of rat and murine brain sections; various types of neurons and glial cells were demonstrated, visualized with Golgi staining, Nissl staining, GFAP immunostaining and other. Microscopes connected to 3D monitors were used.
5. Animal behavior- presentations of various behavioral tests (video): Morris water maze, open field, rotarod test, elevated plus maze, social interactions test).
6. Animal welfare – presentation of living conditions of laboratory animals, enriched environment (furnished cages), videos.
7. “Fluorescence – how do we use it to visualize brain structure”. The presentation of fluorochromes and fluorescent images of brain tissue. Explanation of the mechanism of fluorescence.
8. The exhibition “Evolution of brain in hominids” – provided by the staff of Dept. of Bioarchaeology, Institute of Archeology, Warsaw University.
9. “Ants & co.” – our evergreen exhibition of various insects. Insect learning skills and behavior were demonstrated and discussed with our myrmecologists.
10. Artistic workshop for the youngest guests– coloring “brain caps”, making brain models of dough.
11. Rope model of neuron

C. Nervous system physiology

1. Visual perception and the mechanism of vision:

- Stroop effect
  - Benham’s disc
  - Blind spot “visualization”
  - Tests for color blindness
  - Depth spinner
  - 3D illusion floor and many others
2. EEG recordings during various activities related to different sensory modalities to visualize and explain brain electrical activity. Presented by the students of Warsaw University, Faculty of Physics.
  3. “Why does neurologist tap your knee with a hammer?” Description and testing of simple neurological examination. Presented by the students of Warsaw Medical University.

*Related Links*

- <https://pl-pl.facebook.com/TydzienMozgu/>
- [https://www.youtube.com/watch?v=-\\_xvbrXiogc&t=25s](https://www.youtube.com/watch?v=-_xvbrXiogc&t=25s)



**20. Stress in our brain and its meaning in our lives**

**Dates and Duration:** The whole BAW Week (7 Days)

**Contact:**

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The main activities were carried out for 1 week during Brain Awareness Week, the project combined many different schools, from all over Poland, 370 students of our school, about 3,000 students from 20 schools (primary and secondary schools, including international) parents, teachers and local residents cooperating throughout Poland. But many actions and projects were carried out continuously from January to March. Through our planned activities, we wanted to show students, parents and residents how stress works in our brain and how the medical, biological and psychological aspects work closely together during stressful situations.

Already in January, we planned the recording of the film, by 20 reported schools from all over Poland on the subject of "Healthy ways to fight stress", later all the films were put together in a single movie that we published, shared. At the beginning of February we also announced two competitions for students from all over Poland: a competition for a multimedia presentation on the subject of "Healthy ways to fight stress" and the poster "Stop for drugs, alcohol, cigarettes and afterburners". All sent presentations were posted on educational portals and pages for students and teachers, and posters were also used to prepare an exhibition that was opened to all interested residents of the Konin County. During BAW "School Championship in SUDOKU", "Brain Knowledge Contest", as well as the "Find and Solve Rebus" competition, which consists in finding the largest number of suspended rebuses on the school premises and correct solving them.

On the first day of the BAW on March 11, lectures for teachers: "The impact of stress on the human brain" by MSc Gadomska – a biologist and neurodidactic. During the lecture we got acquainted with the structure of the brain, the body in a stressful situation, the concept of stress, stress phases, sources of stress, ranking of stressful situations. The next lecture was: "A trip, as one of the forms of combating stress" by MSc Marciniak, a geographer. Being in the open air reduces the secretion of cortisol or stress hormone. Nature calms down, relieves tension and energy.

March 12, "Neurodetic games and games as a form of stress fighting", is the best fitness for our brain by MSc Wallis - a mathematician; Games teach planning, prediction, drawing conclusions, develop concentration, intelligence, memory.

On the following day, March 13, workshops for students and their parents: "Achieving a state of relaxation using the SITA method" by MSc Jankowska, a German forwarder. The SITA device used during the workshop helped students gain the ability to achieve a state of relaxation. A "breath strength" with MA Rogalska, an English musician; exercises with voice emission with breath control.

March 14, sociotherapeutic workshops for students "We cope with stress - relaxation techniques" by MA Kieliszak, a psychopedagogue and sociotherapist. Work in task groups, workshops with relaxation exercises "Feeling yourself". The next step for that day is Yoga classes, for local residents of the Old Town, with MA Matuszak, a yoga instructor and healthy lifestyle trainer.

On the last day of March 15, a lecture for teachers, pupils, parents and willing residents from all over Poland, "Diet that alleviates the effects of stress" with Dr Pałasz, a certified dietician, author of

books on healthy nutrition. The meeting ended with the screening of a jointly recorded video, which then was published on the Internet and the winners' reward from the aforementioned competitions.

*Related Links*

- <http://biologiazblondynka.blogspot.com/2019/02/ogolnopolski-projekt-stres-nasz-mozg.html>
- <https://youtu.be/i3fcdy03wqU>
- [https://www.facebook.com/Zdrowe-sposoby-walki-ze-stresem-1027191304157312/?modal=admin\\_todo\\_tour](https://www.facebook.com/Zdrowe-sposoby-walki-ze-stresem-1027191304157312/?modal=admin_todo_tour)
- <https://glos.pl/patronaty/nasz-patronat-projekt-stres-a-nasz-mozg-walka-do-wygrania-2>
- [https://lajt.lm.pl/aktualnosci/informacja/120249/projekt\\_stres\\_a\\_nasz\\_mozg\\_-\\_walka\\_do\\_wygrania\\_z\\_zseu\\_w\\_zychlinie?fbclid=IwAR1m9LLbKbOTfFA2J3IS1i3BRc5ZmQdMe809Qd3qKPUWI5zyYo4qO5YTJIE](https://lajt.lm.pl/aktualnosci/informacja/120249/projekt_stres_a_nasz_mozg_-_walka_do_wygrania_z_zseu_w_zychlinie?fbclid=IwAR1m9LLbKbOTfFA2J3IS1i3BRc5ZmQdMe809Qd3qKPUWI5zyYo4qO5YTJIE)



**21. Neuroscience boat; Brain awareness on the river**

**Dates and Duration:** 17/03/2019

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*Co-organiser*

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This fascinating new project continued great success of our last year's action: "the Neuroscience Bus", and aimed to integrate neuroscience and brain awareness into the general community by presenting and displaying popular neuroscience within the city's public spaces. On the 7th day of the BAW in Krakow (17.03.2019), the 'Neuroscience boat', was circling for 5 hours around the limits of the medieval and beautiful Krakow's old town.

The selection of activities on board included short popular neuroscience lectures, scientific workshops, neuroscience promoting posters, multimedia presentations, and scientific riddles/quizzes. The activities on board engaged the crowds walking on the banks of the Vistula River and through the Krakow Old Town, offering brief encounters with neuroscience, and providing a chance of interaction between Krakow residents, tourists and neuroscientists.

The Neuroscience Boat, operating under the patronage of Institute of Pharmacology Polish Academy of Sciences created an opportunity to interact with famous local neuroscientists and young PhD students, ask questions, and get immediate answers.

We estimate that during the 5 hours of boat operation we easily reached several hundreds of people across the entire age spectrum. There was also an added value to the present project, which was the engagement of young neuroscientists (PhD students) into popularisation of neuroscience.

#### *Related Links*

- <http://if-pan.krakow.pl/pl/wydarzenia-i-aktualnosci/aktualnosci/Dr-hab-Rafal-Rygula--otrzymal-The-Dana-Foundation-Grant-na-popularyzacje-neuronauki/304/>
- <https://www.facebook.com/events/569465546901030/>
- <https://www.radiokrakow.pl/audycje/pracuja-na-nobla/statek-neurobiologiczny-instytutu-farmakologii-pan/>



## **22. Brain O'Clock – time to make it right!**

**Dates and Duration:** 1-31 March, 2019

**Contact:**

Ana Viegas

CIIB – Centre for Innovative Biomedicine and Biotechnology (CNC – Center for Neuroscience and Cell Biology - and iCBR – Coimbra Institute for Clinical Biomedical Research)

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The Brain Awareness Week (BAW) 2019 organized by CIBB consortium of University of Coimbra happened in Coimbra during March (1st - 31st March 2019). In 2019, CIBB neuroscientists invite the

citizens for several challenges during BAW. Our proposal aimed to promote a healthy lifestyle and an active aging by engaging society in neuroscience and increasing the scientific culture. This project also aimed to involve a bigger number of researchers in Science Communication compared to the previous years. In this regard, we took advantage of our “know-how” in the following fields: Neuroscience, Metabolism, and Biotechnology. The project promoted several initiatives for different publics.

#### 1. School time

Neuroscientists went to Elementary, Middle and High Schools, Senior Universities and Associations to deliver neuroscience information in different formats: hands-on activities, games, formal lectures, and experiments.

#### 2. Lab time

During BAW researchers from CNC.IBILI opened the doors of their laboratories and received visits from different publics that can explore different themes in neuroscience as: Can we enhance our brain?; How does the sleep affects our metabolism?; Study of human behavior; How do we have energy to the brain?; How neurons die in Alzheimer’s disease?; Neurons, obesity and aging; Brain development; How can you address neurodegenerative disorders?

#### 3. Food time

We distributed a flyer to several places with illustrations promoting a healthy diet and an active lifestyle and explaining its relevance in our metabolism.

#### 4. Debate time

“When the brain becomes dependent” - 17th March, FNAC Coimbra

Session for general audience about dependencies at a public café in a shopping center. The initiative counted with the participation of a psychologist, three medical doctors and neuroscientist.

#### 5. Selfie time

In order to create meeting places between science and society, we produced audio-visual contents about neuroscience research and brain facts. We produced four small videos, “Selfie Science”, where different neuroscientists explained in an informal way their research projects. The videos were shared at CNC youtube channel and social networks (Facebook and Twitter).

#### 6. Travel time

During one week, we promoted speed datings between scientists and the public, while they traveled together the city by bus. The researchers had the opportunity to share their researcher in an informal way and citizens received scientific information in an unexpected way.

#### 7. Radio time

The neuroscientists approached brain-related topics and explain their research in the podcast “Ciência aos Domingos” at RUC - Rádio Universidade de Coimbra.

#### 8. Game time

Neuroscientists played a board-game with the public during a session promoted at the bar “Casa das Artes” in Coimbra. The game is called “Braindemic” and players are researchers whose mission is to treat neurodegenerative disorders. This event was frequented by adults and young adults.

#### 9. Quiz time

We organized a public quiz at “Aqui Base Tango”, a local coffee shop. The neuroscientists developed the questions and the public was challenged to explore brain-related themes. This type of activity is very popular in Coimbra and often frequented by young adults.

#### 10. Pub time

Researchers participated in the 16th edition of PubhD Coimbra. This event challenge PhD students from different research areas to talk about their PhD projects. March edition was centered in the brain.

#### 11. Movie time

During the 19th edition of our internal “Beer for Thought” event, the researchers saw the movie “Inside Out”, in order to inspire them to address emotions and brain-related topics in a funny and simplified way.

#### 12. Sleep time

In the context of the World Sleep Day on March 15th, CNC.IBILI researchers collaborated with the Portuguese Sleep Association (APS) to promote healthy sleep habits as part of a healthy lifestyle and an active aging. We organized the following initiatives: a) development of new hands-on activities for different publics; b) an animation about the brain and sleep to share online (website and social media); c) public event “Sleep Well, Aging Well”, that gathered scientists, medical doctors, and the society, with a theatre performance about Sleep Apnea disorder.

Our activities involved 100 researchers and reached directly more than 2400 people from different publics in the following activities: school time and lab time (37 schools have participated), food time, debate time, travel time, game time, quiz time, pub time, and sleep time.

In digital media – Facebook, Twitter and Instagram - we made 76 posts about BAW. The radio time initiative reached 3589 people in our social media and the videos “Selfie Science” reached to 13461. Moreover, the awareness spot for the World Sleep Day reached 100.000 people on social media and 1.265.780 people on television audience.

#### *Related Links*

- <https://www.facebook.com/CNC.UC/>
- [https://twitter.com/cnc\\_uc](https://twitter.com/cnc_uc)
- <https://www.instagram.com/cnc.uc/>
- [https://www.facebook.com/pg/CNC.UC/photos/?tab=album&album\\_id=1748892805212200](https://www.facebook.com/pg/CNC.UC/photos/?tab=album&album_id=1748892805212200)



### 23. Brain Fair: Scientists and Community!

**Dates and Duration:** 11/03/2019 - 18/03/2019

**Contact:**

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#### 1. Neurological Diseases and Aging: Research, Treatments and Social Support

On the 18th March we organized an event on Estrela Parish Council (Lisbon, Portugal). For that we invited representatives from Portuguese Patient Associations: Alzheimer's disease ([alzheimerportugal.org](http://alzheimerportugal.org)) and Parkinson's disease ([parkinson.pt](http://parkinson.pt)). The auditorium was totally full! The public were mainly aged persons from the Estrela Community, who were very interested in this subject, and certainly will disseminate the messages learned. We directly reached about 80 persons, and indirectly many more of their relatives and friends.

Posters, brain and neuron models and preserved brains were available for those who wanted to learn more.

Facebook link of Estrela Parish Council for the event: <https://bit.ly/2TgyHB9>

Link for the event at iMed.Ulisboa site: <http://imed.ulisboa.pt/news/aging-diseases-and-informal-caregivers-by-imed-ulisboa-and-jf-estrela/>

#### 2. Scientists go to schools

From March 11th to March 15th, 2019 we visited different high schools in the Lisbon area, and interacted with students from educational level 3 to 4. In schools, the investigators performed oral presentations in parallel with audio/visual projections, focusing on one or more of the following main themes, according to students/teachers' preferences and educational level:

- Components of the human brain; neurons and other brain cells, their biological relevance and how they communicate.
- Mechanisms involved in neuronal protection and how we can contribute to neuronal well-being and healthy aging.

The different mechanisms that may lead to neuronal death will also be mentioned: drugs, aging and neurodegenerative diseases, as well as actions to prevent neuronal damage.

We also visited children from educational level 1. The activity was adapted for young children and was focused on “Brain and the senses” through a guided “brain anatomy tour” using models of human brain and neurons and brain games.

Number of persons reached: around 370

Overall 5 researchers were involved, together with representatives from the Patient’s Associations and Estrela Parish Council staff, and 450 was the estimated audience reached, where about 370 were students (kindergarten and high school).

#### *Related Links*

- <http://imed.ulisboa.pt/news/aging-diseases-and-informal-caregivers-by-imed-ulisboa-and-jf-estrela/>
- <https://bit.ly/2TgyHB9>



## **24. Train Your Brain**

**Dates and Duration:** The whole BAW Week (7 Days)

**Contact:**

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National College Nicolae Bălcescu, Biology Department

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The aims of the project:

- Promote the aims of the Dana Foundation’s;
- Share to students, teachers and parents the ultimate in brain research;
- Involve the students to search and discover the brain facts;
- Involve the students to learn and compete into neuroscience competition;
- Share to public the BAW event.

The specific activities:

1. Brain facts – an exhibition of student’s posters selected from BAW publications of dana.org website, about neurotransmitters, brain receptors, hormones and brain, smell and taste, somatosensory sense.
2. BAW lab – a neurohistology laboratory it was organized for young students from 5th grade. They study under the microscope the nerve cells, brain structures and spinal cord sections. They had to draw the sections at a microscope and compare them with real images for recognition.
3. Neuroset competition – a 8th edition of live neuroscience competition for young students about human brain and sense. The students have answered many questions about neuroanatomy, neurophysiology and diseases. They appreciated the way of the contest was run as a quick thinking contest.
4. Brain plasticity – a lecture about physiology and molecular mechanisms of synaptic plasticity. The lecture was organized in two parts. In the first part it was presented aspects related to brain plasticity, synaptic processes and molecular mechanisms. In the second part the students presented their own studies about the role of improvisation in the development of creativity and the role of bilingualism in the plasticity of the brain.
5. Train your brain – students were tested by online programs for developing attention, working memory and visuospatial skills.
6. Romanian Brain Bee - the winners of local Brain Bee competition was attend the 12th edition of national neuroscience competition for high school students. Local competition was held online. The competitors have many questions with topics as neuroanatomy, neurophysiology, neurohistology and patient diagnosis. The winner of the national competition is Covache Busuioc Răzvan, from Alexandria and he will represent Romania at the International Brain Bee competition in Daegu, South Korea.

*Related Links*

- [www.romanianbrainbee.com](http://www.romanianbrainbee.com)



**25. 6th St.-Petersburg Brain Awareness Week "Brain in motion"**

**Dates and Duration:** The whole BAW Week (7 Days)

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*Co-organisers*

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Institute of Human Brain  
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The events during BAW'19 explored the connection between brain and motion. The series of lectures and workshops throughout the week provided present-day knowledge on numerous topics from movements of an embryo to the motion disorders that develop with age. While the presenters were top scientists, the lectures were targeted at broader audience — school and university students, parents, patients, and general public.

BAW-2019 had two days of plenary lectures. Opening day (Day 1) suggested basic topics as “Movement and thought: how does the brain learn to think?” by Prof. Kornev and “Spinal mechanisms of posture and locomotion” by Prof. Gerasimenko. The plenary lectures of Day 5 were for more advanced audience: “Spatio-temporal dynamics of neuronal activity in motor processes” by Prof. Nikulin and “From crawling to upright walking. Locomotor output in the development” by Prof. Ivanenko.

Three workshops were between plenary days. Each workshop consisted of four to six talks followed by discussions.

Workshop “Movement disorders in children” (Day 2) for specialists and parents, presented “Neuromuscular diseases in children and adolescents” by Prof. Chukhlovina, “Study of generalized movements in embryo” by Prof. Palchik, “Ticks and stuttering: causes, types, approaches to treatment” by Dr. Titova, and “Movement disorders in children with autism” by Prof. Grechany.

Workshop “Cutting-edge data on Parkinson disease” (Day 3) for students, specialists, caregivers, and patients consisted of “Parkinson's disease: clinical portrait, and new diagnostic criteria” by Dr. Irishina, “200-year path: from etiology, pathogenesis and epidemiology to treatment” by Dr. Timofeeva, “The place of intestine in pathogenesis of Parkinson's disease” by Dr. Krasakov, “Modern methods of neurosurgical treatment of extrapyramidal disorders” by Dr. Kholyavin, “Olfactory dysfunction in differential diagnosis of Parkinson's disease” by Dr. Pokhabov, and “Pathogenetic therapy of genetically determined forms of Parkinson's disease” by Dr. Senkevich.

Workshop “Brain/motion assistive technologies” (Day 4) for students, specialists, and general public was preceded by opening of exhibition “Assistive technologies: the past and future” in Museum of

Pavlov Medical University. Then modern technologies were presented within topics “Restoration of brain function using neurocomputer interfaces” by Prof. Lebedev, “Interfaces brain-computer for motor rehabilitation: opportunities and prospects” by Dr. Shemyakina, “Walking in exoskeleton for patients with chronic lesions of spinal cord: easier movement or rehabilitation?” by Dr. Shapkova, “Features of EEG during imagination of movements in healthy subjects and post-stroke patients” by Dr. Bobrov.

Lectures of “University Saturday for school children” (Day 6, morning) were performed by young physicians. The talks were “Gadgets and Spine: Sharing Rules” by M.D. Semenova, “Evolution of movements” by M.D. Gavrichenko, “Such different cramps. How to help and not be afraid?” by M.D. Roshchina, “How does physical activity help improve cognitive function?” by M.D. Dolgorukova. During lectures there were quizzes with prizes as books and a stickers. All school children received postcards with useful tips on lecture topics.

Movie “The theory of everything” kicked-off a discussion with experts on whether modern medicine could have helped Stephen Hawking (Day 6, evening). “Move your brain!” quest, a city wide race with puzzles, ended the Week (Day 7). Tasks were hidden in historical places of the city and associated with the topic “Brain in Motion”.

Advertising:

The contribution of FENS and DANA was acknowledged in printed materials and on a web-site of event ([brainweekspb.org](http://brainweekspb.org)). Pavlov First St.-Petersburg State Medical University made significant contribution to advertise BAW actions by including them to a special printed Calendar issue, and posting an announcement on the University web-site. Co-organising institutions Pavlov Institute of Physiology and Institute of Human Brain also put notifications on their web-sites. In social network the event was announced and promoted by BAW\_spb group.

Statistics:

The events of BAW were attended by ca. 600 listeners (120-230 daily). They were represented by undergraduates (44%) and PhD students (3.5%) from ~20 institutions, as well as advanced specialists (46%). About 250 school children visited lectures in Pavlov Medical University within “University Saturday for school children”.

Post-hoc:

The best lecturer (Prof. Kornev), the “Move your brain!” quest winner, and author of the best photo were awarded. After BAW we received a lot of warm regards and thanks in feedback questionnaires. The video-records of lectures after proceeding will be available for all interested people on [brainweekspb.org](http://brainweekspb.org). Post-release articles are published in newspapers “Pulse”, “Psychological newspaper”, and “Herald of High School”.

BAW main goal to show the value of movement, to give up-to-date knowledge of how movement is organized in the brain, how disorders occur and can be treated, to promote science as a basement of assistive technologies in movement disorders – has been achieved.

*Related Links*

- <http://brainweekspb.org/>



**26. The life of brain**

**Dates and Duration:** The whole BAW Week (7 Days)

**Contact:**

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During the Brain Awareness Week, we devoted our attention to the citizens of all ages. The youngest were learning about neurons, structures and connections of the brain in a simplified way. The workshop targeted for the youngest audience was called "Sky full of stars" and it was realized with pupils from three different schools at the Center for the Promotion of Science. High school students on the other hand, had the opportunity to discuss depression with the members of the Section.

Depression is a topic we as a nation strongly consider stigma, and we hoped that we could lift the stigma of mental illnesses at least a bit, which was the main part of the workshop named "Depression is a prison, be free, you have a reason". The goal was to encourage and support adolescents, for a successful passage through turbulent teenage years. The workshop was held twice in the American Corner at the facility of Youth Center Belgrade. We have enabled colleagues from different faculties to get to know the work of the laboratories at the Medical and Pharmaceutical Faculty, as well as at the Institute for Biological research "Siniša Stanković" and the Center for Laser Microscopy. Laboratories were in the field of pharmacology, neurophysiology, neurochemistry and molecular neurobiology.

For all citizens we organized an exhibition in the Gallery of Science and Technology of the Serbian Academy of Sciences and Arts, as well as scientific - popular lectures in the mentioned gallery and ArtGet gallery of the Cultural Center. Lectures were dedicated to microbiota, brain death, vaccination, excitotoxicity in neurodegeneration, sleep in athletes, brain development from the angle of the child psychiatrist, psychologists and embryologist, focal cortical dysplasia, synapses,

neuroplasticity, adult neurogenesis, electroconvulsive therapy, the battle with Parkinson's disease from the patient's angle.

The exhibition was devoted to the development of the brain from embryo to death both thematically and spatially.

We introduced fertilization and embryonic development through video animation, microscopic and macroscopic preparations. We then devoted one segment to synapses and pruning, as one of the most important lifelong processes. We presented the synapses in 3D and 2D models, and we explained the transfer path of action potential using "human to human" interface device. Also, we explained what is affective attachment, as well as how language development takes place. Rett syndrome and developmental disorders, such as dysplasia, found a place in our exhibition, and we explained them using chromosomes and memory games. What is happening in the brain of a teenager on a chemical level and what is getting expressed in a psychological way, we tried to illustrate with various psychological tests (TMT example) and "necomimi" ears. Using 3D models of DNA, histone and illustration of experiments, we presented the importance of epigenetics in the emotion. In terms of emotions, it is also the composition of our microbiome, so we tried to present its significance, as well as the importance of vaccination. We answered visitors to the question of whether the brain has a shelf life, but also advised how to "exercise" and feed your brain in order to prolonge your mental wellbeing. Through the story and using 3D models of mitochondria and neurons, we presented ageing and neurodegenerative diseases. We devoted a whole segment to the schizophrenia, within which we have exhibited artworks from the mental health institution that were made by people suffering from this illness. The exhibition was followed by illustrated posters, and all 3D models were made by members of the section.

#### *Related Links*

- <http://neuronauke.org/>
- <https://www.facebook.com/BawSrb/>
- <https://www.jotform.com/uploads/FENS/90765324617360/4307220847125041211/BAW2.mp4>
- [https://www.facebook.com/pg/BawSrb/photos/?tab=album&album\\_id=1027749427412281](https://www.facebook.com/pg/BawSrb/photos/?tab=album&album_id=1027749427412281)
- <https://www.facebook.com/sekcija.neuronauke/>
- <https://www.facebook.com/serbianneurosciencesociety/>
- [https://www.youtube.com/watch?v=4\\_WzHHP0F3w](https://www.youtube.com/watch?v=4_WzHHP0F3w)



**27. Together against dementia - Brain Awareness Week in Bratislava and Kosice 2019**

**Dates and Duration:** The whole BAW Week (7 Days)

**Contact:**

Dr. Dasa Cizkova

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People interested in brain issues have met in Center MEMORY in Bratislava, this year addressing topic "Together against Dementia". Opening lecture given by Dr. Dasa Cizkova, highlight what has been accomplished in neuroscience research in Slovakia, introduced BAW, its role and mission worldwide, and the supportive role of FENS/Dana Foundation. The participants could watch interesting lectures about the brain, memory training, brain nutrition and stem cells. The presenters were Mgr. Veronika Režnáková, psychiatrist and psychologists Mgr. Michaela Nováková and Mgr. Simona Krakovská and Prof. Eva Syková with following lectures: Let's talk about the brain, Activate your brain and become its sculptor, How we can train our brain. Public and student could test their own cognition by simple tests and tasks. The tests for cognitive impairment were presented in a playful form that captivated everyone in the room. The event was attended by journalists from TASR and Slovak Television and radio. Finally, the MEMORY Center, the first preventive, diagnostic and specialized facility for people with Alzheimer's disease, given the opportunity to explore rehabilitation and cognitive training facilities. The second event "Together against brain diseases" was organized together with University of Veterinary Medicine and Pharmacy in Kosice. Leading experts in neurological brain disorders presented lectures in the field of stroke (Prof. Zuzana Gdovinova, Assoc. Prof. Matej Skorvanek). Second section of presentations was dedicated to veterinary medicine. Where can stem cells help? (Assoc. Prof. Dasa Cizkova), Acute cases in veterinary neurology (Dr. Aladár Mađari, As none of us are young (Dr. Jana Farbáková). During a breaks students presented their findings via posters session. The last event was Internet photo exhibition "Fascinating NeuroArt" announced on UVLF Facebook site showed amazing artistic pictures from fundamental research, the 6 most inspiring images were prized.

*Related Links*

- <http://vedanadosah.cvtisr.sk/tyzden-mozgu-2019-v-duchu-hesla-spolocne-proti-demencii>
- <https://www.facebook.com/uvlf.sk/photos/a.767183333398473/1993886370728157/?type=3&theater>
- <http://www.ssn.sk/20321/na-slovensku-si-uz-dvanasty-krat-pripomenieme-tyzden-mozgu-univerzity-v-kosiciach-pripravili-seriu-podujati/>



## 28. Brain Awareness Week 2019: At the threshold of pain

**Dates and Duration:** 11/3/2019 - 14/3/2019

**Contact:**

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*Co-organiser*

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SiNAPSA, Slovenian Neuroscience Association, prepared the 16th anniversary of BAW in Slovenia on the general topic of pain. Pain is such an interesting and multi-layered phenomenon that we decided to dedicate a whole week to different aspects of pain (physiology, psychology, neuroscience...).

We organized a number of events and activities: Neuroscience lectures, Brain-o-theque (movie-screenings with neuroscientific discussions), Workshops (for children, adults and elderly), neuroscientific creative contest: Faces of pain (for primary and secondary schools), and six Local BAW events (making neuroscience available in local Slovenian communities). The 4th Slovenian National Day of the Brain 2019 was devoted to promotion of brain health in Slovenia. All BAW activities were free of charge and accessible to all members of the public.

According to our calculations about 2000 people joined our events in Ljubljana, about 200-300 children engaged in our workshops and creative contest. Our local events also had many visitors, all together about 1000 people. Our programme hosted about 50 different lecturers, experts of their fields.

On Monday plenary lectures introduced us to more complex phenomena that are related to experience of pain: empathy, dehumanization and trauma. Tuesday and Thursday were dedicated to clinical topics regarding pain, on Tuesday we explored what pain is, why we need it and the subjective experience of pain. On Thursday we ventured into exploration of different diseases and

conditions that we normally associate with pain (headache, phantom limb, chronic pain) and a bit about how we treat pain.

Wednesday was a very special day for us, because 4 years ago Wednesday in the 3rd week of March was pronounced as a Slovenian National Day of the Brain. We try to use this day to promote brain health and neuroscience research through special festivities. This year we were very fortunate since the president of Slovenia Borut Pahor granted Slovenian BAW and Slovenian National Day of the Brain his Honorary Patronage and acknowledged the work of the Slovenian neuroscience association in promotion of brain health and communication of neuroscience.

First, we started the day with lectures about hot topics in neuroscience, we talked about virtual therapy for treating anxious and stress disorders, new ways for treating Huntington's disease, deep brain stimulation and other invasive methods for treating mental disorders etc. After the lectures we invited all the visitors, lecturers and organizers for a celebration of Slovenian National Day of the Brain, where we prepared a healthy snack and refreshments for everyone, we unveiled the lunch of a new Slovene website Zdravaglava.si (Healthyhead) which is one of Sinapsas projects and will provide information about preventive practices and scientific topics in an understandable way for everybody. After the reveal we were joined by a Slovenian band called Čedahuči who supported our cause with a non-profit concert in celebration of this special day.

On Friday's roundtable we asked ourselves where the boundaries of pain are and what role does pain play in an individual's life and on the level of society. Each day from Monday till Friday we also organized workshops for adults (all together 8) that covered different preventive practices for pain and discussed what role pain has in our lives from different perspectives. We also organized 2 workshops for children on topics related to pain. Each afternoon and evening we screened movies, all together six. We called this Brain-o-theque since scientists or directors were invited to comment the film in a short talk and engage the audience in a discussion.

Every year we try to film as many lectures as possible (the lecturer has to give us permission) and we post them online, where they are free to view. This year's lectures are already available at [videolectures.net](http://videolectures.net/ledenmozganov2019_ljubljana/).

Similar to the festival, we organized a series of lectures about pain and neuroscience outside the capital city (6 local areas). Our BAW event sparked a huge media interest in the brain and neuroscience, so many different media outlets (radio, television and written news) decided to devote time and space to the topic of brain health. Our event was therefore enriched by radio interviews "Možgani na dlani" ("Brain in hand") and on other radio stations (Radio 94, Radio Center, Radio Si) and reports on TV shows (Infodrom, Dobro jutro, Planet TV), our BAW event was also promoted on many other radios. We also promoted events through social media and in collaboration with national and local newspapers, TV, radio, and with printed materials in schools, faculties and institutes.

#### *Related Links*

- <https://www.sinapsa.org/tm>

- <https://www.facebook.com/events/2270821013176613/>
- <https://twitter.com/Tedenmozganov>
- <https://radioprvi.rtvlo.si/2019/03/vsi-smo-jo-ze-obcutili-hkrati-pa-je-vsaka-unikatna/>



## 29. MUSIC AND RHYTHM. The musical brain: senses, emotion, memories & rhythm

**Dates and Duration:** 6 Days

**Contact:**

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XVI BAW in Murcia was co-organized by the Institute for Aging, the Clinical & Experimental Neuroscience group (NiCE-IMIB) & the Royal Academy of Medicine of Murcia. The 16th week of the brain, which took place from 8 to 15 March at Cajamurcia Foundation (center of the city with a capacity for 250 people), has dealt with the power of music, food, smells on our brains, on our emotions, on our memory.

The week starts on Friday 8th talking about women's brain and with the intervention of the organizer Maria Trinidad Herrero (President of the Royal Academy of Medicine of Murcia).

On Monday 11th, BAW was dedicated to music and the healing power of music: music therapy. Fini Gomez talked about music as an art that modulates our mood, stimulates memories and allows us to share emotions. A musical rhythm can activate, excite, calm or relax and in all this we are not all the same. Some musical genres influence us more than others. "Music is a musical experience that can activate all areas of the brain simultaneously". During the evening, a collective music therapy session was offered to the public with classical music melodies. This day ended with a tasting dedicated to Murciatone, the murcian "panettone".

On Tuesday 12th, it was a customary evening: "Love & sex". The psychiatrists Francisco Toledo and Carlos Garcia Brinon talked about it. The original question was: can love responses be found in science? Psychiatrists have shown that the stages of falling in love, lack of love and sexual desire are a brain issue. Love is, in effect, a state of transient dependence that depends on dopamine. In all this, it's not the heart. Love is in the brain.

Wednesday 14th opened with an interactive game: the myths of the brain. 4 doctoral students collected some curiosities and false myths about the brain and proposed them through a web platform.

Later Carlos Escobar spoke of the art of improvising jazz music. Improvising means having an idea in the brain and expressing it through an instrument. It is a dynamic moment that leads to an immediate decision on what sounds to go to use in a live interpretation. The evening ended with an improvisation of jazz music.

On Thursday, people enjoy and learn about flavors, regarding to taste sensation and visually. Do we all have the same perception of aromatic substances and flavors? Or does each of us perceive them differently?

Ana Moreno explains what happens when we ingest a food: we immediately have a gustatory perception that depends on the gustatory buttons that communicate with the brain. The taste is related with the sense of smell and sight, and it was demonstrated through an experiment: some volunteers from the public tasted a drink with tweezers that did not allow them to smell it. Each of them had a different perception of the drink, and nobody could identify it. In the second part, there has been talked about Neuromarketing. What happens in the brain when we hear some smells and listen to music? During the conference Victoria Cava (a flamenco artist playing with her group) was subjected to the EEG and her neurometric responses were detected while she smelled some fragrances and while performing with her group in a flamenco performance.

This Neuromarketing tool allows people to see in the screen the measurements of brain activity expressed by attention, interest and cognitive effort. The artist was also subjected to the GSR sensors (galvanic skin response) to detect her emotions during the musical performance and while feeling some odors.

The final evening dealt with the theme of "healthy foods for the brain: emotion and prevention". At the center of attention were four foods: bread, tomato, oil and Iberian ham. The theme of healthy eating was carried out by three leading companies in Spain.

"Eat well to keep your brain healthy"- In particular, Julian Castillo spoke about the benefits of extra virgin olive oil: there is a link between oil consumption and greater cognitive ability (improving cardiovascular situation). Finally, a demonstration of Neuromarketing was made by Prof Babiloni from Rome Sapienza University. We measure brain activity and emotional response through the EEG in front of the smell and taste of Iberian ham.

More than 250 people attended every Afternoon and many waiting outside. Additionally, that week we explain the brain to teenagers and as well the Neuroclub of Murcia was active celebrating the BAW.

#### Related Links

- <https://www.um.es/documents/1995586/10366887/XVI+Semana+del+Cerebro+en+Murcia+%281%29.pdf/2634228a-150d-4ced-b6f6-57cc379853c4>



### 30. Neuromasclètà: Meeting Neuroscientists in the Street during Fallas Festival

**Dates and Duration:** 13/03/2019 to 19/03/2019

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University of Valencia

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#### Co-organiser

Mrs. Yolanda Campos-Jurado

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This year, the project involved the use of the public space (the street) during Fallas Festival to exhibit outreach posters from the different Neuroscience labs based in our region. 15 labs participated with their posters. We also had a poster explaining the use of animals in biomedical research. This exhibition was posted from 15th to 17th of March at the Falla Plaza de Jesús in Valencia. Moreover, on the 16th evening we celebrated our “outreach poster session”, where investigators from the different labs, showed and explained to the public their research. We obtain in total about 100 visitors to this poster session. Moreover, we released a free journal that collected the information of the labs that participated in our exhibition and in the talks. Finally, 4 neuroscientists gave talks to the audience in a prepared area in the street. The topics of the talks were addiction, brain changes induced during maternity, neural stem cells and its potential use in treatment of CNS diseases and behaviour changes induced by diseases. The speakers were very well received by the audience and actually the audience participated by asking interesting questions to the speakers. To finalize the event children blew up air balloons to recreate the sound of fireworks, which are very similar to

neuronal recordings. In this way we also captured the attention of kids that previously visited the poster exhibition with a guide.

*Related Links*

- <https://www.uv.es/uvweb/unidad-cultura-cientifica-innovacion-catedra-divulgacion-ciencia/es/novedades/fallas-muestran-investigacion-valenciana-neurociencia-1285899375231/Novetat.html?id=1286069281974>
- [https://twitter.com/Neuro\\_masclea](https://twitter.com/Neuro_masclea)
- <http://ruvid.org/wordpress/?p=46461>



**31. BAW 2019 at the Department of Experimental and Health Sciences of Pompeu Fabra University**

**Dates and Duration:** 11/03/2019 - 20/03/2019

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The Department of Experimental and Health Sciences (DCEXS) of Pompeu Fabra University offered several activities within the Brain Awareness Week 2019, which included conferences and demonstrations aimed at students, workshops aimed at teachers, and a social media campaign, among others. We had activities that reached across disciplines and age groups. The specific activities organized are explained below:

DCEXS researchers reached out to local schools in order to bring high school and upper secondary students closer to their research activity in neuroscience, taking part in an initiative from the Education Institute of the Barcelona City Council. Local students were able to meet researchers and discover what it means to be a neuroscientist and why it is important to study the brain.

Andrés Ozaita, principal investigator at the Neuropharmacology group offered the talk "Cannabis and brain", at the Monlau education center, in which he explained the biological bases of the effects

of drugs. Fernando Giráldez, Group leader in the Developmental Biology Group, gave the talk "The five senses: neurosciences, art and philosophy" in two different schools (Institut Secretari Coloma and Institut Moisès Broggi). He presented how the brain perceives the world and how neurosciences help us address classical problems of art and philosophy. Moreover, Adriana Castro, researcher at the Neurobiology of Behaviour group, also visited a school (FEDAC Amilcar) in order to present her research in neuroscience. In this school we also offered a Play Decide activity about Neuroenhancement, a dynamic activity that allows students to gain basic knowledge on the topic to be able to present their personal vision and build a debate filled with ethical concerns.

A workshop on writing for general audiences was organized with personalized one-to-one corrections, aimed at PhD students. The workshop organized jointly by the DCEXS, the Science, Communication and Society Studies Center (SCS-UPF) and the Barcelona Biomedical Research Park (PRBB), had as its main objective to provide the doctoral students with tools to explain their research to a non-expert audience. In the practical part, the participants began to write dissemination articles about their research. They addressed issues such as public health, neurobiology, bioinformatics or nanomedicine, the researchers conducting research on neuroscience were specially invited to attend. You will be able to see the resulting articles published soon in El·lipse and our blog Biomedia Channel.

Throughout the week, we used social media to disseminate the brain research conducted in our Department. We shared information about the neuroscientists work using #BrainAwarenessWeek and #BrainWeek

Finally, we offered a workshop aimed at schoolteachers about how the experimental animal Zebrafish can be used in students' projects. It was organized jointly with the Barcelona Biomedical Research Park animal facility. Eight teachers attended the course, which was given by researchers and technicians from the animal facility. One of the main areas discussed was focused on brain-related topics, such as the study of drug effects in the brain or the research on neurological diseases like fetal alcohol syndrome. The main goal was to provide useful tools for the teachers in order to foster students' interest in research.

*Related Links*

- <https://twitter.com/UPFbiomedia/status/1105140356671246336>



**32. Brain Awareness Week 2019 at the Hospital Nacional de Paraplégicos: explorers of the damaged and healthy nervous system**

**Dates and Duration:** 11-15/03/2019

**Contact:**

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*Co-organiser*

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Hospital Nacional de Paraplégicos

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The Brain Awareness Week at the Hospital Nacional de Paraplégicos (National Hospital for Paraplegics, HNP). March 11-15, 2019.

1. Popular Science Talks for University Students:

On Monday afternoon, two opening talks to the Brain Awareness Week were given at the Aula Magna of the Castilla-La Mancha University (UCLM) in Toledo. Dr. Oscar Gómez, professor at the UCLM, gave a lecture on the neurobiological mechanisms of addictions, and Dr. Juan Aguilar, research team leader at the HNP, discussed about the limits of the brain and how the “future brain” will be. The audience was composed mainly of college students that participated raising many questions to the lecturers.

The act also served as the institutional opening of the BAW activities in the city of Toledo, by the UCLM Deputy Rector for Research and Science Politics, Dr. Julián Garde, who opened the session and claimed the importance of popularizing the research conducted in the UCLM and the HNP. The HNP medical director, Dr Juan Carlos Adau, also welcomed everyone to the BAW, pointing out that “science is not something strange and far, but is close to our lives and belongs to us all” and that “everything is in the brain, from the way we understand ourselves to the way to get out of a crisis”.

2. Secondary schools visit the Research Unit of the HNP

251 students from secondary schools visited the research facilities of the HNP from Monday 11th to Friday 15th. Due to the high number of applications, 36 additional students were given appointment to visit the HNP on the 28<sup>th</sup> of March. The visits started with an introductory talk by team leader Dr. Eduardo Molina on the distinct features of scientific research in the HNP. Then, the students were guided through educational itineraries conceived to explain how research projects are designed and developed and how the obtained results can improve the life of SCI patients. Most laboratories of the Research Unit, as well as research support facilities (Microscopy, Magnetic Resonance, Proteomics and Cytometry) were involved and the students were given the opportunity to interact

with the personnel and with some experimental techniques. The itineraries introduced the students to the following topics:

1. Fatigue in spinal cord injury (SCI).
2. Electrical stimulation can help us walk.
3. MicroRNAs to repair the spinal cord.
4. Stem cell therapies.
5. What happens after a SCI? Can we promote regeneration?
6. Biomaterials for SCI treatment.

The scientific activities were complemented with a short guided-tour through the hospital facilities to show the students the basics of the HNP strategic goals as well as patients' daily routines. Finally, students meet a group of young SCI patients (of approximately their age) under the supervision of the HNP psychologist Dr. Carmen Fernández to provide the students with a positive insight on how to manage SCI circumstances on the real life.

Feedback from students and their teachers was highly positive. Students enjoyed the visit and gave their opinions about the different parts of the itineraries. Besides the scientific topics, they were grateful for the conversation with SCI patients. On the other side, teachers recognised the value of the visit to the HNP for the students to learn the importance of research and to prevent SCI in their future. They encouraged us to go on with the organization of popular science activities for students.

### 3. Scientifics discuss SCI therapies with patients

An open round table was held on March 14th, with researchers Dr. Daniel García, Dr. Ángel Arévalo and Dr. Eduardo Molina bringing up to date the discoveries on SCI treatments. About 40 people, comprising SCI patients and relatives, attended the discussion and raised questions that were answered in depth by the experts.

### 4. HNP researchers visit primary schools

Researchers Marta Zaforas, Dr. Marina Benito, Dr. Juliana Rosa, and Dr. Teresa Muñoz from the HNP visited 115 kids (aged from 5 to 6 years old) from two public primary schools to show them how the brain processes sensory information. For this activity, researchers performed a short play, followed by the construction of their own brain helmet used to identify the brain areas corresponding to each sense. In addition, kids and teachers learned that brains need to be exercised in the same way as other parts of the body. The overall experience was absolutely rewarding, and kids and teachers enjoyed an instructive and funny time together with the scientists from our Institution.

#### *Related Links*

- <https://www.jotform.com/uploads/FENS/90765324617360/4306276444232782244/Video%20semana%20cerebro%204.mp4>
- <http://www.infomedula.org/?p=3610>
- <https://www.facebook.com/neuroproteccion.medula.espal/posts/2310938755849907>
- <https://twitter.com/HnpSai/status/1106112623446290437>

- <https://www.linkedin.com/feed/update/urn:li:activity:6512339837306040320>



**33. Free public evening lectures, poster exhibition and guided tours at the Anatomical Museum presenting the topics of Basel's Brain Research**

**Dates and Duration:** The whole BAW Week (7 Days)

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*Co-organiser*

Dr. Catherine Alioth  
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Neuroscience Network Basel

The Neuroscience Network Basel organized a program during the Brain Awareness Week (BAW) in Basel (March 17 to March 24) consisting of five public evening lectures followed by Q & A sessions, a poster exhibition at the venue and guided tours through a special exhibition at the Anatomical Museum of Basel.

Public evening lectures

Researchers in neuroscience of the Basel area presented their current research topics and results to the public on topics such as how the brain decodes words and numbers, on sensory perception and behavior, on how the brain controls movements, on lifestyle physical activity and the brain and on the impact of stress on the brain. The evening lectures highlighted hot topics ranging from molecular neurobiology to neuropsychology, thus covering many different research areas in modern neuroscience. The audience much appreciated the broad range of topics from basic research to applied and clinical research. The public demonstrated their great interest in these topics by asking many questions after the talks and engaging in a lively discussion. In total we welcomed over 2'300 attendees! It was very satisfying for the speakers to present their work to a full lecture hall (see

photo 1). Some persons attended more than one lecture! It was a particular pleasure to be congratulated by some people who attended the evening talks of the entire Brain Awareness Week and to be asked when next year's lectures will take place! The lectures were free of charge and the speakers were not remunerated.

Poster Exhibition in the entrance hall of the venue

Nine researchers presented their research on a poster. This was an attractive additional platform to obtain information about current research for the attendees of the lectures, before or after the evening lectures (see photo 2). Topics of the posters were for example "Glia cells in the brain" to "Neuron variability", "Influence of expectations on perception", "Autism", "Sleep" and "Mechanisms of neurodegeneration".

Guided tour at the Anatomical Museum

Group leaders of the NNB offered special guided tours through the current exhibition at the Anatomical Museum entitled "Mysterious Brain: Do sports make us clever?" On a daily basis, in groups of around twenty persons, researchers explained the posters and exhibits and discussed topics of interest (photo 3 and 4).

This year's popularity of the BAW in the public was on one hand certainly due to the choice of topics and excellent speakers. On the other hand we are convinced that the FENS financial support was very helpful, because it allowed us to have a more extensive advertisement campaign. We would like to express our huge gratitude to the FENS!

March 28, 2019

Catherine Alioth and Simone Grumbacher, on behalf of Prof. Nicole Schaeren-Wiemers

*Related Links*

- <https://www.neuronetwork.unibas.ch/brainweek19>
- <https://www.facebook.com/Neuroscience-Network-Basel-124257454451418/>
- <https://twitter.com/NNBtweet>
- <https://www.linkedin.com/in/neuro-network-basel-1b764415a/>



### 34. Our Brain Events in Greater Istanbul Kocaeli Region

**Dates and Duration:** The whole BAW Week (7 Days)

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In this year's event, faculty members from Gebze Technical University (Molecular Biology and Genetics), Yeditepe University Hospital (Dept Radiology), Boğaziçi University (Institute of Biomedical Engineering) and Sakarya University (Faculty of Education) have visited 2 nurseries, 3 different elementary schools and 1 secondary school, and reached a total of almost 400 students.

As usual, in this now-traditional activity, faculty members had given a brief presentation (5-10 min, depending on the level of students) on their research area, including brain imaging, neuroscience, neurobiology, and learning; they have talked to students about "neurons" (with their "hair" or dendrites, and their "arms" or axons), role-playing as neuronal networks within classroom, and demonstrating with an interactive home-made toy neuron.

We discussed what brain means to us, its neural composition and how it helps us with our daily activities. Brain imaging systems and their usage in certain conditions were mentioned. Students had a chance to see how the brain can be "fooled" by optic illusions. They were given various activities at specific stations such as juggling, optical illusions, exploring brain model and so on. Activity sheets, caps and brain-shaped erasers were given to the children. Slogan that won last year's competition was used in this year's theme.

The activities were shared on social media, mainly on our lab's Facebook page (<https://www.facebook.com/AxanLab>), laboratory website (<https://axanlab.com/outreach/>) and twitter accounts (@isil\_aksan), TUBAS (Neuroscience Society of Turkey) Brain Awareness Week Facebook page (<https://www.facebook.com/BeyinFarkindaligiHaftasiBAW/>), Facebook pages of partner schools or science centers.

Also this year for the first time, our activity was interviewed on Iz TV, a thematic TV show, and our interview on FENS BAW activities and goals was aired nationally.

*Related Links*

- <https://www.facebook.com/AxanLab>
- <https://axanlab.com/outreach/>
- <https://www.facebook.com/BeyinFarkindaligiHaftasiBAW/>



### 35. Brain, Behaviour and Beyond

**Dates and Duration:** Wed 13th March

**Contact:**

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“Brain, Behaviour & Beyond” was held at the University of Leicester on Wednesday 13th March, hosted by the Department of Neuroscience, Psychology & Behaviour. Linked to the Dana Foundation’s Brain Awareness Week (11-17 March), the event formed part of a worldwide campaign to increase awareness of brain research. Two sessions were held in the George Davis Centre for Medicine, each comprising short talks, followed by demonstrations and posters with accompanying refreshments. The afternoon session was aimed at school students, while the evening session was aimed at the general public.

The afternoon started with a talk from Dr Ben Warren, describing research on how insects hear, and how this can help us understand human hearing loss. He demonstrated coding of auditory information by playing recordings of electrical signals in locust auditory nerves during popular music and asking the audience to guess what song was being played. This was followed by a talk from Dr Annemieke Apergis-Schoute about obsessive-compulsive disorder: she presented some recent findings showing how deep brain stimulation can alleviate symptoms. Finally, Dr. Jaime McCutcheon discussed how the brain helps animals to find food, focusing particularly on the neurotransmitter dopamine. The talks were followed by a less formal time, accompanied by refreshments, during which the guests took part in demonstrations, visited posters and talked to the scientists.

The evening session began with Professor Elizabeta Mukaetova-Ladinska reviewing the latest evidence on the influence of diet on wellbeing, and how diet affects neurone function and cognitive performance. Next, Dr Mervyn Thomas gave an insight into nystagmus, an eye disease involving involuntary movements of the eyes, and discussed recent improvements in diagnosing and treatment. Again, this was followed by demonstrations and posters, and opportunity to meet scientists informally, accompanied by cheese and wine.

Demonstrations explored many aspects of brain organisation and activity and visitors experienced for themselves phenomena related to brain function. “Ophthalmology” demonstrations, showed how optical coherence tomography and electrooculography enable us to study retinal structure and eye movements: visitors could look at their own retina and their record eye movements. In “Neuroscience of illusion” visitors took part in psychology experiments testing vision and attention and learned the science behind how the brain can be misled using optical and cognitive illusions. “Molecular basis of taste perception” tested whether people were 'super-tasters' – a greater sensitivity to bitter taste, due to genetically determined type of bitter receptors on the tongue. This simple experiment illustrates both how taste is perceived and how it is affected by genetics.

Electrical signalling in nerve cells is critical to transmission of information, and “Seeing signals controlling muscles” enabled visitors to visualise electrical signals in arm muscles when they lifted objects. Complementing this in “Stimulate locust neurones” visitors ‘tickled’ a locust and saw electrical responses of motor neurons controlling ‘kicks’ of the hind legs. By using fluorescent markers in developing zebrafish “Seeing neurones” enabled visitors to see neurones in live 1-day old fish under a microscope, and learn how these techniques help understand human neurodevelopment. “Learning with worms” showed experiments with Planarian flat worms, looking at mechanisms of animal learning, which apply also to mammals, including humans. “Animal research” demonstrated how animals used in research are cared for: staff from the Preclinical Research Facility showed research on improving housing, husbandry and care of experimental animals, and answered visitors questions on the use of animals in research. In addition, posters presented mainly by postgraduate and undergraduate students outlined current research in psychology, neurophysiology, neurochemistry and behaviour.

Visitors took full advantage of the opportunity to chat to presenters, identified by “Ask me a question” badges, and a great deal of lively and enthusiastic discussion ensued on current research and many other aspects of brain function.

#### Evaluation

The primary aim of the event was informing visitors how research helps understand brain function, and develop new treatments for diseases involving brain dysfunction. During the afternoon, 233 school students attended representing 16 schools from the local area and further afield, and in the evening 156 people attended, ranging in age from early teens to octogenarians. Feedback showed that most people found the event interesting and informative (>90% agreed). Comments included; “Fun, informative and engaging”; “Fantastic”; “Very well run”; “Brilliant and inspiring”; “Very organised - the lectures were excellent”; “Practical, interesting, informative”; “Just keep up good work”.

A secondary aim was to give early-career scientists the opportunity to present to non-specialist audiences. Undergraduate students, postgraduate students and early-career post-doctoral researchers took part by helping with organisation, presenting posters and/or helping with demonstrations.

### Related Links

- <https://www2.le.ac.uk/institution/dbs/forms/brain-awareness-report>
- <https://www2.le.ac.uk/institution/dbs/outreach-and-public-engagement/brain-awareness-week-2019>



### 36. Other ways of communicating: Aphasia and Brain Awareness Week

**Dates and Duration:** 15/03/2019

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The event was held at the Communication Clinic at UCL's Division of Psychology and Language Sciences, with an audience of 40-50 people made up of members of the public, service users, academics and artists.

During the event, creative work was shared from the development of a new opera which will explore people's experiences of aphasia through music and storytelling. Leading up to the event, various participants had worked on different elements of the opera, and these were exhibited to the public. Materials on display included descriptions of stories by people with different types of aphasia; images depicting scenes in the opera manipulated to fit descriptions of them by people with different types of aphasia; original artworks inspired by the creative process and the relationship between music and language in the brain, and audio recordings of people with different types of aphasia.

An introduction was given to the public on the nature of aphasia, and this was then followed by a creative and participatory workshop led by an artist and an opera singer. Everyone was encouraged to explore their voices, the physicality of singing and emotion.

'Introducing you to your brain' flyers were distributed to everyone who attended, and everyone shared tea, coffee and cake to discuss Brain Awareness Week, their own relationship with their brain and, in particular, aphasia and the brain.

*Related Links*

- <https://blogs.ucl.ac.uk/communication-clinic/2019/05/22/aphasia-opera-performance/>

