Newsletter 47

Schweizerische Gesellschaft für Versuchstierkunde
Société Suisse pour l'Etude des Animaux de Laboratoire
Swiss Laboratory Animal Science Association
sgv.org

Summer 2014

2014 MEETING

December 2nd and 3rd 2014

Recognized as continuing education by the Swiss veterinary authorities

REGISTRATION: www.sgv.org

Contents

Join SGV

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Word of the President

Dear SGV Member, Dear Reader,

First of all, it is a great honour for me, to follow Marcel Gyger after his 9 years of presidency as the new President of the SGV. I would like to thank hereby Marcel for his great dedication and commitment in particular in the area of education and training.
I joined the SGV in 1999 and the Board in autumn 2011 following Ruedi Pfister who left the Board that year. I am really proud to be part of such an organization, collaborating with the very much dedicated board members and an excellent Education Committee. The quality of the scientific contributions at the SGV-Meetings is very well recognized within the in vivo community. Join the SGV!

At our last general assembly in November 2013 in Lausanne we welcomed a new member of the SGV board: Xavier Warot from Swiss Federal Institute of Technology Lausanne and also member of the newly founded SAFN (Swiss Animal Facility Network, see below).

The topics that are of particular concern for us this year are the first-time publication of breeding numbers which were released on June 26th this year, as well as promoting the exploration of alternative methods to animal experimentation and to strengthen the implementation of these methods in research. The Swiss Animal Welfare Officer Network (AWO) was invited by the Federal Food Safety and Veterinary Office (BLV/OSAV) on May 22nd at the cantonal veterinary office in Zürich. Topics were new information in the area of animal experimentation and the upcoming animal statistics including the number of animals being bred in house or ordered from academic or commercial breeders (see also contribution from Andrina Zbinden on the Swiss Animal Officer Network). The statistics revealed that only 20 % of the bred genetically modified mice have been used in animal experiments as only a small percentage of offspring are genetically suitable. The research community feared that this issue would be a concern for Animal Welfare Organizations and the Public. Therefore, several organizations like the newly formed SAFN (founded by CRUS beginning of 2014), Basel Declaration, Forschung für Leben and Interpharma (Swiss research-based pharmaceutical industry) have prepared an argumentarium to be used for communication of the animal statistics (see contribution of Basel Declaration together with Forschung für Leben). In general, communication and transparency on Animal Research and Animal Welfare is essential in order to ensure the public acceptance for animal experimentation in the future. I personally think it is quite obvious that it will not be possible in the near future to completely dispense with animal experiments. This leads me to the next topic:

The other important topic is of course the further strengthening of the 3Rs in research. In my experience many researchers are not even aware that they are including the 3Rs in their research. Therefore, I very much welcome the initiative of "Forschung für Leben" www.forschung-leben.ch/ to organize a 3Rs workshop in spring 2015 with representatives from several institutions in Switzerland. The idea behind this is to have an overview about the current status of 3Rs activities in research and to give also recommendations to the respective institutions how to further strengthen and implement the 3Rs. In this context I would also like to remind you to participate in the Swiss 3Rs Network, http://swiss3rnetwork.org/, the interactive platform for the promotion of the 3Rs in animal experiments.

Finally, we have again a very interesting scientific program at our next SGV-Meeting on December 2nd and 3rd at Technopark in Zürich. We are especially proud having Paul Flecknell with us for the SGV Awardee lecture 2014 for his outstanding research work leading to advances in pain assessment and Laboratory Animal Welfare.

As we have now vacation season I would like to take the opportunity to wish you a very nice summer and looking forward to meeting you in Zürich and at our SGV General Assembly on December 2nd.

Birgit Ledermann
President of the SGV

SGV 2014 Meeting - December 2nd & 3rd, 2014 - Technopark, Zürich

Tuesday morning, December 2nd, 2014

Should we put clothes on our mice

09:00 09:10	WELCOME	SGV President
	Why we should put clothes on mice	*Chairpersons: M. Deurinck, M. Gyger*
09:10 10:10	Plenary lecture Thermal physiology of laboratory animals: defining thermoneutrality	CJ Gordon (Research Triangle Park, USA)
10:10 10:45	Thermoneutrality and metabolism	J. Nedergaard (Stockholm University, S)

COFFEE BREAK- INDUSTRIAL EXHIBITION (40 min)

		Chairpersons:
11:25 12:00	Tumor growth and immune control: influence by subthermoneutral housing temperature	K. Kokolus (Roswell Park Cancer Institute, USA)
12:00 12:35	Thermoregulatory responses to lipopolysaccharide in the mouse	A. Romanovsky (Barrow Neurological Institute, USA)

LUNCH- INDUSTRIAL EXHIBITION (1h10)

Tuesday afternoon, December 2nd, 2014

Analgesia / anesthesia / euthanasia

		Chairpersons:
13:45 14:40	SGV AWARDEE LECTURE 2014: Analgesic Best Practice for the Use of Animals in Research: a review	P. Flecknell (Comparative Biology Centre, UK)
14:40 14:50	Brief communication: New development in analgesia: long-term delivery of analgesics	P. Jirkof (University of Zurich, CH)
14:50 15:25	Balanced anesthesia	N. Cesarovic (University of Zurich, CH)
15:25 15:55	A simple method to monitor vital parameters in newborns rodents	JW Yang (University Medical Center of the Johannes Gutenberg-University, D)

COFFEE BREAK- INDUSTRIAL EXHIBITION (40 min)

	Euthanasia	*Chairpersons:*
16:35 17:10	Should anesthesia before euthanasia with CO2 become a standard procedure?	D. Weary (University of British Columbia, CA)
17:10 17:45	Cervical dislocation: a humane method of euthanasia?	L. Carbone (University of California, San Francisco, USA)

This course is accredited as continuing education in Switzerland for experimenters and study directors in animal experimentation

SGV General Assembly at 18:00

Gala Dinner at 20:00

SGV 2014 Meeting - December 2nd & 3rd, 2014 - Technopark, Zürich

Wednesday morning, December 3rd, 2014

Genetic engineering procedures in rodents

09:00 09:10	WELCOME	SGV President
		Chairpersons: M. Deurinck, M. Gyger
09:10 10:10	Plenary lecture Gene targeting in rodents: a review of the latest technologies (ZnFingers, TALENs, CRISPR/CAS-mediated genome engineering): Pros and Cons	R. Kühn (Max-Delbrück-Center for Molecular Medicine, D)
10:10 10:45	Refinement • Testicular transgenesis • Non surgical embryo transfer (NSET)	S. S. Majumdar (National Institute of Immunology, IN)

COFFEE BREAK- INDUSTRIAL EXHIBITION (40 min)

		Chairpersons:
11:25 11:55	Mice generated by IVF exhibit vascular dysfunction and shortened life span	U. Scherrer (University Hospital Bern, CH)
11:55 12:35	Ethical issues and welfare concerns in the generation of GMA	G. Griffin (Canadian Council on Animal Care, CA)

LUNCH- INDUSTRIAL EXHIBITION (1h10)

Wednesday afternoon, December 3rd, 2014

Reporting genetically modified animals in Europe and in Switzerland

		Chairpersons:
13:45 14:20	GMA Breeding and Colony Management	J. Jaubert (Institut Pasteur, F)
14:20 15:40	Round table on the reporting of the production and breeding of GMA in Switzerland, in the Netherlands and in the UK. • Definitions, Reporting format, Statistics, • What is the response of the public? • How does/should the scientific community communicate to the public?	Invited speakers: - Jan-Bas Prins (Leiden University Medical Centre, NL) - K. Garrod (Home Office, UK) - Federal Food Safety and Veterinary Office (FSVO, CH)

COFFEE BREAK- INDUSTRIAL EXHIBITION (40 min)

	Fur mites	*Chairpersons:*
16:20 17:10	Fur mites: generalities, treatment, can fur mites or treatment impact on my research?	F. Wolf (Memorial Sloan-Kettering Cancer Center, USA)
17:10 17:30	How to avoid transmission of fur mites to our animal facilities	X. Warot / G. Ferrand (Swiss Federal Institute of Technology, CH)

Word of SGV Members – Marcel Gyger

Dear Reader, Dear Friend,

The SGV editorial board has asked me to contribute to this issue of the newsletter. The reason lays probably in the fact that as former SGV President I had the duty to write a short introduction to the issues.

Even if it takes time and one can sometimes doubt of its efficiency, I accepted with pleasure this proposal! Instead of entitling this short article "Word of a Past President", "Back to the Past", "Once upon a time", I propose a very simple and non-sexy title "Word of Members". More involvement of SGV members in the life of the association has always been a concern of the board. Success was always mitigated. Let's try this one, one can dream.

The SGV is involved in many fields of animal experimentation, among the most important is education and training, legislation, setting up a Non-Human Primate working group and more recently launching the Animal Welfare Officer Network in our country and outside through FELASA. One field in which the SGV is not implicated is the State Commissions for animal experimentation or in German, "die kantonalen Tierversuchskommissionen", or in French, "la Commission de surveillance des expériences sur animaux". Should the SGV, alone or with the Animal Protection Associations, be more involved with these commissions; for example providing to members of commission education on specific animal models, on what potential benefits basic research can provide, or explain how science is working today?

At first analysis, I would say no! Why do I then raise this topic? Actually a few weeks ago, I participated to a meeting organised by FSVO where they presented 2 addenda to the article 20 of the Animal Protection Law, letter a) & c). Letter a) request more transparency in the research using animals and letter c) gives access thanks E-Tierversuche to members of State commissions to licenses outside the State where the commissioner is appointed. In other words, as a member of the State commission of Lausanne, I could have access to a license delivered in Zurich on a similar animal model, for example. I could compare the prospective degree of severity given in each state, compare humane endpoints, number of animals per group, etc…

As consequence of enforcement of Article 20, letter a), the first reporting of licenses will be November 1st 2014. Commission members will access to more information very soon. Time will tell us what the consequences will be for the scientists.

Currently, our society asks for more transparency in any human activity, and animal experimentation makes no exception. The researcher community should be aware of it. Among us, we discussed for many years about communication to the public. Time is not any longer to ask whether we should communicate or not. Now, the question is how should we organise it. Legislation is asking for it, do we like it or not. An action launched in the UK should interest the Swiss scientific community, the **Concordat on Openness on Animal Research** (see www.understandinganimalresearch.org.uk/policy/concordat-on-openness-on-animal-research).

The idea is not to make big noise by "waking up the sleeping dog" but is to get organised, to think of the issues that people can legitimately raise on animal experimentation and be ready when things will become hotter.

I would like to conclude as I started. This is a Word of SGV Members. Please participate, react, and send your contributions to ingrid.kohler@blv.admin.ch for the next issue. Have a nice summer!

Marcel Gyger

Swiss 3R Network – An Internet-based interactive platform to promote the 3R principles swiss3rnetwork.org

A Swiss 3R Network Website has been launched in March 2014 in order to provide an interactive and moderated discussion platform to promote 3R aspects and to provide general information on 3R related topics.

The platform was initiated and financially supported by the Federal Food Safety and Veterinary Office FSVO/BLV and developed and actually being moderated by Prof. em. Kurt Bürki. The website is open to all persons willing to contribute to the implementation of the 3R principles. Swiss3rnetwork.org comprises a public part with general information and a blog as well as a members-only part with two separate discussion forums. In Forum 1 quick professional advice on practice-oriented and problem-oriented questions can be seeked and be discussed. In Forum 2 problems, topics or suggestions of general 3R relevance can be proposed for discussion. The website also contains a library where relevant articles, protocols, reports on unpublished findings or failures to replicate published studies, and videos that are submitted will be published. The website is compatible with tablets and mobiles.

The success and impact of the platform will largely depend on the active participation of the members, be it newcomers in the field of animal experimentation seeking for advice or be it experts. Therefore, SGV members are invited to join the network and to provide their expertise in the forums or to provide their 3R relevant articles, protocols or unpublished results to be integrated in the collection of articles.

Presentation of the Swiss Animal Facilities Network (SAFN)

Following the recommendations of the working group « organization of the animal husbandry in Switzerland », the CRUS (Rectors' Conference of the Swiss Universities) has decided to create a Swiss Animal Facilities Network (SAFN) earlier this year 2014[1].

The SAFN has two governance bodies, a Strategic Board and an Executive Board. In each body, representatives of the Academic Institutions have been appointed. Currently, each board is composed of nine members, representing the Universities, the Cantonal Hospitals and the Swiss Federal Institutes of Technology (University of Basel and Unispital, University of Bern and Unispital, University of Fribourg, University of Geneva and HUG, University of Lausanne and CHUV, USI, University of Zürich and Unispital, EPFL, ETHZ)[2].

The SAFN aims at coordinating the current and future activities of the Swiss Universities Animal Facilities, focussing mostly on rodents breeding. As examples, the Executive Board has initiated working groups of Communication of animal breeding and experimentation, and on Animal Health Monitoring. A forum open to all animal facilities management staff will be organized once or twice a year.

The SAFN will also establish collaboration with other networks and initiatives, such as the AWO network created by the SGV, the bodies in charge of Education and Training. Indeed, in some instance, similar issues are faced, and coordinated work and action will be of interest for all.

The SAFN is an exciting and stimulating endeavour that will hopefully be beneficial to all.

Xavier Warot
Chair of the SAFN Executive Board

[1] As of 2015, the SAFN will be part of swissuniversities, the successor of CRUS. Swissuniversities will be the new rectors' conference and common body of the Swiss universities, universities of applied sciences and universities of teacher education. See www.swissuniversities.ch

[2] For more information about the bodies, see www.crus.ch/die-crus/organisation/andere-organe-der-crus/netzwerke/swiss-animal-facilities-network.html

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Press release:

Research for Life Science welcomes transparency in animal experiments –
The number of animals used in experiments is declining

26th June 2014

Each year, the Federal Food Safety and Veterinary Office (FSVO) publishes its figures concerning the number of animals that are used in experiments; however, for the first time, it has also published the total number used for breeding and production in Swiss animal centres. "Research for Life Science" welcomes this transparency which underscores the well-known fact in research circles that the total number of animals kept is larger than simply the figure indicating those used in experiments. It is most pleasing to "Research for Life Science" that, despite the increasing importance and the progress of biomedical research in Switzerland, the number of animals in experiments is declining. This shows that the efforts exerted to reduce it to the absolute minimum necessary have been successful.

For research in modern molecular biology and medicine, specific genetically modified animals – especially rodents, that is, rats and mice – are the best suited and most commonly used animal models. Thanks to these animal models, the quality of studies performed has improved greatly. Because the results are more reliable, the number of animals that have to be used per study is, in general, greatly reduced. In the interest of achieving qualitatively superior research, it is important that the animals, to the greatest extent possible, show the same characteristics with respect to certain hereditary factors. This means that at least 2-4 times more animals will be bred than actually participate in experiments. For certain experiments, sometimes it is either only the female or male animals that are used. Because in natural breeding, both female AND male offspring are born, on average, only every second animal can participate in these studies.

As a result of this, only a portion of the animals bred can be used in certain experiments, while the others are kept alive in captivity, as is the case with pets and zoo animals that are in human care. In Switzerland, the requirements with respect to the humane treatment of animals are extremely high, as indeed they should be. In contrast to animals kept as pets, those found in animal labs at universities and in the industry, for example, are subject to stringent state control, including unannounced inspections. Violations are penalised. This ensures that the animals are exposed to no unnecessary suffering. It used to be the case that many laboratory animals were imported from foreign breeding centres. Today, most are bred – and kept - under the best possible conditions in Switzerland.

It is especially encouraging that the numbers of animals used in experiments is declining. Altogether, the total number is being reduced though at universities, a slight increase is seen. But here too, the vast majority of animals do not - or only slightly - suffer harm (severity 0-1). Considering the large growth in research groups in the Life Sciences area, and especially in Biomedical Research, the fact that fewer animals per study are required is a positive development that "Research for Life Science" deems a great success. In academic research, animal experiments are usually combined with alternative methods (cell-based studies and/or

computer simulations) in order to achieve more meaningful results. This shows that researchers in Switzerland follow the principle of the 3Rs (reduce, refine, replace) to achieve solid and significant results using the fewest number of animals possible.

A joint press release from "Research for Life Science" and the "Basel Declaration Society"

Swiss Animal Welfare Officer (AWO) Network

In October 2013 the AWO Network has received external regard by its acceptance as an official partner to the BLV as one of the expert groups in laboratory animal topics. Furthermore, administrative support has been granted by the SGV to facilitate the taking of the meeting minutes.

In 2014 we met twice, on 11 February at the Inselspital Berne and 22 May at the Irchel, Uni Zurich. On the date of the latter, we were invited to a meeting at the Cantonal Veterinary Office ZH to receive news in the area of animal experimentation, e.g. the forthcoming publication of key data of animal experiment after their completion.

Several topics were discussed within the Network, which comprised:

Definition **of a gm mouse "line"**: in progress.

A first draft for the revision of Guideline 1.07 (Animal Welfare Officer) was discussed and is now in further process. One of the challenges is to include the different roles an AWO may take in different parts of Switzerland.

On the occasion of the publication of experimental animal numbers including - for the first time – animals kept in laboratory animal facilities on 26 June input has been given concerning the use and breeding of gm animals.

A Swiss 3R workshop beginning of 2015 will be organised together with "Forschung für Leben" e.g. for the update on current 3R activities in Switzerland.

A general topic was brought up to consider how to inform the public about the use of animals in research and for clarifying the difference – or more precisely the close connection – between basic and applied research.

The collaboration within the AWO Network has been shown to grant helpful support for and of the colleagues, also at the level of continuous education. Moreover, the members are encouraged to contribute to the 3R discussion forum to share their experience with a wider scientific community.

Andrina Zbinden-Hauzenberger
Animal Welfare Officer University of Fribourg

Non-Human Primates (NHP) Network

The SGV non-human primate (NHP) network consists for researchers in academia and industry, which are active in Switzerland. Our common goal is to promote mutual exchange of NHP specific knowledge and refine and coordinate relevant procedures.

An important current focus of our activities is to formalize and professionalize the training of investigators working with NHP in Switzerland. In collaboration with the Institute of Laboratory Animal Sciences of the University of Zürich, we are in the process of implementing an advanced continuous education course that will introduce participants to theoretical and practical aspects of working with NHP. The scope of the course includes several species belonging to the primate order, as well as tree shrews, a species closely related to primates yet belonging a the distinct phylogenetic order. The establishment of this training course reflects our belief that comparative investigations of biomedical processes in different species are crucial for the discovery of general principles underlying the function and dysfunction of particular biological processes. The course is envisioned to take place on yearly basis, on three days conducted on site at laboratories in Fribourg, Zürich and Basel. We would here like to encourage participation of SGV members, who happen to have an interest in the above mentioned species, in this course.

Related to the SGV NHP network is the recently established "Swiss Primate Center for Competence in Research", an initiative supported by the Swiss University Conference to consolidate NHP research related activities at the Universities of Zürich and Fribourg. More information is available on the SPCCR website (e.g. www.unifr.ch/neuro/rouiller/SPCCR/pdf/researchmedia.pdf). Part of the mission of this center is to coordinate research activities at the partner sites, and provide a platform of collaboration for interested parties within Switzerland. These initiatives underline that as highlighted by relevant systematic reports (e.g. www.acmedsci.ac.uk/download.php?f=file&i=13554*) NHP research is at present and in the foreseeable future considered to be an indispensable part of biomedical research.*

Prof. Gregor Rainer
University of Fribourg
Chair of the SGV NHP Network

SGV Travel grant - Policy

To support its members for continuing education, the SGV has at its disposal a total amount of CHF 10'000. The SGV Board according to the state of the SGV finances can change this amount. A minimum of CHF 4'000 is covered by money donated by the Swiss Academy of Sciences. Travel grants will be given to members either working in CH or coming from abroad to CH for a continuing education course or for projects related to the 3Rs. A first tranche of funding of CHF 7'000 is allocated to early career members for continuous education purposes. The next tranche of funding of CHF 3'000 is dedicated to members who will actively contribute to the 3Rs (i.e. a 3R course organizer, FELASA Days, etc). If by August 1st, there is still money available from the second tranche, it will automatically be transferred to the first tranche. The SGV Board will discuss exceptions.

Criteria to get a grant

- Be or become a SGV member.
- Only courses with an importance in laboratory animal science (LAS), husbandry, breeding or experimentation with a gain of knowledge in the 3Rs will be acknowledged.
- Preference will be given to Ph. D - students in their final student year or to postdoctoral fellows in their initial postdoctoral years.
- Candidates will be supported only if they actively participate to the meeting by presenting a poster or an oral communication.
- One grant per person will be allocated over a period of time of 4 years: CHF 500 for CH / CHF 1'000 for / from EU and other destinations.
- One grant per research group per year. One grant per conference per year. Should another member apply for the same conference, the grant policy is based on "first-come, first-served".
- Short-Term Scientific Missions enabling young scientists to visit other laboratories, for instance to learn a new LAS technique will also be supported.
- At the end of the meeting or mission, a report will be sent to the president of the SGV education committee for publication in the next SGV Newsletters.

Application

Applications will be sent by email to the president of the SGV education committee by the laboratory principal investigator (senior scientist) at least 4 weeks before the beginning of the meeting/project/mission. The application must include:

- First name, surname, position and matriculation number of the young scientist
- Address and name of the research group
- Date, location, name of the course
- Scientific program of the course
- Argument about the importance of the course (see criteria to get a grant)
- Costs

Decision bodies

- The SGV education committee.
- For exceptions, the president of the SGV education committee will transfer the application to the SGV Board.

Transfer of the grant to another person

- The grantee will provide specific information to the president of the SGV education committee at least 3 weeks before the meeting. The SGV education committee will then decide whether or not to transfer the grant.

Transfer of the grant to another meeting/course

- If the grantee wishes to transfer her/his grant to go to another course, she/he will contact the president of the SGV education committee.

SGV Travel grant - Reports

Felasa D course

Subject: This report addresses to the Felasa D course that happened in the past 31st March to the 5th April, at the University Autonoma of Barcelona (UAB). The course was about "Anaesthesia and Analgesia in Laboratory Animals" and was the 5th module from the Master in *Science and Welfare in Lab Animals*. It gathered researchers, veterinarians and PhD students from all over the world that wanted to learn and improve their skills regarding the handling of lab animals for anaesthetic procedures and drugs to use in each particular specie and study case. The professors involved in the lectures are well known in the field: Professor Ignacio Álvarez, Professor Paul Flecknell, Professor Patricia Hedenqvist, among others. In my particular case, this course was essential for the acquisition of knowledge regarding mice and rats, once I work mainly with rabbits.

Scientific Program: This one week course included theoretical and practical classes and a work group about a clinical case for presentation and discussion in the last day. All students were evaluated during the week and with an individual clinical case to solve. The following topics were presented by the professors: >Recognition and management of pain: assessment and pain relief. >Analgesics. >Anesthesia principles and techniques. >Object and Purpose of anesthesia. >Pre-anesthesia and preoperative management. >Choosing the proper anesthetic. >Anesthetics: injectable and volatiles. >Endotracheal intubation, artificial ventilation and monitoring. >Local and regional anesthesia. >RCP and cardiovascular complications. >Anesthetic interference with the results of the investigation. >Specifications by species: rodents, rabbits, dogs, cats, pigs, ruminants, reptiles, birds and primates. >Euthanasia.

Importance of the course: The attendance to this course allowed the acquisition of new knowledge and more accurate skills related to the work with laboratory animals. This knowledge will also be shared with students (vet, biology and biochemistry students) from the University of Trás-os-Montes e Alto Douro (UTAD) and applied in the development of scientific work evolving animal experiments. Moreover, it will also be valuable in the training and supervising of people that intent to work in animal facilities.

Finally, I want to thank SGV for the grant offered to attend this course.

Yours, sincerely,
Sónia Campos
DVM, MSc, PhD student in Veterinary Sciences , University of Trás-os-Montes e Alto Douro, Vila Real, Portugal

Society for Neuroscience Meeting, San Diego, November 9-13, 2013

Thanks to the generous support of the SGV travel fellowship I was enabled to attend the Society for Neuroscience (SfN) meeting in San Diego (USA). The SfN meeting is the annual highlight of my scientific calendar since a large number of neuroscientists (~35,000) from all over the world get together to discuss the latest developments in brain research. The 5 days of the meeting are densely packed with interesting science and researchers gathering through rows of thousands of posters to explore the newest scientific and technological advances in the field.

My day started with the morning lecture at 8:30, usually a talk of broad interest within and beyond the neuroscience community. After this lecture I followed my program for the poster sessions. It is of great importance to prepare a program beforehand due to the exhausting amount of posters presented at each session. A vital part of the meeting took place in the evenings: The presidential lectures were held followed by networking opportunities at social events, discussing ideas at dinner, establishing collaborations over a glass of wine. San Diego, one of the most captivating cities in the United States with mild climate even in

November offered many wonderful venues for these activities. Those events were a great opportunity for me to interact with the internationally most renowned researchers from all across the globe and maintain my international profile.

Among a number of interesting lectures and events, one of the meeting's highlights for me was the presidential lecture held by Prof. Jeff Lichtman from Harvard University. The main ballroom of the convention center was filled up with nearly 5000 scientists when Prof. Lichtman presented a few salt grain sized chunks of mouse brain. Due to novel advances in high-throughput automated electron microscopy allowing brain mapping at a resolution 1 trillion times finer than that of a magnetic resonance imaging scan, this tiny content of the mouse's brain was shown in such a precise and delicate detail that had never been seen before. Remarkably, 680 nerve fibers and 774 neuronal connections called synapses were found in this small piece of tissue representing about one billionth of the mouse's total brain. Another breakthrough technology was shown by Stanford University neuroscientist Karl Deisseroth: SWIFT-volume imaging is a technique that allows monitoring of more than 1000 neurons at once in 3D. The neurons can be even recorded while the animal runs or learns a certain task. These novel techniques will hopefully allow us to gain detailed insights into nervous system functioning and are likely to reduce the number of animals used for experimentation since the amount of information obtained from a single animal is significantly increased compared to previous technologies.

For my personal scientific interest, this meeting was very insightful and important. I visited a highly interesting special symposium on animal research and its current and future challenges. In regard to my own project, I found out that a research team based in the United States found a surprising result counteracting my own results as well as the results of several other laboratories in the field. I was able to discuss this with a leading professor in the field who was present at the venue. We compared the result with other group's findings on posters and presentations during a long and enjoyable chat. I also established important connections with other scientists and was able to meet with one of our collaborators. I believe that beyond one's scientific achievements, these personal connections are critical for successful career development. Finally, I had the opportunity to present the newest research findings from our lab on a poster. Our results show that acute blockade of the membrane protein Nogo-A increases the plasticity of synapses and improves learning of movements in the living animal. I had very stimulating discussions at my poster and received great input from a diverse crowd of neuroscientists. The insights will help me to design more efficient experiments and pursue more targeted research questions that will deepen our scientific understanding of the physiological functions of Nogo-A and its potential benefits for re-learning of movements after nervous system injury.

I am grateful to the SGV for the travel fellowship that has allowed me to participate at the annual SfN meeting and experience its vibrant atmosphere.

Sincerely,
Ajmal Zemmar

«8th FRAME training school in Experimental Design and Statistical Analysis of Biomedical Experiments» from the 28th to the 31st of January 2014 in Copenhagen

One of the most important challenge in animal research is the reduction of used animals by developing alternative models but also improving experimental design.

The FRAME is a charity organization promoting the Three Rs since 1961. Once or twice a year, they organise training courses to help scientists to optimize, design their researches in order to improve the efficiency of data analysis.

This year, the course was organised in Copenhagen last January and hinged around several tutors, experts on their respective field such as genetics, experimental design and statistics. The course focus also on the necessity to improve the conception of our experiments not only to reduce the cost in terms of living animals but also in terms of human resources. The FRAME taught us how to precisely define the scientific question and elaborate the right experimental design to save money, time and animal lives as well. A major part of publications contains erroneous procedures regarding to the conception of the experiment itself and inappropriate statistical data analysis (Nieuwenhuis et al, Nature neurosciences 2011). In order to better characterize the different parameters leading the statistical analysis, essential notions were treated during the course such as experimental unit (defining the sample size), power of analysis, randomization and blocking. Tutors also reviewed the principal statistical test and their specific application. Because one of the goals of a scientist is to share and communicate his results, they showed us the different ways to present and organize data for scientific publications.

The FRAME training school regroups researchers, veterinaries and technicians from around the world. Tutors encourage people to actively participate during the course through practical sessions (group exercises, quiz, computer sessions) and were always available to take time to answer our personal scientific questions. Our knowledge were tested the first and the last day in order to evaluate our progression and comprehension of the concepts discussed during these three days.

We highly recommend this course to anybody who wants improving their knowledge in statistical and experimental design and we gratefully thank the SGV to give us the opportunity to participate to his course. The FRAME training school really helped us to change our vision in our respective projects and contributed to develop our critical mind.

Benjamin Boury-Jamot and Anthony Carrard University of Lausanne

Reference:

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