ESCOLA SUPERIOR DE TECNOLOGIA DA SAÚDE DE LISBOA
INSTITUTO POLITÉCNICO DE LISBOA

GIAS ONGOING

Nº 4 - JUNHO 2016

GIAS Environment & Health Research Group

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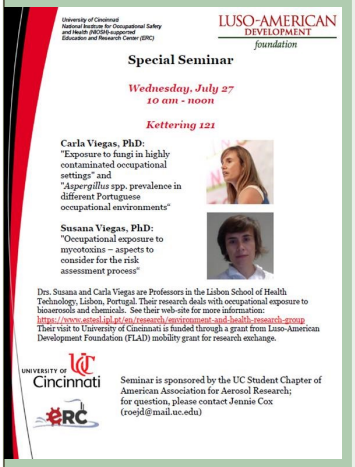
Editorial

The majority of Gias members are professors in Escola Superior de Tecnologia da Saúde de Lisboa (ESTeSL/IPL). At the end of the academic year there is the general feeling that workload will be reduced but in fact it is at this precise timing that starts the best period for research! It is now possible to do field and lab work and to catch up with paper reading and writing almost full-time. These tasks are shared with students that wish to have the taste of our enthusiasm!

Susana Viegas (GIAS Coordinator)

Achievement



The Luso-American Development Foundation presented a call aiming at supporting Portuguese Health Research Centers to the development of scientific collaboration programes with Research Centers from United States (http://www.flad.pt/flad-healthcare-2020-concurso-2016/).

GIAS has been awarded with one of these FLAD grants that will allow to share knowledge and discuss common research interests with Cincinnati University, more specifically with the Department of Environmental Health, Division of Environmental and Industrial Hygiene (http://www.med.uc.edu/eh/divisions/ih).

This proposal aimed at strengthening the relation between the research centers involved and at promoting synergies in the research topics developed by both centers. It is an important opportunity both for institutions, researchers and also to the students. This will surely be the first step for further joint research work and will increase the mobility of all the elements engaged on this proposal.

One of us!

Anita Quintal Gomes

Assistant Professor of Biology Section, Department of Narural Sciences at ESTeSL

Anita Quintal Gomes (AQG) is an Assistant Professor of the Section of Biology, Department of Natural Sciences at ESTeSL (since 2008). She is also a researcher at T cell differentiation and tumor targeting laboratory headed by Bruno Silva-Santos at IMM (since 2007). AQG became a member of GIAS in 2012, when the group was officially established.

Her main research interest has been gene expression regulation, from transcriptional to splicing, post-transcriptional and post-translational regulation in normal settings, during cell differentiation and disease. She has first started to study how mutations in the CFTR gene affected its intracellular trafficking in cystic fibrosis patient samples (lab of Margarida Amaral, INSA, PT). Her PhD was based on how post-translation-lipid modifications could regulate Rab protein targeting to membranes (lab of Miguel Seabra, Imperial College, UK). In the first post-doc she focused on transcriptional regulation mediated by splicing factors (Carmo-Fonseca's lab, IMM, PT). Finally, since she joined Silva-Santos lab, she has been interested in understanding the biology of gd T cells, key innate-like lymphocytes for the combat of infection and tumours. She first contributed to the identification of a human gd T cell receptor, relevant for targeting tumour cells – ULBP1. Subsequently, she focused on the pre- to post-transcriptional regulation of pro-inflammatory cytokine (IL-17 and IFN-g) production by gd T cells, the major mechanism by which these cells combat infections and tumours. AQG has contributed to the discovery of the epigenetic and transcriptional signatures of stable versus plastic differentiation of gd T cell subsets and is recently involved in a study of post-transcriptional - non-coding small-RNA - mediated regulation of these subsets.

Her strong background in molecular biology and the need of complementing conventional culture-based methods with molecular biology-based tools, such as qPCR, in fungi detection were the main reasons why AQG joined GIAS. Her research work resulted in various international publications in the areas of gene expression regulation, immunology and, more recently, fungi detection. She has been awarded with a couple of prizes, namely, "Prémio Jovem investigador" from the Portuguese Society of Human Genetics. AQG has participated as a member in several national FCT projects and two international ERC projects and as a principal investigator in one FCT project.

AQG's research expertise was accompanied by academic duties since 2004, where all ministered classes were either directly or indirectly related with her research topics.

She was an assistant professor at University of Madeira from 2004 to 2007. During this period she was the director of the Basic Cycle of Medicine, in collaboration with the Faculty of Medicine from the University of Lisbon and lectured Molecular Biology of the Cell. In 2008 AQG became assistant professor at ESTeSL, where she has lectured Molecular biology, Microbiology and Human Genetics classes and coordinated the Section of Biology from 2010 to 2012. Her strong research background allowed her to bridge research with the core subjects of the lectured courses. Also, she was able to establish scientific collaborations with other members of the Section of Biology contributing to strength the high level of scientific competences of this section.

In future AQG will continue to participate in projects of science outreach both at ESTeSL and IMM and possibly in collaboration with other institutions. AQG also aims at developing new courses or post-graduation programs that might contribute to the education of health professionals equipping them with scientific tools required to face the challenges of rapid evolving areas of health towards a personalized medicine.

New Member in GIAS

Edna Varandas

My drive to join GIAS is based in both professional and personal interests. Professionally I believe that GIAS is an extremely stimulating, dynamic and solid group with exceptional ongoing and proposed projects with outstanding scientific quality. The fact that GIAS is a multidisciplinary group endorses the development of different fields of interest and research areas. My contribution to GIAS is mostly focused in studying the effects and potential outcomes for human health of both environmental and occupational exposures to endocrine disruptor's chemicals, such as Bisphenol A (BPA), either per se or associated in complex mixtures, in the context of human health risk assessment Also, I expect to develop new areas of research particularly associated with the assessment of bacterial resistance to antibiotics in particular contexts and to contribute to the scientific enrichment of the group.

Personally, GIAS work group is composed by exceptional persons with the ability to motivate and inspire its members to peruse new challenges and develop new skills. For all the above, I am looking forward to collaborate and to develop my work as a member of GIAS.

Highlighted

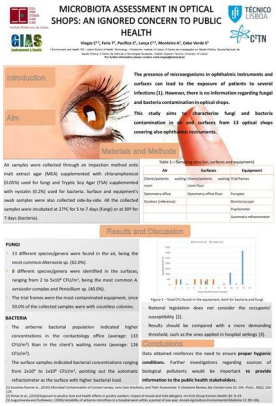
Carina Ladeira is one of the two Management Committee Members representing Portugal in "The comet assay as a human biomonitoring tool" COST Action – European Cooperation in Science and Technology supported by EU Framework programme, that will take place between 2016-2020.

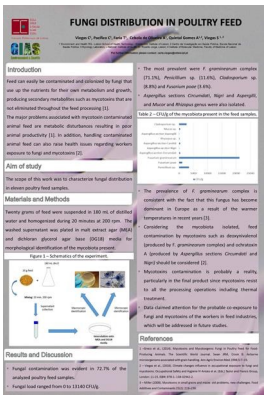
The **hCOMET** proposal is based on a simple and inexpensive method for measuring DNA damage and repair that is already much in use in several countries. The proposed network will be solidly based on a foundation of human biomonitoring studies comprising many thousands of individual DNA damage estimates, including significant numbers from COST Inclusiveness Target Countries (ITCs), such as Slovakia, Portugal, Turkey and Croatia – all of which are represented in our group of proposers. Cross-border networking is essential, to bring together the mass of data generated by around 50 research groups. Frequent meetings within working groups, training courses, as well as short -term scientific missions will ensure that early career investigators from these countries are exposed to high quality research and to the most recent methodologies, and are encouraged to take new skills to their home countries. The group of proposers is gender-balanced and includes early-stage as well as experienced researchers. While stakeholders are predominantly academic researchers, guidelines and SOPs that we produce should be of value to SMEs and other companies engaged in biomonitoring or genotoxicity testing – as well as to organizations engaged in setting regulations and guidelines at the national or international level. The conclusions from the pooled analysis of DNA damage and DNA repair data (the most comprehensive and intensive analysis performed so far), together with the results of the ring studies and the SOPs, will provide public health authorities with reliable information on effects of occupational exposure, nutrition, among others, and will set a standard of excellence for future human biomonitoring studies.

Curiosities

New GIAS member embraced a new project

Cátia Pacífico did an internship in GIAS for three months (January to March 2016), after witch she embraced a new challenge as a PhD Microbiology student in the University of Veterinary Medicine in Vienna. Even at such a distance she mantained her enthusiasm and stil collaborating in several GIAS ongoing projects and co-authored posters for scientific events and papers already submitted.





OnGoing Projects: workplace exposure to bioaerosols in Irish podiatry clinics

The project is being prepared with NUI Galway (http://www.nuigalway.ie/courses/) since September of 2015 and is now starting with the sampling campaign in the podiatry clinics from Ireland.

The aim of this study is to design and execute a pilot study to collect information on the personal exposure levels of podiatrists to microbial hazards in Irish podiatry clinics and also to assess health and safety knowledge within the sector using a survey questionnaire. The presence of airborne bacteria and fungi will be assessed apllying conventional methods and molecular tools. Personal samples of total inhalable dust and endotoxin will be measured in the breathing zone of the podiatrist. A self-report quantitative questionnaire dealing with health and safety/health issues will be applied.

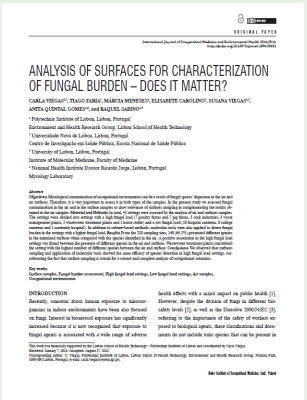
Besides GIAS researchers (Ana Monteiro, Anita Gomes, Carla Viegas, Liliana Aranha, Raquel Sabino e Tiago Faria) and researchers from NUI Galway (Marie Coggins and Gerard TA Fleming), also Cristina Verissimo from Mycology laboratory from National Health Institute from Lisbon and Torben Sisgaard from Aarhus University will be engaged in this project.

Sampling will be done at the beginning of June of 2016 and first results will be obtained in the end of june with, at least, a scientific paper to be published until the end of the year.

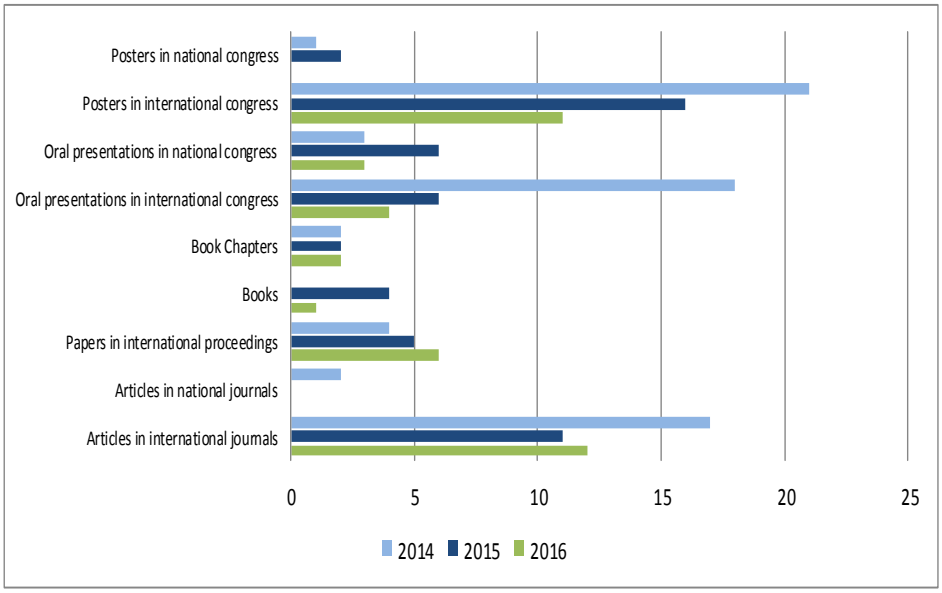
Scientific Outputs – 2016

Results from the first semester

Scientific Outputs 2016	Total
Articles in international peer-review journals	12
Articles in national peer-review journals	0
Papers in international proceedings	6
Books	1
Book chapters	2
Oral presentations in international congress	4
Oral presentations in national congress	3
Posters in international congress	11
Posters in national congress	0



ANALYSIS OF SURFACES FOR CHARACTERIZATION OF FUNGAL BURDEN – DOES IT MATTER?



Scientific outputs in numbers (January 2014 to June 2016)

National and international network

Bertin Tecnhologies have been a valuable partner giving an excellent technical support that allows us to potentiate our research. Thanks to the Coriolis® µ, it was possible to target the fungal burden caused by several *Aspergillus* sections, among other fungal species/strains, and complement the culture-base methods with molecular tools to assess occupational exposure to fungi.

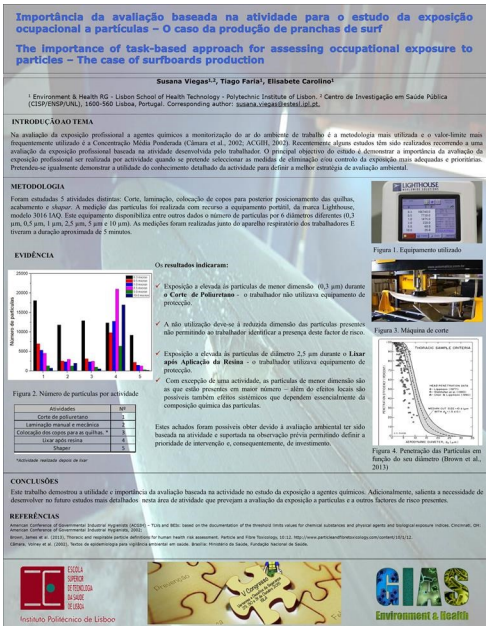
Case Study

Surf is an increasing area of activity in Portugal involving a very large number of workers in all business fields related with this sport. One of these fields is production of surfboards, for which it is crucial the knowledge of the occupational exposure to chemicals that might occur. Based on the production process and chemicals usage, the most important risk factors to be addressed are particles and volatile organic compounds.

An exploratory study was done intending at characterizing occupational exposure to particles in one surfboards production unit. The results obtained showed exposure to particles, with higher concern in the cutting task since the particles in this workplace were of smaller size (0.3 µm) and the worker was not using respiratory protection equipment.

More detailed studies should be developed aiming at characterizing the particles chemical composition and the exposure to other contaminants such as volatile organic compounds. This will enable the recommendation of the most suitable preventive and protective measures to apply in this occupational setting.

In conclusion, more research is needed to support the ongoing development of this sport in Portugal and… Enjoy your summer waves!!



Importância da avaliação baseada na atividade para o estudo da exposição ocupacional a partículas – O caso da produção de pranchas de surf

The importance of task-based approach for assessing occupational exposure to particles – The case of surfboards production

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INTRODUÇÃO AO TEMA

METODOLOGIA

EVIDÊNCIA

Figura 1. Equipamento utilizado

Figura 3. Máquina de corte

Figura 2. Número de partículas por actividade

Figura 4. Penetração das Partículas em função do seu diâmetro (Brown et al., 2013)

CONCLUSÕES

REFERÊNCIAS

Future Events

ISES 2016 http://ises2016.org/

ICEH2016 - 18th International Conference on Environment and Health

https://www.waset.org/conference/2016/07/zurich/ICEH

Indoor Air 2016 - 14th International Conference of Indoor Air Quality and Climate

http://www.indoorair2016.org/

Focused Meeting 2016: http://www.microbiologysociety.org/events/focused-meetings.cfm/focused-meeting-2016-the-dynamic-fungus

MSGERC 2016 Biannual Meeting: http://www.msgerc.org/Biannual-Meeting

20th European Society for Vector Ecology (E-SOVE): http://www.sove.org/European%20SOVE%20folder/greecemain.html

5th Beneficial Microbes Conference

http://www.bastiaanse-communication.com/BMC2016/

APSMM 2016: http://insham.org/apsmm2016/

RME2016: http://www.rapidmethods.eu/

19ª ICHS's symposium / 14° InFocus Latinomérica

http://www.ichs-infocus-2016-chile.com/ICHS/home.html

The photo

Sampling campaign for dockers occupational exposure assessment to particles and fungi

Until the next issue in January 2017

Editorial

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