

KFSP Tumor Oxygenation

Newsletter 2

October 15, 2013

Forschungskolloquium KFSP Tumor Oxygenation



The seminar takes place each month and addresses current research on tumor oxygenation.



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KFSP Tumor Oxygenation

Mission

One of our population's main health threats is cancer (25.7% of deaths in Switzerland in 2010). Four out of ten people in Switzerland will contract cancer during their lifetime, with increasing incidence, leading to personal distress and a substantial and rapidly increasing proportion of the healthcare spending. And we still have no sufficient cures. Today, we know that for cancer diagnosis and treatment, oxygen is one of the most important prognostic biomarkers (i.e. low oxygenation is strongly associated with unfavorable outcomes) and therapeutic targets (i.e. oxygenation highly affects the effectiveness of therapies). So far, the accurate measurement of tumor oxygenation in a non invasive, non toxic, yet repetitive manner has not been possible.

The aim of the KFSP Tumor Oxygenation is to provide novel methods of biophotonics, such as 3D near-infrared imaging technologies, BOLD-MRI and positron emission tomography (PET) to image and measure tumor oxygenation and oxygen metabolism in vivo at the animal and

human level. Our research focuses on head and neck cancers and might be extended to other important tumor entities at a later stage. The oxygenation of these cancers will be studied before and during surgery, radiotherapy and chemotherapy as well as photodynamic therapy and, ultimately, the therapy will be optimized by being able to predict treatment response before and during therapy. By striving for multidisciplinary medical research, we aim for a personalized approach of cancer treatment that limits harmful side-effects as a trade-off to effective treatment. Specifically, the KFSP Tumor Oxygenation will provide the tools to better understand, possibly prevent and more effectively treat cancer, thereby reducing social cost and personal distress and increasing the quality of life of cancer patients.



Spotlight

Wiki

On May 6, 2013 we have launched the KFSP Tumor Oxygenation wiki, available at www.to2.uzh.ch/ssl-dir/wiki. The wiki is an online tool that enables project members provided with a password to upload files and documents and comment on them. In addition, progress reports from each research team and seminar presentations can be downloaded as .pdf file and employed for internal purposes. Besides progress reports and presentations, the wiki displays news, the KFSP proposal, reports to the deanery, ethical guidelines for Good Clinical Practice, kick-off presentations, administrative information, financial matters, KFSP TO2 logos and samples, a mailing list, publications, hypoxia papers, meeting dates, photos, pictures and videos. The contents of the wiki will be updated continuously.

All contents of the wiki are provided for internal purposes only and password protected.

Seminar

Forschungskolloquium KFSP Tumor Oxygenation

On April 18, 2013 Prof. Dr. Alfred Buck from the Clinic of Nuclear Medicine at the UniversityHospital Zurich (USZ) gave a speech on "Hirn PET in Klinik und Forschung".

On May 16, 2013 PD Dr. Lubor Borsig from the Institute of Physiology at the University of Zurich (UZH) gave a speech on "How does a cell become tumorigenic and what is the role of the microenvironment?".

On June 20, 2013 PD Dr. Dr. Andreas Boss from the Institute of Diagnostic and Interventional Radiology at the

UniversityHospital Zurich (USZ) gave a speech on "BOLD MRI, seine Funktionsweise und Anwendungsgebiete".

On August 15, 2013 PD Dr. Carla Rohrer Bley from the Vetsuisse Faculty at the University of Zurich (UZH) gave a speech on "Messung von Tumor Oxygenierung an Hundetumoren". After this seminar session we enjoyed a pleasurable barbecue at the pavilion in the hospital's park.

On September 19, 2013 Prof. Dr. Peter Wild from the Institute of Surgical Pathology at the UniversityHospital Zurich (USZ) gave a speech on "Deep sequencing".

On October 17, 2013 we will be welcoming Prof. Dr. Dmitri B. Papkovsky from the University College Cork in Ireland, who will give a speech on "New family of phosphorescent probes for imaging tissue oxygen".

On November 21, 2013 we will be welcoming Prof. Dr. Peter Vaupel from the University Medical Center Mainz, who will give a speech on "Tumor hypoxia: Coping with different pathophysiological, spatio-temporal heterogeneities and fatal consequences".

On December 19, 2013 we will be welcoming Prof. Dr. Daniel Zips from the University Hospital Tübingen as the last speaker of our 2013 seminar series.

In 2014, we will introduce progress reports by our project members as integral part of the seminar. Beyond, we will again be welcoming further external experts as speakers, such as Prof. Dr. Rephael Nagler, a senior surgeon and investigator in the Department for Oral & Maxillofacial Surgery at Rambam Medical Center in Israel.

After the speeches, we enjoy stand-up pizza on site of the lecture hall and have the chance to discuss the speeches and the respective teams' research progresses.

Special lectures in the framework of the KFSP

We encouraged all researchers involved in the KFSP Tumor Oxygenation to take part in the seminars of the Cancer Network Zurich, available at www.cnz.uzh.ch/Seminars.html.

Publications

Papers

The first publication in the framework of the KFSP Tumor Oxygenation is authored inter alia by Dr. Katrin Orłowski from the Clinic of Radiation Oncology:

Orłowski K., Rohrer Bley C., Zimmermann M., Vuong V., Hug D., et al. (2012), *Dynamics of Tumor Hypoxia in Response to Patupilone and Ionizing Radiation*, PLoS ONE 7(12): e51476. doi:10.1371/journal.pone.0051476.

Further publications by members of the KFSP Tumor Oxygenation have been submitted. Yet further publications are in the process of being issued and planned to be submitted for publication until the end of 2013 or beginning of 2014.

We would like to remind all researchers to mention the KFSP Tumor Oxygenation in the acknowledgement or affiliation of their papers, abstracts, newspaper articles, conference presentations and public speeches in the following form: "This work was supported by the KFSP Tumor Oxygenation of the University of Zurich". Please keep in mind to use the American spelling "tumor" (instead of "tumour").

People

Appointments



On September 1, 2013 **SNF Prof. Dr. Bruno Weber** has been appointed to associate professor of multimodal experimental imaging at the University of Zurich (UZH). Prof. Weber completed his studies in psychology, neurophysiology and neuropsychology at the University of Zurich and received his PhD in neuroscience in 2001. In 2006, Prof. Weber was appointed to a SNF sponsored professorship of neurophysiology and brain research at the Institute of Pharmacology and Toxicology (UZH).

New Team Members



Since May 1, 2013 **Jesus Glaus Garzón** is employed as a PhD student by the preclinical research group of Prof. Dr. Roland H. Wenger and PD Dr. Lubor Borsig at



the Institute of Physiology (UZH). Prior to joining the KFSP Tumor Oxygenation, Jesus Glaus Garzón earned his Master degree in biology with specialization in microbiology and immunology from the ETH Zurich (May 2012). Previously, Jesus Glaus Garzón completed his undergraduate studies with a Bachelor of Science and first class honours in clinical biological chemistry at the University of Sonora in Mexico (2005-2009). The topic of his dissertation is the "Development of an orthotopic model of colon carcinoma model and investigation of the link between hypoxia and inflammation in tumor progression and metastasis". Welcome to the team!



Since May 1, 2013 **Kamila Joanna Bartnicka** is employed as a PhD student by the preclinical research group of Prof. Dr. Roland H. Wenger and PD Dr. Lubor Borsig at the Institute of Physiology (UZH). Prior to joining the KFSP Tumor Oxygenation, Kamila Joanna Bartnicka earned her Bachelor and Master in biotechnol-

ogy with major in molecular biology from the University of Warsaw in Poland (2004-2009). In November 2009, she has commenced her doctoral studies in the Cancer Biology Program at the Life Science Zurich Graduate School (UZH). The topic of her dissertation is "The interplay of hypoxia (HIF) and inflammation (NF-κB) in colon cancer progression". Welcome to the team!



Since June 1, 2013 **Irene Scholz** is employed as a research associate by the clinical research group of Dr. Matthias Rössle at the Institute of Clinical Pathology (USZ). Prior to joining the KFSP Tumor Oxygenation, Irene Scholz received her approbation as a medical doctor from the Rheinisch-Westfälische Hochschule Aachen (RWTH) in Germany (2009). From 2010 to 2011, Irene Scholz worked as an assistant doctor in the pathology department at Klinikum Bogenhausen Munich in Germany. From 2011 to 2013, Irene Scholz was employed as an assistant doctor surgery at Spital Bülach

in Switzerland. Welcome to the team!



Since August 15, 2013 **Dr. Dr. Ilhem El Kochairi** is employed as a research associate by the clinical research team of Dr. Dr. Marius Bredell at the Clinic of Cranio-Maxillofacial and Oral Surgery (USZ). Dr. Dr. Ilhem El Kochairi earned her approbation as a medical doctor and her PhD from the Hassan II University in Morocco (1994-2002). From 2003 to 2009, she worked as a researcher at the Hospital Jules Gonin and at the University of Lausanne in Switzerland and earned the title MD-PhD in 2009. From 2010 to 2012, she moved to Sydney, Australia, where she was employed as a clinical research officer at the University of Sydney before moving on to the Hospital of Sainte-Croix in Switzerland. At the Hospital of Sainte-Croix Dr. Dr. Ilhem El Kochairi worked as an assistant doctor at the Department of Internal Medicine. Welcome to the team!



Outlook



On November 28, 2013 the KFSP Tumor Oxygenation Yearly Retreat will take place. The aim of the retreat is to present progress reports that address what has been accomplished, what could not be accomplished and what the next research milestones are. Prof. Dr. Urs Lütolf, former Director of the Clinic of Radiation Oncology at the University Hospital Zurich (USZ), will act as a scientific advisor and review the project's progresses.

We have chosen the beautiful hotel restaurant Uto Kulm on Zurich's Uetliberg as event venue. The retreat will start at 9am and end at 5.30pm with a joint outdoor campfire aperitif.



Newsletter 3 will appear in April, 2014.

Publishing Information

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