

**Fifth Conference on Precision Image-Guided Small Animal RadioTherapy,
Munich, March 9-11 2020**

Program

Invited speakers:

Anthony Chalmers, University of Glasgow, United Kingdom - **Keynote speaker**

Paola Coan, Ludwig Maximilians Universität, Munich, Germany

Pierre Montay-Gruel, University of California Irvine, USA

Gabriele Niedermann, University of Freiburg, Germany

Katia Parodi, Ludwig Maximilians Universität, Munich, Germany

Amit Sawant, University of Maryland, USA

Monday March 9 [booked 8.30-18 hr, wed 8.30 – 13 hr]

8.30-9.00	Registration
9.00-9.10	Opening address: K Parodi, K Lauber, G Landry, F Verhaegen (Munich, Maastricht)
9.10-9.55	KEYNOTE ADDRESS (Chair: xxx) A Chalmers – Translational aspects of image-guided preclinical precision radiation studies: maximizing clinical relevance
Novel irradiation modalities. Chair: xxx	
9.55-10.25	INVITED: P Montay-Gruel - FLASH radiation therapy: long term neurocognitive benefits and GBM treatment optimization in mouse models
10.25-10.40	J Metzkes-Ng - Laser-plasma based proton accelerators for small animal pre-clinical radiation research
10.40-11.10	Coffee break
Tumor targeting. Chair: xxx	
11.10-11.40	INVITED: G Niedermann – Preclinical evaluation of radiotherapy/immunotherapy combinations and its theranostic evaluation
11.40-11.55	R Bütoff - Evaluation of CTV concept in orthotopic glioblastoma models
11.55-12.10	J Buck - Measuring the effects of fractionated radiotherapy on brain volume in juvenile mice
12.10-12.25	Local and systemic immune responses upon radiotherapy: Combined experiences from preclinical animal studies and the clinical IORT-MC trial
12.25-12.45	Discussion Session I- Moderators: xxx
12.45-14.00	Lunch
Technology and Imaging. Chair: xxx	
14.00-14.15	L Hardy - Construction and Characterization of a Mobile Fluorescence Tomography-guided System for Pre-Clinical Radiotherapy Research
14.15-14.30	Y Shao - Integrated PET/CT/RT with an add-on onboard PET for functional and anatomic image-guided small animal radiotherapy
14.30-14.45	G Lovatti - Design study of a novel in-beam PET scanner for a prototype small animal precision proton irradiation platform
14.45-15.00	M Duda - Dual Energy CT Implementation at a Small Animal Radiation Research Platform (SARRP)
15.00-15.15	B Rezaeifar – XXX BLI AI
15.15-15.45	Coffee break
Progress in the field from the manufacturers. Chair: xxx	
15.45-16.00	A Treverton and B Walters (XStrahl) - Validation of Monte Carlo and Superposition-Convolution Dose Engines in MuriPlan 3.0.0 [or 2 slots????????]
16.00-16.15	K Beera (PXi) -
16.15-16.30	XXX (MILabs) -
16.30-16.45	N van Overberghe (Molecubes) - MOLECUBES: introducing the cubes and their use in radiotherapy planning
16.45-17.00	E d'Agostino (DoseVue)- Investigation into the precision of image-guided small animal radiotherapy
17.00-17.10	R Nilsson (RaySearch) - Is the proton Monte Carlo dose engine of RayStation suitable for small animal research?
17.10-17.20	E Traneus (RaySearch) - A proton treatment planning platform to facilitate FLASH small animal pre-clinical research
17.20-17.35	J Uher (Radalytica&SmART Scientific Solutions) – Irradion: Portable Small Animal Particle Irradiation and Imaging Unit
17.35-17.45	N Staut (SmART Scientific Solutions)
17.45-18.00	Discussion Session II - Moderators: xxx
Free evening	

Tuesday March 10

Targeting normal tissue and tumors. Chair: xxx	
9.00-9.15	L Dubois - Treatment optimization of a rat orthotopic brain model
9.15-9.30	G Ropars - MRI biomarkers for the detection of radiation-induced brain injury associated to cognitive deficits
9.30-9.45	M Ghita - Cardiac sub-volume targeting demonstrates regional sensitivity in the mouse heart
9.45-10.00	W Sievert - Improved overall survival of mice by reducing lung side effects after high-precision heart irradiation using a Small Animal Radiation Research Platform
10.00-10.15	M Orth - Fractionated, CT-based irradiation plus inhibition of DNA-dependent protein kinase (DNA-PKcs) as a treatment approach for pancreatic ductal adenocarcinoma (PDAC)
10.15-10.30	S Baeza - The function of memory networks following irradiation to the growing brain
10.30-11.00	Coffee break
Imaging & Technology. Chair: xxx	
11.00-11.30	INVITED: P Coan – 3D multi-scale X-ray phase contrast CT as a preclinical tool to study the effects of radiotherapy from organ down to cellular level
11.30-11.45	X Xu - Quantitative bioluminescence tomography-guided system for conformal irradiation <i>in vivo</i>
11.45-12.00	J Lascaud - Development of a multimodal 3D printed mouse phantom for quality assurance of ionoacoustics for range verification in precision preclinical proton radiation research
12.00-12.15	A-M Frelin - Implementation and evaluation of respiratory gating on the X-RAD 225Cx
12.30-12.50	Discussion Session III – Moderators: xxx
12.50-14.00	Lunch
Dosimetry&Technology. Chair: xxx	
14.00-14.30	INVITED: A Sawant– The Near and Distant Future of “IG” in precision small-animal IGRT
14.30-14.45	Y Poirier - The current state of physics and dosimetry reporting in radiation biology
14.45-15.00	A Anvari - Improving accuracy of small animal IGRT systems by utilizing an EPID
15.00-15.15	I Sylvestre Patallo - Development and implementation of an end-to-end dosimetry test for preclinical research with small animals' irradiation platforms.
15.15 – 15.30	E Gargioni - Development of a modular, additive manufactured mouse phantom for quality assurance of a small animal irradiation device
15.30-16.00	Coffee break
Proton/carbon beam studies. Chair: xxx	
16.00-16.30	INVITED: K Parodi – Development of a novel platform for precision small animal image-guided proton irradiation
16.30-16.45	E Beyreuther - Precise image-guided proton irradiation of mouse brain sub-volume
16.45–17.00	J Bortfeldt - Development of a Small Animal Proton Computed Tomography System using High Precision Single Particle Tracking
17.00–17.15	S Brandenburg - IMPACT: image guided particle irradiations for preclinical research
17.15-17.30	E Diffenderfer - Simulating proton PBS at FLASH dose rates for small animal radiobiology
17.30-17.45	C Glowa - Impact of single dose photons and carbon ions on perfusion and vascular permeability: A dynamic contrast-enhanced MRI study in the anaplastic rat prostate tumor R3327-AT1
17.45-18.00	Discussion Session IV - Moderators: xxx
19.00	Symposium Dinner (XXX)

Wednesday March 11

Targeting normal tissue and tumors. Chair: XXX	
9.00-9.15	S Dobiash - Radiation response and acute toxicity after high-precision radiotherapy in an orthotopic pancreatic tumor mouse model
9.15-9.30	H Nittby - Radiotherapy in conjunction with IDO1- inhibition in experimental glioblastoma
9.30-9.45	U Schötz - Prognostic biomarkers and targets for personalization of radiotherapy of HNSCC: CD44v6
9.45-10.00	S Smart - High-Throughput Operation of MR Image-Guided Radiotherapy of Pancreatic Tumour in the Mouse.
10.00-10.15	A Spinelli - Preclinical evaluation of early radio-induced bladder wall thickening in rats
10.15-10.45	Coffee break
Dosimetry&Imaging. Chair: xxx	
10.45-11.00	T Frenzel - Long term experience with a dedicated web based database and evaluation tool for monitoring of small laboratory animal radiation experiments
11.00-11.15	K Schnurle - Development of integration mode proton imaging with a single CMOS detector for a small animal irradiation platform
11.15-11.30	E Munoz - Small field dosimetry with a high-resolution 3D scanning water phantom system for the small animal radiation research platform SARRP: A geometrical and quantitative study
11.30-11.45	A Vaniqui -Dose to water versus dose to medium from cavity theory applied to small animal irradiation with kilovolt x-rays
11.45-12.00	Z Deng - In vivo bioluminescence tomography-guided radiation research platform for pancreatic cancer
12.00-12.20	Discussion session V – Moderators: XXX
12.20-12.35	K Parodi, K Lauber, G Landry, F Verhaegen – Best Young Speaker Awards & closing the Symposium

Posters

1	M Pinto	Development and validation of a treatment planning framework based on μ RayStation for a preclinical proton irradiation platform
2	N Kurichinayil	Active beam delivery for small animal irradiation platforms
3	K Brown	Evaluation of the injectable fiducial marker (BioXmark) in small animal image guided radiotherapy
4	A Derer	Mechanisms of PD-L1 and PD-L2 expression on glioma cells after radio(chemo)therapy and its consequences for tumor cell vaccination and PD-1 blockade
5	J Schreiber	Laser-driven ion source development at the Centre for Advanced Laser Applications
6	D Sforza	A standalone quantitative bioluminescence tomography-guided system readily adapted to commercial small animal irradiators using a universal transportable mouse bed
7	Y Poirier	Preliminary commissioning results of an Xstrahl SARRP for the μ -RayStation Treatment Planning System
8	A-M Frelin	Development and evaluation of a scintillating fiber dosimeter for preclinical <i>in vivo</i> dosimetry
9	S Kampfer	Fractionated irradiation in an orthotopic pancreatic tumor mouse model: can skin markers increase the setup accuracy?
10	T Rassamegevanon	Comparative study of tumor microenvironment in orthotopic and subcutaneous models of non-small cell lung carcinoma and glioblastoma
11	N Brix	Local and systemic immune responses upon radiotherapy: Combined experiences from preclinical animal studies and the clinical IORT-MC trial
12	D Amatuzzo	Commissioning data from a large series of small animal irradiators
13	S Balentova	Fractionated-irradiation induced metabolic, volumetric and histological changes in the rat brain