HYPERBOOST
Boosting the effect of Radiotherapy

What happened since the last Newsletter?

The last newsletter was only posted a short while ago (apologies!), however, since December a lot happened in the Hyperboost project! We had our first real reporting period and received feedback from the reviewers. Additionally, we had our fourth training week and consortium meeting in Erlangen, and many fellows visited the 38th Annual meeting of the society of thermal medicin, April 24 – 27, 2023 in San Diego, California (STM).

Fourth training week

The fourth Hyperboost training week took place in Erlangen, Germany, from March 6-10 2023. The program was packed with discussions on Hyperthermia in translational Radiobiology, Reading the Radiology and how AI could help, Clinical Trials Management and Translational Program, Histology of tumour and next-generation microscopy, Immuno-oncology and entrepeneurship, hands-on sessions with Multicolor Flow Cytometry & Radiosensitivity and a bloody hour, animal mouse models and a data analysis discussion. On top of that a visit to the Siemens company with the historical center, the MR factory and the experience center. In the evening there was free time, but also a science café on the run and scientific discussions.

The training week was followed by the Hyperboost meeting with all fellows and PIs on March 13 and 14 2023, which consisted of presentations from all fellows and lively discussions. All-in-all it was a very well-organized meeting which the ESRs enjoyed very much. We therefore want to extend our gratitude and enormous thanks to the organizing team: Udo Gaipl, Benjamin Frey and Martin Wadepohl. [Fourth training week (March 2023) – Hyperboost]

Hyperboost review

At the end of 2022, we submitted the first periodic report and last month we received the feedback. Some impressions of the feedback:

"Project has delivered exceptional results with significant immediate or potential impact"

"The NMC, Consortium partners and trainees did an excellent job during the COVID19 pandemics."

"During the mid-term review meeting, the ESRs have delivered a presentation and clearly showed their professionalism and motivation"

"The experimental (in vivo, in vitro and in silico) plan was successfully executed, with extremely novel and important findings"

All-in-all we are very happy with (and proud of!) the comments and the excellent group of ESRs and scientists that made this possible.

STM

April 24 – 27, 2023 in San Diego, California the 38th Annual meeting of the society of thermal medicin (STM), was organized. Besides 5 Hyperboost related presentations, we also had 2 major celebrations. Firstly, our colleague Rupali Khatun based in Erlangen, received the Scientist in Training Award! It was handed to her by the vice president of the STM (also organiser of the meeting).

But, we also want to proudly mention that our coordinator Hans Crezee, won the 2023 George M. Hahn Award and presented Hyperboost in a keynote Lecture!

New Hyperboost publications

Scutigliani EM, Lobo-Cerna F, Mingo Barba S, Scheidegger S, Krawczyk PM. The Effects of Heat Stress on the Transcriptome of Human Cancer Cells: A Meta-Analysis. Cancers. 2023; 15(1):113. https://doi.org/10.3390/cancers15010113

H. Petra Kok, PhD, Timoteo D. Herrera, MSc, Johannes Crezee, PhD. The Relevance of High

Temperatures and Short Time Intervals Between Radiation Therapy and Hyperthermia: Insights in Terms of Predicted Equivalent Enhanced Radiation Dose. Physics contribution, Vol 115 (4), p994-1003, March 15, 2023. Published:October 23, 2022 https://doi.org/10.1016/j.ijrobp.2022.10.023

Ademaj A, Veltsista DP, Ghadjar P, Marder D, Oberacker E, Ott OJ, Wust P, Puric E, Hälg RA, Rogers S, Bodis S, Fietkau R, Crezee H, Riesterer O. Clinical Evidence for Thermometric Parameters to Guide Hyperthermia Treatment. Cancers. 2022; 14(3):625. https://doi.org/10.3390/cancers14030625

Carrapiço-Seabra C, Curto S, Franckena M, Rhoon GCV. Avoiding Pitfalls in Thermal Dose Effect Relationship Studies: A Review and Guide Forward. Cancers. 2022; 14(19):4795. https://doi.org/10.3390/cancers14194795

Scheidegger S, Mingo Barba S, Gaipl US. Theoretical Evaluation of the Impact of Hyperthermia in Combination with Radiation Therapy in an Artificial Immune—Tumor-Ecosystem. Cancers. 2021; 13(22):5764. https://doi.org/10.3390/cancers13225764

For more information on the network and topics/input for the next newsletter please contact the project manager (Laurian Jongejan);

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Consortium Member	Short Name	Dept./Division/Laboratory
Beneficiaries		
Academic Medical Center Amsterdam, The Netherlands	AMC	Dept Radiotherapy and Center for Experimental Molecular Medicine
Aarhus University, Denmark	AU	Dept Experimental Clinical Oncology
University of Zurich, Switzerland, grantholder for Cantonal Hospital Aarau	UZH	Radio-oncology Department
Universitäts-klinikum Erlangen, Germany	UKER	Department of Radiation Oncology
Zurich University of Applied Sciences, Switzerland	ZHAW	Institute of Applied Mathematics and Physics
Dr. Sennewald Medizintechnik GmbH, Munich, Germany	SMT	Expertise: devices for hyperthermia
Medlogix Rome, Italy	ALBA	Expertise: devices for hyperthermia
Charité – Universitäts-medizin Berlin, Germany	CUB	Department of Radiation Oncology
Chalmers University of technology Göteborg, Sweden	CUT	Signals and systems
Erasmus Medical Center Rotterdam, The Netherlands	EMC	Department of Radiation Oncology
Max-Delbrück Center for Molecular Medicine in the Helmholtz Association, Berlin, Germany	MDC	Berlin Ultrahigh Field Facility
Partner Organisations		
Duke University Medical Center, USA	DUMC	Dept of Radiation Oncology
European Society for Radiotherapy & Oncology	ESTRO	Education and Science
European Society for Hyperthermic Oncology	ESHO	n/a
RaySearch Laboratories AB (publ), Stockholm, Sweden	RAY	Chief Science Officer
University of Amsterdam	UvA	Doctorate Board, Rector's Office
MRI.Tools GmbH	MRIT	Chief Science Officer