WELCOME

The Kantonsspital Aarau (KSA) and the IT’IS Foundation for Research on Information Technologies in Society (IT’IS Foundation) are delighted to welcome you to Switzerland for the 30th annual meeting of the European Society for Hyperthermic Oncology – ESHO 2015 – the flagship event of the thermal cancer therapy community.

Although the use of heat as a healing tool has a long history, hyperthermia therapy in cancer continues to be classified as experimental, especially in the USA. For hyperthermia to become a more mainstream treatment option, progress is needed to expand understanding of the underlying biological mechanisms, to improve hardware and treatment planning software, and to design, implement, and interpret clinical trials.

Encouraging results from phase I, II, and III clinical trials support the position that hyperthermia in combination with radiotherapy and/or chemotherapy is a promising multimodality therapy for primary, recurrent, and metastatic cancers. According to Mark Dewhirst, «There is a tremendous amount of promise in hyperthermia as well as proof …», based on largely positive findings from a wide range of studies.

ESHO 2015 convenes the clinicians, physicists, engineers, and biologists of the hyperthermia community to exchange and discuss new ideas and the latest research results. The meeting kicks off on the morning of June 24 with the educational day at the Kantonsspital Aarau, followed by a visit to the Animal Hospital in Zurich in the afternoon and the congress opening apéro at Technopark Zurich in the evening. The conference continues on June 25 – 26 at Technopark with plenary sessions on the biology and clinical applications of hyperthermia, and hyperthermia from physics and engineering perspectives, with emphasis on computational approaches to treatment planning and optimization. Be sure to attend the «Firing up Cancer» public event on the evening of June 25 and the 3-minute flash oral presentations delivered by young hyperthermia investigators in the mornings and afternoons of both days.

To quote Jens Overgaard, the heat is (still) on! here at ESHO 2015, where the international thermal cancer therapy community meets to map the bright future of hyperthermic radiation oncology!
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INVITED SPEAKERS
S. Bodis, Kantonsspital Aarau (CH)
J. Bourhis, Lausanne University Hospital (CH)
M. Capstick, IT’IS Foundation (CH)
A. Chaturvedi, Rajiv Gandhi Cancer Institute & Research Centre (IN)
H. Crezee, Academic Medical Center Amsterdam (NL)
O. Dahl, University of Bergen (NO)
C. Dasenbrock, Fraunhofer ITEM Hannover (DE)
N. Datta, Kantonsspital Aarau (CH)
M. Dewhirst, Duke University (USA)
H. Dobesiek Trefna, Chalmers University (SE)
J. Fandino, Kantonsspital Aarau (CH)
U. Gaipl, University Clinic Erlangen (DE)
J. Hodler, University Hospital Zurich (CH)
M. Horsman, Aarhus University (DK)
H. Hofmann, Swiss Federal Institute of Technology Lausanne (CH)
R. Issels, Munich University Clinic & Helmholtz Center Munich (DE)
R. Kanaa, Erasmus Medical Center (NL)
S. Krishnan, The University of Texas MD Anderson Cancer Center (USA)
N. Kuster, IT’IS Foundation (CH)
L. Lindner, Munich University Clinic (DE)
E. Martin-Fiori, Children Hospital Zurich (CH)
A. Mortezavi, Zurich University Hospital (CH)
G. Multhoff, Helmholtz Center Munich (DE)
E. Neufeld, IT’IS Foundation (CH)
P. Niederer, Swiss Federal Institute of Technology Zurich (CH)
M. Notter, La Chaux-de-Fond Hospital (CH)
J. Overgaard, Aarhus University (DK)
O. Ott, University Clinic Erlangen (DE)
M. Paulides, Erasmus Medical Center (NL)
E. Puric, Kantonsspital Aarau (CH)
E. Repasky, Roswell Park Cancer Institute (USA)
C. Rohrer-Bley, University of Zurich Vetsuisse Faculty (CH)
R. Salomir, University Hospital Geneva (CH)
D. Speiser, University of Lausanne (CH)
J. Spiliotis, Metaxa Cancer Hospital (GR)
T. Szucs, University of Basel (CH)
T. ten Hagen, Erasmus Medical Center (NL)
J. van der Zee, Erasmus Medical Center (NL)
G. van Rhoom, Erasmus Medical Center (NL)
G. van Tienhoven, Academic Medical Center Amsterdam (NL)
R. Wessalowski, University Clinic Dusseldorf (DE)
L. Winter, Max-Delbrueck-Center for Molecular Medicine Berlin (DE)
**Session**

**Clinics**

**Chair:** N. Datta

09:00 – 09:15
Clinical indications for superficial and deep hyperthermia. The ESHO recommendations
G. van Rhoon

09:15 – 09:30
Molecular insight of combined hyperthermia and radio-/chemotherapy
O. Dahl

09:30 – 09:45
Hyperthermia and immunomodulation
U. Gaipl

09:45 – 10:00
Reirradiation and hyperthermia in breast cancer; how to proceed
G. van Tienhoven

10:00 – 10:15
Progress in the treatment of gynaecological tumours
J. van der Zee

10:15 – 10:30
What did we learn from hyperthermia in rectal cancer?
O. Ott

10:30 – 11:15
Coffee Break & Practical Session

11:15 – 11:30
Guidelines for regional deep hyperthermia (RHT) in pediatric oncology
R. Wessalowski

11:30 – 11:45
Hardware and technology for radiofrequency hyperthermia
M. Capstick

11:45 – 12:00
How can we assure treatment quality and what is a good hyperthermia treatment?
H. Dobsicek Trefna

12:15 – 13:15
Swiss Hyperthermia Network Meeting (KSA)
E. Puric
Session: Clinics

08:00–08:30
**Hallmarks of hyperthermia**
R. Issels
Chair: M. Dewhirst, A. Chaturvedi

08:30–09:00
**The future of biology in the field of hyperthermia**
M. Dewhirst
Chair: R. Issels, M. Dewhirst

09:00–09:30
**MR-guided ultrasound-neurosurgery for the treatment of malignant brain tumors: feasibility and limitations**
J. Fandino
Chair: M. Dewhirst, R. Issels

09:30–10:00
Coffee Break

10:00–10:30
**Focal therapy using high intensity focused ultrasound for the treatment of prostate cancer**
A. Mortezavi
Chair: A. Mortezavi, J. Fandino

10:30–11:00
**Radiofrequency ablation: strategies for HCC and liver metastases**
A. Chaturvedi
Chair: A. Chaturvedi, J. Fandino

11:00–11:20
**The role of HIPEC in the management of peritoneal surface malignancies**
J. Spiliotis
Chair: M. Dewhirst, H. Crezee

11:20–11:30
**Paper I – Combination treatment of transarterial chemoembolization followed by radiotherapy with hyperthermia (CERT) in hepatocellular carcinoma with portal vein tumor thrombosis: interim analysis of prospective phase II trial**
H. Sahinbas
Chair: M. Dewhirst, H. Crezee

11:30–11:40
**Paper II – Hyperthermia and proton irradiation in unresectable soft tissue sarcoma: first result from HYPROSAR study**
N. Datta
Chair: M. Dewhirst, H. Crezee

Session: Biology

13:30–14:00
**The DNA damage response as a guide for precision anticancer therapy**
R. Kanaar
Chair: G. Multhoff, M. Horsman

14:00–14:30
**Clinical implication of heat shock protein 70 (Hsp70) as a tumor biomarker**
G. Multhoff
Chair: R. Kanaar, M. Horsman

14:30–14:40
**Paper I – A novel approach for thermal dosimetry**
S. Scheidegger
Chair: R. Kanaar, G. Multhoff

14:40–14:50
**Paper II – Abscopal effect by modulated electro-hyperthermia**
N. Meggyeshazi
Chair: R. Kanaar, G. Multhoff

14:50–15:20
Coffee Break

15:20–15:50
**Hyperthermia and immune based therapies against cancer**
D. Speiser
Chair: E. Repasky
ESHO 2015 – CONFEREE
Technopark Zurich
Thursday 25.06.2015

15:50 – 16:20
Defining the role of the thermal microenvironment in regulation of lymphocyte activation and anti-tumor immunity
E. Repasky
Chair: D. Speiser

16:20 – 16:40
Realistic biological approaches for improving thermoradiotherapy
M. Horsman
Chair: D. Speiser, E. Repasky

16:40 – 17:00
Thermoradiotherapy planning: integration in routine clinical practice
H. Crezee
Chair: D. Speiser, E. Repasky

17:00 – 17:10
Paper III – Hyperthermia: a targeted therapy in treating HPV-positive cervical carcinoma
A. Oei
Chair: D. Speiser, E. Repasky

17:10 – 17:20
Paper IV – Hyperthermia of cancer spheroids using reduced graphene oxide nanocomposites as a model for deep tissue applications: a proof-of-concept
J. Ramirez
Chair: D. Speiser, E. Repasky

17:20 – 17:40
Poster Flash Presentations
I Hyperthermia clinical and physical data: Italian community approach
A. Di Dia
II Dose-finding and pharmacokinetic study of doxorubicin-containing thermosensitive phosphatidylglycerol-liposomes with regional hyperthermia in feline soft tissue sarcoma
K. Troedson
III Time-temperature relationship of blistering during superficial hyperthermia
A. Bakker
IV Serum levels of heat shock protein 70 in dogs and cats with cancer
S. Dressel
Chair: S. Bodis, N. Datta

17:40 – 18:20
Debate: There is strong evidence to support that hyperthermia sensitizes cancer stem cells
Pro: M. Horsman, Contra: J. Bourhis
Chair: J. Overgaard

18:30 – 20:00
Apero & Public Event
ESHO 2015
Lunch Symposium

Thursday, June 25, 2015
12:30 - 13:30 h,
Technopark Zurich, Switzerland

Hyperthermia News from Pyrexar Medical

Chair: Mark Falkowski

Pyrexar Medical -
Presentation of the new hyperthermia company
Mark Falkowski
(Salt Lake City, USA)

Pyrexar panel discussion
Questions and answers
with Mark Falkowski, Paul Turner,
Drew Wilkins, and Gerhard Sennewald

First impressions on the performance of the new
BSD2000-3D GE450W hybrid deep hyperthermia system
Gerard van Rhoon PhD
(Rotterdam, The Netherlands)

SigmaVision - an innovative software concept for
MR temperature measurement
Steffen Eisenhardt
(Munich, Germany)
11:00 – 11:20
Poster Flash Presentations
I Improvement of existing thermosensitive liposomes encapsulating gemcitabine
B. Kneidl
II Probing the thermal properties of magnetic nanoparticles by lock-in thermography
C. Monnier
III New magnetic nanodevices for magnetofluid hyperthermia applications
M.R. Ruggiero
IV A promising green synthesis for magnetic nanoparticles leads to effective cancer treatment through versatile magnetic hyperthermia protocols
A. Makridis
V Arranging at the nanoscale: effect on magnetic particle hyperthermia
E. Myrovali
Chair: E. Neufeld, N. Kuster

11:20 – 12:00
Debate: Is nanotechnology-based hyperthermia ready for clinical adoption?
Pro: S. Krishnan, Contra: C. Dasenbrock
Chair: H. Hofmann

12:00 – 12:30
General Assembly

12:30 – 13:30
Lunch & Poster Session

Session 1: Engineering

13:30 – 14:00
Modeling methodology and treatment planning for thermal therapy
E. Neufeld
Chair: M. Capstick, R. Salomir

14:00 – 14:10
Paper I – Design of an MRI compatible HYPERcollar3D for hyperthermia treatment of head and neck tumors
T. Drizdal
Chair: E. Neufeld, M. Capstick

14:10 – 14:20
Paper II – Image-guided RF phased array development
P. Turner
Chair: E. Neufeld, M. Capstick

14:20 – 14:30
Paper III – HIFU hepatic tumor ablation: modeling of focusing and motion tracking approaches
E. Neufeld
Chair: M. Capstick, R. Salomir

14:30 – 14:50
Non invasive temperature monitoring for image-guided thermoaneries: a review of the state-of-the art
R. Salomir
Chair: E. Neufeld, L. Winter

14:50 – 15:20
Coffee Break

15:20 – 15:40
Non-invasive thermometry in hyperthermia
L. Winter
Chair: M. Capstick, E. Neufeld

15:40 – 15:50
Paper IV – Hyperthermia treatment planning and temprature optimization in childhood cancer
R. Wessalowski
Chair: R. Salomir, L. Winter

15:50 – 16:00
Paper V – Thermophysical fluid modelling for loco-regional hyperthermia treatment of non-muscle invasive bladder cancer
G. Schooneveldt
Chair: R. Salomir, L. Winter

16:00 – 16:20
Poster Flash Presentations
I FLAMES: next generation Schottky diode sheet for quality assurance in hyperthermia
D. de Jong
II Design of modular planar antenna for hyperthermia breast cancer treatment
O. Fiser
III Hyperthermia applicator validation system with LED
I. Merunka
IV Improvements in hyperthermia applicator design for heating head tumors
A. Takook
V Simultaneous using of two superficial hyperthermia antennas: 3D-modeling and simulation
A. Di Dia
Chair: N. Kuster, M. Capstick
1. N. Dengina Local hyperthermia combined with chemoradiotherapy in cervix cancer: complications and clinical response rate
2. E. Puric Deep-hyperthermia in treatment of muscle invasive bladder cancer for elderly patients: a single center’s first experience
3. A. Oei PARP1-Inhibition sensitizes combined hyperthermia-radiation and combined hyperthermia-cDDP treatment of cervical carcinoma cells
4. J. Contreras Martinez Feasibility of local deep hyperthermia treatment in conjunction with standard cancer treatments and patterns of response
5. V. Lopresto CT-based characterization of ex vivo liver tissue undergoing microwave thermal ablation
6. S. Abdel-Rahman Effective heating of large superficial chest wall and axilla tumours with the Sigma-60 applicator
7. H. Sahinbas Clinical impact of stringent quality control in capacitative loco-regional hyperthermia
8. G. van Rhoon Inventory of hyperthermia related clinical trials as registered in ClinicalTrials.gov
9. N. Data A systematic review and meta-analysis for re-irradiation with hyperthermia for locoregional recurrent breast cancers
10. O. Szasz Specific effect of the amplitude modulation of the RF signal in modulated electrohyperthermia (mEHT) treatment in C26 allograft tumor model
11. C.C. Hsia Treatment of murine colon tumors using gold nanoparticles and localized hyperthermia
12. D. Leeper Effects of hyperglycemia on lonidamine-induced acidification and de-energization of human melanoma xenografts
13. C.C. Chen Characterization of gold nanoparticle-based heat generation in response to different radiofrequency electric field
14. M. Paulides Heating capabilities of the novel HYPERcollar3D hyperthermia applicator: a simulation study
15. G. van Stam A fast and cost efficient technique to perform Quality Assurance measurements for superficial applicators
16. D. Vrba Metamaterial-applicator arrays for microwave hyperthermia treatments
17. H. Kok The influence of skin cooling during loco-regional hyperthermia on effective tumour heating
18. J. Hartmann 3 T MR spectroscopy in different tissues for non-invasive thermometry
19. J. Müller Infrared based thermometry in local, superficial hyperthermia quality assurance
20. D. Marder Towards pre-treatment verification for hyperthermia treatment plans
21. E. Neufeld Modeling for correction and treatment envelope extension in transcranial focused ultrasound aberration
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Whole Body Hyperthermia with Water-filtered infrared-A Radiation

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Various symposia and workshops will serve as opportunities for industrial partners and scientists from all disciplines to meet and discuss ideas, requirements, and novel products. To make this year’s program especially riveting the organisers are also bringing together outstanding speakers from the clinician, the research, and the health economics community for a public event in form of a roundtable.

24.06.2015 Swiss Hyperthermia Network Meeting
12:15–13:15 Kantonsspital Aarau Haus 25, Rapportraum (LUG)

24.06.2015 Vetsuisse visit and demonstration
14:00–16:00 Vetsuisse Zurich

25.06.2015 Industry Symposium
12:30–13:30 (Dr. Sennewald Medizintechnik GmbH)
Technopark Zurich

25.06.2015 Public Event
18:30–20:00 Technopark Zurich

26.06.2015 Industry Symposium
08:00–08:30 (ZMT Zurich MedTech AG)
Technopark Zurich

26.06.2015 ESHO General Assembly
12:00–12:30

26.06.2015 Social Dinner
19:30–24:00 Quai 61