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synergy 相乗効果

συνεργία सनिर्जी

시너지 효과

Взаимодействие

Sinergia

Synergie

协同作用

סנרזי היגרניס

Synergy Forum 2018
9-10 March 2018



The Synergy Forum 2018 is organised by

University of Bonn

Medical Faculty

University Hospital ▪ Medical Clinic III

AG Synergy Research, PD Dr.Gudrun Ulrich-Merzenich

Sigmund-Freud-Street 25 ▪ Building 26 ▪ Laboratories UG 65-69

53127 Bonn ▪ Germany

Email gudrun.ulrich-merzenich@ukbonn.de ▪ office@synergy-forum.org

Phone +49 - (0)228 - 287 16288

Websites www.ukbonn.de ▪ www.synergy-forum.org

Venue of the Synergy Forum 2018

Uniclub (= University Club) Bonn

Konviktstrasse 9

53113 Bonn ▪ Germany

Phone +49 - (0)228 - 7296-0

Website www.uniclub-bonn.de

Organising Committee

Gudrun Ulrich-Merzenich

Bernd Merzenich

Harald Schweim

Peter Brossart

Vanessa Quodt

Lisa Welslau

Tibor Schaarschmidt

Andreas Tüschen

Scientific Committee

Gudrun Ulrich-Merzenich, Bonn

Peter Brossart, Bonn

Ting-Chao Chou, New York

Harald Schweim, Cologne

Pulok Mukherjee, Kolkata

Alexander Shikov, St. Petersburg

Andreas Bender, Cambridge (UK)

Meindert Danhof, Leiden

Rajarshi Guha, Bethesda

Mats Gustafsson, Uppsala

Motlalepula Matsabisa, Bloemfontein

Alexander Panossian, Vallberga

Robert Verpoorte, Leiden

Alvaro Viljoen, Pretoria

Heike Zeitler, Bonn





Welcome

to the first international Synergy Forum to be convened in Bonn on March 9 and 10, 2018.

We look forward to inspiring lectures and discussions about the latest developments and findings in synergy research in lectures, poster presentations and workshops.

In the past years significant developments and innovative research - both in theory and in practical applications - have yielded novel, multifaceted and deeper insights into fundamentals, mechanisms, processes and phenomena of synergism as well as the potentials of synergistic interactions of compounds.

The Synergy Forum hopes to be a platform for an updated inventory and vivid discourse of state-of-the-art synergy research in drug development and therapy. Besides elaborating and clarifying fundamental issues of the definition and assessment of synergy it intends to create a forum for the dissemination of practical clinical experiences with combinatory therapies. Also specific attention and time will be dedicated to posters presenting practical and clinical experiences with combinatory treatments or findings on combinatory / synergistic effects of compounds in experimental trials.

The Synergy Forum will be a symposium of a yet moderate scale. However small may be beautiful! With most of the eminent authorities from all over the world contributing actively, we look forward to providing a significant boost to the still young, but highly relevant scientific subject of synergy research as a cross-sectional field of medicine, pharmacy, pharmacology, cell and molecular biology and bioinformatics.

And, last but not the least, we wish you a great time in Bonn. The University of Bonn is right now (2018) proudly commemorating its 200th anniversary and very soon (2020) Ludwig van Beethoven will celebrate his 250th birthday. Be inspired by this superb synergy of culture, creativity, wisdom and joy!





Programme

Friday March 09, 2018

- from 10.00 h **Registration (at the Information Counter)**
- 12.00 - 13.00 h **Welcome Snack**
- 13.00 - 13.30 h **Opening Session**
Welcome Addresses:
- Gudrun Ulrich-Merzenich, Organising Committee
 - Nicolas Wernert, Dean of the Medical Faculty, University of Bonn
 - Peter Brossart, Director, Medical Clinic III, University Hospital Bonn
- 13.30 - 14.15 h **The evolution of synergy research: from historic geometric visualisation to contemporary biological modelling**
Gudrun Ulrich-Merzenich, Bonn / Germany
- 14.15 - 15.00 h **Predicting synergistic drug and compound combinations - methods and applications**
Andreas Bender, Cambridge / United Kingdom
- 15.00 - 15.15 h **Coffee Break and Poster Exhibition**
- 15.15 - 16.00 h **The combination index theorem as a basis for a consensus towards the definition of synergy**
Ting-Chao Chou, New York / USA





- 16.00 - 16.35 h **Implementing combinatorial therapeutic regimes against cancer**
Dominik Wolf, Bonn / Germany
- 16.35 - 17.00 h **Coffee Break and Poster Exhibition**
- 17.00 - 17.45 h **Combinations matter : network approaches to analysing and understanding high throughput combination screening datasets**
Rajarshi Guha, Bethesda / USA
- 17.45 - 18.15 h **Targeting the endocannabinoid system in combination treatments**
Ramy Ammar, Cairo / Egypt
- 18.15 - 19.00 h **Challenges in the investigation of combinatory modes of action of nutrients and pharmaceuticals**
Alexander Shikov, St. Petersburg / Russian Republic
- 19.00 - 19.45 h **Posters and Wine**
Final review and rating of posters
- 20.00 h **Conference Dinner**
at the Uniclub Bonn



Universitätsclub Bonn





Saturday March 10, 2018

09.15 - 10.30 h **Parallel Sessions**

Session 1:

09.15 - 09.40 h **Exploring synergy in Ayurveda and traditional Indian Systems of medicine**

Pulok K. Mukherjee, Kolkata / India

09.40 - 10.15 h **Synergy, a modern concept based on ancient wisdom - examples from African traditional medicine**

Alvaro Viljoen, Pretoria / South Africa

10.15 - 10.40 h **Synergy between *Magnifera indica* leaf extract (Zynamite®) and caffeine with respect to stimulation of the central nervous system in rats**

Wilfried Dimpfel, Wetzlar / Germany

Session 2:

09.15 - 09.50 h **Synergy assessments of plant extracts used in the treatment of stress and ageing-related disorders**

Alexander Panossian, Vaxtorp / Sweden

09.55 - 10.30 h **Interaction between platinum drugs and Sorafenib**

Anya Kalayda, Bonn / Germany

10.30 - 11.00 h **Coffee Break**

11.00 - 11.45 h **Synergy: easier to say than to prove.**

The role of metabolomics.

Robert Verpoorte, Leiden / The Netherlands

11.45 - 12.30 h **Of devils and angels - regulatory aspects and challenges of combinatory uses of drugs**

Harald Schweim, Cologne / Germany





- 12.30 - 13.00 h **Poster awards and short oral presentations of best 3 posters**
- 13.00 - 14.00 h **Lunch Break**
- 14.00 - 16.30 h **Workshop:**
Towards a consensual understanding and definition of synergy
Moderators: Gudrun Ulrich-Merzenich and Ting-Chao Chou
- Coffee will be served in the workshop
- 16.30 - 17.00 h **Closing Session**

**We wish to thank the supporters and sponsors
of the Synergy Forum 2018**



Science For A Better Life





Posters

- P 01 Mechanisms of action in gastroenterology: Comparison of a prokinetic drug and a herbal medicine**
Kelber O., Hoser S., Abdel-Aziz-H., Okpanyi S.N., Nieber K.
- P 02 Multi-step clustering of Data on a multi-target effect of a combination phytomedicine, STW5**
Kelber O., Abdul-Aziz H., Lorkowski G., Storr M., Nieber K.
- P 03 Synergism research: a tool for the study of pharmacology and toxicology of herbal medicinal products**
Okpanyi S.N., Kelber O. Abdel-Aziz H, Schrenk D.
- P 04 Curcumin sensitizes human U-87 glioblastoma and MCF-7 breast cancer cells to the endocannabinoid reuptake inhibitor OMDM-2**
Ammar R., Ulrich-Merzenich G.
- P 05 Adenosine Receptors and STW5: new targets to protect against irritable bowel syndrome**
Nieber K., Aziz H., Kelber O.
- P 06 Gene expression profiling as a promising approach for justifying fixed drug combination products**
Kelber O., Abdel-Aziz H., Ulrich-Merzenich G.
- P 07 Making Connections: Linking redolent synergy to the aroma therapeutic treatment of respiratory tract infections**
de Rapper S., van Vuuren S., Viljoen A
- P 08 Essential oils: Fragrant pools of antimicrobial synergism explored**
van Vuuren S., Orcharda A., Viljoen A.
- P 09 Influence of *Evernia prunastri* extract on mitochondria of rats liver**
Shcherbakova A, Starinets VS, Belosludtsev KN, Ulrich-Merzenich G. , Dubinin MV
- P 10 Combination of chemotherapy, radiotherapy and hyperthermia in vitro**
Besse HC, Bos C, Zandvliet MMJM, Moonen CTW, Deckers R
- P 11 Endocannabinoid combination with natural and benchmark anti-cancer drugs**
Ammar RM, Jaehde U, Ulrich-Merzenich G
- P 12 Multimodal treatment approach induces tolerance in severe acquired hemophilia by involving Tregs**
Zeitler H, Goldmann G, Oldenburg J, Ulrich-Merzenich G
- P 13 Multitargeting of STW5—the contribution of its components to the anti-inflammatory activity**
Ulrich-Merzenich G, Shcherbakova A, Kelber O, Abdel-Aziz H

Additional posters will be presented at short notice during the Synergy Forum





The Speakers and their Affiliations

Ramy Ammar

Kafr-El-Sheikh University
Faculty of Pharmacy
Kafr El-Sheikh, Egypt

Andreas Bender

University of Cambridge
Centre for Molecular Informatics
Department of Chemistry
Cambridge, England

Peter Brossart

University of Bonn
University Hospital, Medical Clinic III
Bonn, Germany

Ting-Chao Chou

Memorial Sloan-Kettering Cancer Center
New York, USA

Wilfried Dimpfel

University of Giessen / Neurocode AG
Wetzlar, Germany

Rajarshi Guha

NIH, National Center for
Advancing Translational Science (NCATS)
Bethesda, USA

Anya Kalayda

University of Bonn
Institute of Pharmacy
Bonn, Germany

Pulok K. Mukherjee

Jadavpur University of Kolkata
Department of Pharmaceutical Technology
Kolkata, India

Alexander Panossian

Phytomed AB
Vaxtorp, Sweden

Harald Schweim

Regulatory Science & Services
Cologne, Germany

Alexander Shikov

St. Petersburg Institute of Pharmacy
Kuzmolovo, Russia

Gudrun Ulrich-Merzenich

University of Bonn
University Hospital, Medical Clinic III
AG Synergy Research
Bonn, Germany

Robert Verpoorte

Leiden University
Natural Products Laboratory
Institute of Biology Leiden
Leiden, Netherlands

Alvaro Viljoen

Tshwane University of Technology
Department of Pharmaceutical Sciences
Pretoria, South Africa

Nicolas Wernert

Dean, Medical Faculty
University of Bonn
Bonn, Germany

Dominik Wolf

University of Bonn
University Hospital, Medical Clinic III
Bonn, Germany



Publish your findings in synergy research in the Synergy Journal !

The international Journal Synergy is dedicated to the understanding, development and application of the principles of “Synergy” in life science.



Multimodal treatments or multitarget approaches are increasingly applied to treat complex diseases in different disciplines of medicine - mainly based on empirical knowledge. There is a need to elucidate further the combinatory actions in the context of synergy, including the optimisation of therapeutic target specificity, the prevention of potential adverse events and the reduction of treatment cost and time.

In the past two years the still young Synergy Journal has seen a successful development with a steady growth of readership, publications and citations. We cordially invite you to be part of this dynamic emergence of a new

significant field within the life sciences and to submit manuscripts that meet the prevalent criteria of significance, relevance and scientific standards.

The Synergy Journal focuses on the following key areas, but is not restricted to these:

- Medicine, including traditional systems of medicine
- Pharmacy
- Pharmacology, including ethnopharmacology
- Toxicology
- Molecular and cellular biology
- Bioinformatics



Manuscripts may be submitted from any discipline related to the synergistic or combinatory investigations and applications of compounds or drugs in preclinical and clinical research.

The Synergy Journal is published to act as the international platform and source for the dissemination, exchange and discourse of innovative research on the systematic development of combination therapies based on synergistic effects and the rationalisation of synergistic and antagonistic modes of action.

Synergy encourages research on combinations of single and multicomponent drugs of synthetic or of natural origin as well as multidisciplinary and multicultural research. It promotes the application of “Omic”- technologies in addition to conventional methods which increasingly allow the understanding of complex disease traits and bring them into the context of system biology.

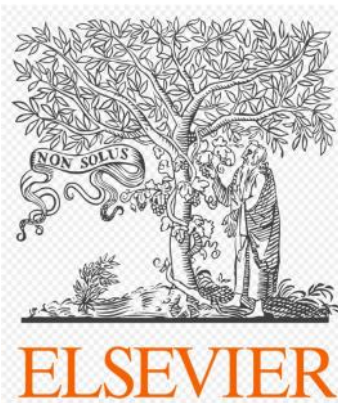
Synergy is a peer-reviewed journal published by ELSEVIER, a world-leading provider of scientific, technical and medical information products and services. The editor-in-chief is Gudrun Ulrich-Merzenich (Bonn), Ting-Chao Chou (New York) is co-editor.

Synergy is published online and does presently not charge its authors for the publication of accepted manuscripts. Synergy welcomes contributions in the forms of original research papers, reviews, rapid communications, perspectives and letters to the editor. Commentaries are by invitation only.

Synergy will issue a special edition at the occasion of the Synergy Forum 2018.

For more information and access to current articles please visit the journal website

www.journals.elsevier.com/synergy



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synergising with us !



University of Bonn
University Hospital ▪ Medical Clinic III
AG Synergy Research and Experimental Medicine
Sigmund-Freud-Strasse 25, Building 26
53127 Bonn ▪ Germany

