Joint WIS-VHIO conference on Cell communication in

Cell Communication in Translational Research
Bringing basic research into the clinic

January 22-23, 2015

The David Lopatie Conference centre
Weizmann Institute of Science, Israel

Speakers:

Diego Arango                Vall d’Hebron Research Institute (VHIR)
Joaquín Arribas            Vall d’Hebron Institute of Oncology (VHIO)
Alicia Arroyo               Fundación Centro Nacional de Investigaciones Cardiovasculares Carlos III (CNIC)
Valery Krizhanovsky        Weizmann Institute of Science
Michal Neeman               Weizmann Institute of Science
Moshe Oren                 Weizmann Institute of Science
Héctor G. Palmer           Vall d’Hebron Institute of Oncology (VHIO)
Irit Sagi                  Weizmann Institute of Science
Yardena Samuels            Weizmann Institute of Science
Joan Seoane                Vall d’Hebron Institute of Oncology (VHIO)
Idit Shachar               Weizmann Institute of Science
Avigdor Scherz             Weizmann Institute of Science
Ravid Straussman           Weizmann Institute of Science
Berta Strulovici           Weizmann Institute of Science
Josep Tabernero            Vall d’Hebron Institute of Oncology (VHIO)
Yossi Yarden               Weizmann Institute of Science

Organizing Committees
Irit Sagi, Weizmann Institute of Science
Joaquin Arribas, Vall d’Hebron Institute of Oncology (VHIO)

Sponsors

Site: wws.weizmann.ac.il/conferences/CCTR2015/
The Weizmann Institute of Science and Vall d’Hebron Institute of Oncology: a powerful duo in advancing insights into Cellular Communication in Translational Research

The WIS-VHIO experience: a snapshot reflection

January 22 – 23, 2015, marked an important date in the diary for leading scientists from both the WIS and the VHIO. Co-organized by these two leading research institutes in oncology, this two-day must-have conversation on Cell Communication in Translational Research: Bringing basic research into the clinic, not only provided a platform through which to share and debate the latest research aimed at combating cancer, but also endorsed the research strengths and synergies between WIS and VHIO. Cancer science of excellence coupled with cutting-edge technologies and stunning WIS cellular biophysics will undoubtedly represent an important tour de force in ultimately advancing cancer research, treatment and care.

As we consider the successes of this first joint initiative, we are more than confident that the meeting also represented the ‘kick-off’ for future partnering to come – we hope, to span a wide range of WIS-VHIO combined undertakings from research projects, exchange programs, to a conference sequel Barcelona-bound!

An exploration into the breakdown of cell communication, the consequential cancer growth and spread, and promising new therapeutic avenues against it

Superbly hosted by the WIS, with particular thanks to the WIS’ conference team led by Reut Frankel, the joint WIS-VHIO conference on Cell Communication in Translational Research, bringing basic research into the clinic, January 22 – 23, 2015, Rehovot, Israel, incorporated an outstanding panel of speakers, cherry-picked by scientific Co-Chairs Irit Sagi, Principal Investigator, Department of Biological Regulation, and Dean of the Fienberg Graduate School at WIS, and Joaquín Arribas, Director of Preclinical Research at VHIO.

Internationally renowned experts from among WIS and VHIO Faculty, as well as other leading research institutes from Spain, were selected not only for their respective areas of expertise in the realm of cell communication in cancer, but also for their shared dedication and drive towards translating and accelerating cancer discovery at preclinical level into real benefit for cancer patients. Engineered to report on pioneering research into cancer molecular mechanisms and efforts towards precision cancer science and medicine, the meeting was especially master-minded to encourage the active participation of our up-coming talents in the oncology – our young scientists and physician-researchers.

While participation was purposely limited in order to foster the necessary interactive workshop environment, the young scientists were all selected based on the strength of submitted abstracts, which, were either selected as poster, flash, or oral presentations which were delivered at the close of targeted sessions. Unlike many of the other larger gatherings on the International cancer conference calendar, from the very outset, determined focus was placed on encouraging the active participation of younger faculty.
Scientific program

January 22nd, 2015

08:00-08:45  Registration and Coffee
08:45-09:00  Words of welcome
             Joaquin Arribas and Irit Sagi
09:00-10:25  Session 1
09:00-09:35  Keynote: Prof. Yossi Yarden, Weizmann Institute of Science
             It takes two to tango: HER2 and EGFR in cancer progression and therapy
09:35-10:00  Joaquin Arribas, Vall d’Hebron Institute of Oncology (VHIO)
             Targeting intercellular communication during breast cancer progression
10:00-10:25  Valery Krizhanovsky, Weizmann Institute of Science
             Senescent cells communicate via intercellular protein transfer
10:25-10:50  Coffee Break
10:50-12:30  Session 2
10:50-11:15  Héctor G. Palmer, Vall d’Hebron Institute of Oncology (VHIO)
             New molecular insights in colorectal cancer metastasis and treatment
11:15-11:40  Irit Sagi, Weizmann Institute of Science
             Cell-Communication combinatorial programs contributing to formation of cancer metastasis niche
11:40-12:05  Alicia Arroyo, CNIC
             MT-MMPs: multi-faceted proteases in angiogenesis and inflammatory disease
12:05-12:30  Michal Neeman, Weizmann Institute of Science
             Tumor-Stroma communication in ovarian carcinoma
12:30-13:30  Lunch
13:30-15:10  Session 3
13:30-13:55  Ravid Straussman, Weizmann Institute of Science
             The effects of crosstalk in the tumor microenvironment on chemoresistance
13:55-14:20  Joan Seoane, Vall d’Hebron Institute of Oncology (VHIO)
             Intratumor heterogeneity in brain tumors
14:20-14:45  Yardena Samuels, Weizmann Institute of Science
             The genetics of melanoma: searching for new therapeutic targets
14:45-15:10  Berta Strulovici, Weizmann Institute of Science
             Enabling basic and clinical research with novel technology platforms
15:10-15:40  Coffee Break
15:40-18:25  Session 4
15:40-15:55  Jonathan Whitfield, Vall d’Hebron Institute of Oncology (VHIO)
             Preclinical validation of Myc inhibition by a new generation of Omomyc-based inhibitors
16:00-16:20  Kim Pedersen, Vall d’Hebron Institute of Oncology (VHIO)
             Pancreatic cancer heterogeneity and response to anti-MEK therapy
16:20-16:40  Dalit Barkan, Haifa University
             Integrin alpha V beta 3 expression in luminal breast cancer cells promotes their reversion to acinar-like structure in conjunction with their relevant microenvironment
16:40-17:00  Filip Bochner, Weizmann Institute of Science
             A Novel Intravital Imaging Window for Longitudinal Microscopy of Mouse Ovary
17:00-18:25  Poster session and Student Flash Talks
18:25-20:25  Dinner
**January 23\textsuperscript{rd}, 2015**

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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>08:00-08:30</td>
<td>Gathering and Coffee</td>
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<td>08:30-09:55</td>
<td><strong>Session 5</strong></td>
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<td>08:30-09:05</td>
<td><strong>Keynote: Prof. Josep Tabernero, Vall d’Hebron Institute of Oncology (VHIO)</strong>&lt;br&gt;Dissecting Colorectal Cancer in Multiple Targetable Subtypes</td>
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<td>09:05-09:30</td>
<td>Diego Arango, Vall d’Hebron Research Institute (VHIR)&lt;br&gt;RHOA inactivation enhances Wnt signalling and promotes colorectal cancer</td>
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<td>09:30-09:55</td>
<td>Moshe Oren, Weizmann Institute of Science&lt;br&gt;(p53) in the crosstalk between tumor and stroma</td>
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<td>09:55-10:20</td>
<td>Coffee Break</td>
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<td>10:20-11:50</td>
<td><strong>Session 6</strong></td>
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<td>10:20-10:45</td>
<td>Idit Shachar, Weizmann Institute of Science&lt;br&gt;The molecular mechanism regulating the cross-talk between CLL cells and their microenvironment</td>
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<td>10:45-11:00</td>
<td>Adi Sagiv, Weizmann Institute of Science&lt;br&gt;Mechanisms of Communication between Senescent cells and NK cells</td>
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<td>11:00-11:25</td>
<td>Oriol Arques, Vall d’Hebron Institute of Oncology (VHIO)&lt;br&gt;Tankyrase inhibition blocks Wnt/(\beta)-catenin pathway and reverts resistance to PI3K and AKT inhibitors in the treatment of colorectal cancer</td>
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<td>11:25-11:50</td>
<td>Avigdor Scherz, Weizmann Institute of Science&lt;br&gt;Regressing cancer dissemination by local therapy and immune modulation—from bench to clinic</td>
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<td>11:50-12:15</td>
<td>Closing remarks&lt;br&gt;Joaquin Arribas and Irit Sagi</td>
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<td>12:30-18:00</td>
<td>Trip to Jerusalem</td>
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<td>13:30-17:00</td>
<td>Guided walking tour (in English) of Jerusalem</td>
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<td>18:00-18:05</td>
<td>Expected arrival time back at hotel in Rehovot</td>
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The sessions and the science at a glance

Session 1.
Professor Yossi Yarden, one of the two conference keynote speakers, discussed the mechanisms and factors involved in intracellular communication, the process that involves the arrival of signals to cells surface and results in cell increased division and/or migration -- two cancer cell traits.

Professor Joaquín Arribas presented recent data from his laboratory showing that in breast cancer, while some malignant cells stop dividing so they cannot further populate the tumor, they produce signals that facilitate the rapid proliferation of other tumor cells.

Dr. Valery Krizhanovsky continued on the same topic, discussing how those non-dividing cells interact with cells of the immune system.

Session 2.
Dr. Héctor G. Palmer opened the session by presenting his latest data on models of colon cancer and how certain drugs in clinical development, the so called inhibitors of the PI3K-Akt pathway, are effective in subgroups of patients.

Professor Irit Sagi demonstrated how certain factors, known as proteases, remodel the extracellular environment, altering the ways in which cells can migrate and therefore, invade tissues. She also presented several agents developed in her laboratory that can target those proteases and, thus, can be used as weaponry to prevent metastasis.

Dr. Alicia Arroyo continued on the same topic showing the involvement of one of those proteases in the generation and maintenance of blood vessels.

Professor Michal Neeman, closed the session showing how malignant cells can recruit normal cells to the tumor and modify their behavior so they end up contributing to the progression of the disease. She also discussed the therapeutic opportunities that this interaction between normal and malignant cells can be exploited to treat tumors.

Session 3.
Dr. Ravid Straussman presented several completely unexpected results on how tumors become resistant to chemotherapy and how this resistance could be blocked in the near future.

Professor Joan Seoane showed his latest findings on how gliomas, tumors that affect the central nervous system, are able to inhibit the immune system and how this communication can be therapeutically targeted.
Dr. Yardena Samuels presented data on the genetic characterization of melanoma and the discovery of novel tumor suppressor genes in this tumor type.

Finally, Dr. Berta Strulovici showcased the platforms of next generation sequencing, protein identification and quantitation, drug discovery and bioinformatics, all seamlessly integrated through a dedicated bioinformatics platform.

Sessions 4.
This specially crafted session was dedicated to the younger faculty participating at the meeting, incorporating both the poster session as well as the selected student flash talks – a highly enjoyable, interactive, and stimulating session for speakers and participants alike.

Session 5.
Professor Josep Tabernero presented several collaborative efforts that include several thousands of colon cancer patients. His talk centered on the stratification of colon cancer patients based on genetic profiling and the therapeutic options available for each individual tumor.

Dr. Higinio Dopeso represented the laboratory of Dr. Diego Arango and showed data on the role of a cellular component named RhoA during the progression of colon cancer.

Professor Moshe Oren discussed the role of a potent tumor suppressor component, p53, known to direct the suicide of early malignant cells in the suppression of neighbor cells. This unexpected role of p53 is mediated by extracellular components produced by the cells in which the tumor suppressor component is activated.

Session 6.
In the last session Dr. Idit Shachar focused on how cells from the tumor microenvironment affects the progression of chronic lymphocytic leukemia, one of the most common types of leukemia in adults.

During the final talk, Professor Avigdor Scherz described a new method of tumor ablation based on photodynamic compounds activated by narrow fibers that carry the light to the tumor area. The initial collapse of the tumors treated with novel technology is followed by an immune reaction that attacks the micro-metastases reinforcing the anti-tumor effects of the procedure.
Acknowledgements (sponsors and organizers):

As cancer researchers, we are acutely aware that the emerging landscape of oncology is as complex as it is promising. With the irrepressible explosion of novel data, the rapid advancement in new genomic technologies as well as exciting treatment modalities, the burden on us all to keep abreast of all the very latest findings as well as consider future directions ahead weighs heavy.

It is therefore imperative that we engage in the critical interconnectivity and cross-talk between oncology professionals at key conferences. Given the current economic climate, however, we are unfortunately often faced with difficult decisions concerning what we can or cannot attend.

Only with the enormous generosity of the WIS-VHIO meeting sponsors were we able to enjoy and benefit from this stimulating, thought-provoking two-day, two-way exchange. It is thanks to such support that we were able to share latest insights with colleagues and peers, as well as explore possible new avenues for collaboration. The WIS-VHIO conference did not represent a ‘luxury’ of an additional meeting in oncology, rather an essential educational opportunity for us all.

We would like to thank and recognize the invaluable contribution of the following individuals and entities:

- Mr. David Gebler, Madrid, Spain
- Casa Cresques Barcelona Israeli-Catalan Hub
- The Weizmann Institute of Science
- The Weizmann Institute of Science Feinberg Graduate School
- The Nancy & Stephen Grand Israel National Center for Personalized Medicine
- Conferences and Schools Program, WIS-CSP
- The Vall d’Hebron Institute of Oncology (VHIO)
Future WIS-VHIO directions

During the close of the meeting, based on the conversations triggered throughout the conference as well as the synergies and already strong ties between the WIS and VHIO, Drs. Arribas and Sagi signposted various avenues for potential collaboration:

- Short WIS-VHIO student exchange programs (3-6 months)

- A joint course for graduate students on *Cell Communication in Translational Research*.

- Proposals for projects involving the potent imaging technologies developed at WIS and the cancer models existing at VHIO. Personnel from WIS and VHIO would help to identify appropriate calls to fund such research lines.

- To organize a second joint WIS-VHIO meeting in Barcelona in 2016. This second scientific conference would also foster the necessary updates and planning regarding the aforementioned areas of potential partnership.
Selected, specialized Spanish media coverage:
The VHIO/WIS must-have meeting: delivering insights into the breakdown of cell communication, the consequential cancer growth and spread, and promising new therapeutic avenues against it, 22 – 23 January, 2015, Rehovot, Israel.