



IUIS-SMI-FAIS Immuno-Morocco Course

“Tumour Immune Microenvironment and Immunotherapies”

Marrakech, Morocco, June 2023

Venue: Zephyr Targa Hotel

City: Marrakech, Morocco

Dates: June 5-10, 2023

About the Course: The aim of the course was to exhibit and discuss the latest discoveries on cancer and its complex interactions with the immune system, within the tumor immune microenvironment. The event focused on the tumor immune microenvironment structure and organization, cell and antibody therapies, and cancer vaccines. The goal was to provide high quality up to date immunology knowledge and highly interactive discussion sessions. It is most important to train young scientists from low to middle income countries to have a better grasp of this very promising field. The program was prepared meticulously. A huge effort was performed to select the best students/early career scientists. During the course, the participants benefited from 23 lectures, a workshop on flow cytometry, several sessions on Grant writing, and one session on “Conversion of discoveries into entrepreneurship”. The participants also had the opportunity to present their posters and their grant writing homework to a review panel. The course was a great opportunity for interaction between faculty and advanced PhD students and post-docs to promote career progression of young African scientists, to interact with faculty and participants and extend their network.



An excellent gala dinner took place in the courtyard of the amazing Palace EL Hamra in the Marrakech Medina, with music, great food and lots of photo opportunities.

This course was made possible through financial support from IUIS, FAIS, the Moroccan Society for Immunology, and a generous grant from BioNTech Germany.

The course was organized by:

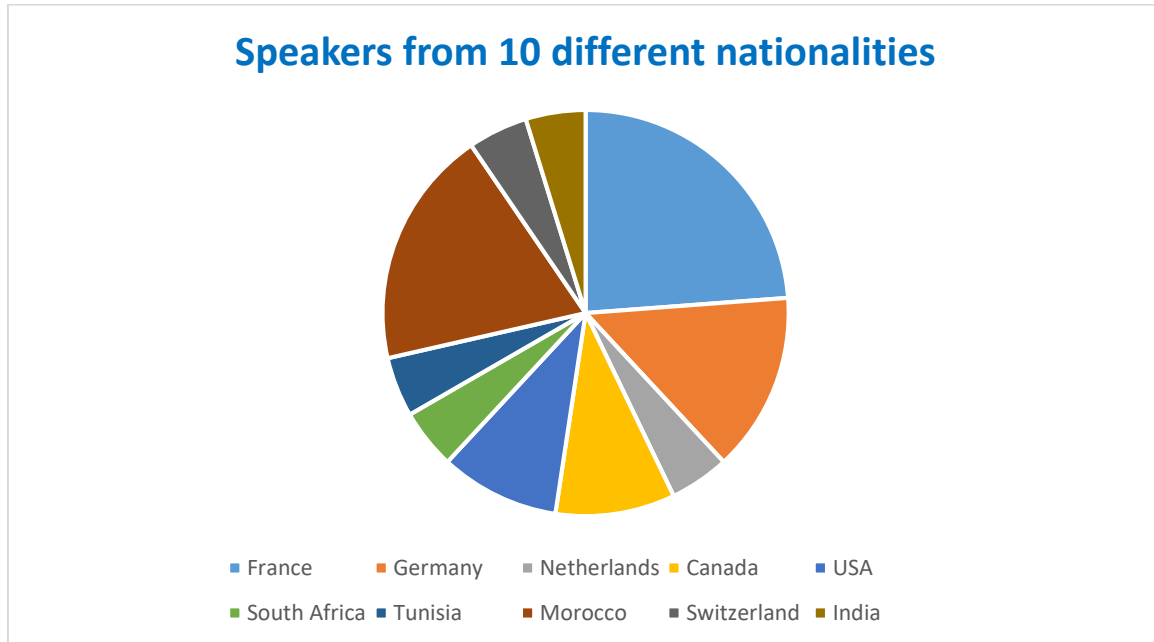
- **Abdallah Badou:** Hassan II University, Casablanca and Mohammed VI Center for Research and Innovation, Rabat, Morocco
- **Jamal Hafid,** Cadi Ayyad University, Marrakech, Morocco
- **Dieter Kabelitz:** University of Kiel, Germany
- **Michelle Letarte:** SickKids Hospital and University of Toronto, Canada
- **Clive Gray:** Stellenbosch University, RSA



The organizers

Faculty:

The faculty included speakers from Germany, France, Netherlands, Canada, USA, South Africa, India, Tunisia, Switzerland and Morocco.



Some faculty members

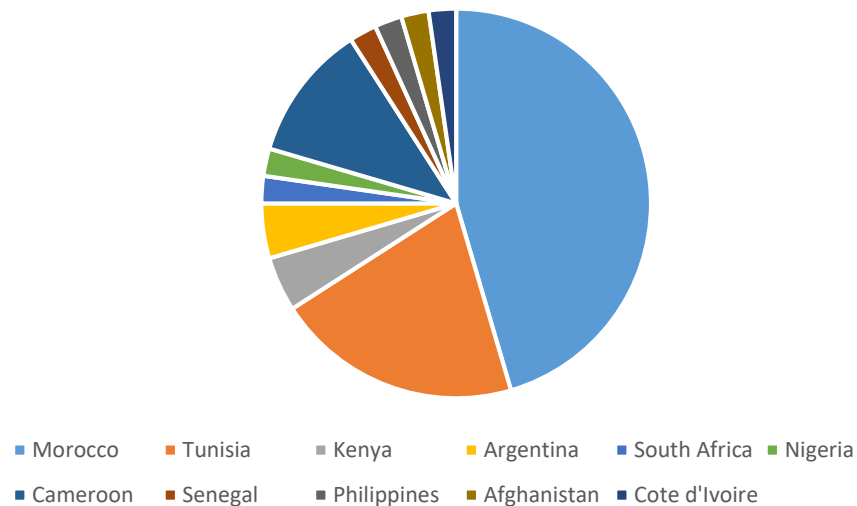
Participants and course organization:

- Selected participants received full funding to cover accommodation and travel expenses. In addition, registration fee (100 USD) was waived whenever possible.
- The course was made possible through financial support from IUIS (40.000 USD, FAIS (10.000 USD) and a generous grant from BioNTech SE, Germany (20.000 EUR)
- Before attending the in-person course, selected participants joined over 6 weeks an on-line pre-course which was made available on the Immunopaedia platform.
- Faculty members provided 2-3 review articles related to the topic of their talk, and 2-3 multiple choice questions to prepare a quiz for the on-line pre-course.
- Two of the online sessions were held on zoom (May 24 and May 29), introducing the students to the grant writing exercise, giving them the general topic of the grant required from which to select a given proposal, dividing them into 8 groups of 5-6 students and introducing them to their mentor. In this manner, they could get a start on the process and establish a mode of communication between them.
- During the course, the 43 participants benefited from high level interactive lectures given by the invited faculty.
- Poster sessions allowed all participants to present their work and interact with Faculty and students.
- For the first time in IUIS Education Committee courses, we introduced an afternoon workshop on “Conversion of discoveries into Entrepreneurship”. “How to go from basic and translational science to biomedical entrepreneurship” with Dr Choukri Ben Mamoun from Yale University, followed by an online presentation by Dr Eric Vivier from Institut Universitaire de France, Marseille “On the translation of scientific discoveries into industrial projects. Then Dr Hongwei Zhang from R&D Abbot Point of Care, Ottawa, Canada described her “Journey from prototype to commercial product.” This was followed by a round table discussion focusing on opportunities for young scientists and answering their questions.
- The 3hr workshop on “Flow cytometry applied to cancer research and diagnosis” was run by Claude Lambert and Fouad Seghrouchni, in an interactive manner .
- Formal grant writing sessions were included in the program but students worked many extra hours on their proposal and their presentation on the final morning of the course.
- The overall topic for the grant application was: Vaccination and immunotherapeutic strategies for protecting adults and children against cancers
- Proposed specific topics included: Vaccine design; Measuring vaccine immunogenicity; Diagnostics; Immunotherapies; Immune monitoring strategies;

Dissecting the immune environment of a tumour; Cellular responses against solid tumours

- The 8 grant proposals presented by the students on the final day of the course can be found at the following link: <https://immunopaedia.org.za/online-courses/iuis-courses/immuno-morocco-2023/grant-writing/>
- The review panel composed of 6 faculty judges assigned:
third place to group 5: "A novel rapid biosensors based test to detect miRNA as an early screening of cervical cancer, SENSICAN", (Mentor Dr Asma Gati, from Tunis)
second place to group 7: "Pre-clinical in vivo validation of anti OMR-1 as a new immune checkpoint inhibitor in Melanoma", (Mentor, Dr Olivier Boyer, University de Rouen, France)
first place to group 1: "Novel Strategy for Immunotherapy of Glioblastoma with Vδ2 γδ T cells" (Mentor, Dr Dieter Kabelitz, University of Kiel, Germany).
All members of the 3 groups were given a certificate and the members of group 1, were given free registration to the upcoming Cape Town International Congress of Immunology.

Participants from 11 different nationalities





Participants and faculty of Immuno-Morocco 2023



Listening to interesting presentations....



*....and working in groups
on the grant proposals...*



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The poster sessions offered opportunities to participants to present their own work and discuss with faculty and colleagues



Group1, the winning team in the grant proposal exercise



All participants received a certificate of successful participation



Gala dinner took place at Palace EL Hamra in the Marrakech Medina

Course evaluation

All participants were requested to evaluate the Immuno-Morocco course. Feedback from students is very important to further improve IUIS courses in the future. In the following section we summarize the general comments and provide the student's answers to specific questions.

Immuno-Morocco Student's evaluations:

The students agreed (score 90%) that the course met their expectations, covered all areas stated and had an adequate level of presentation.

For the online pre-course, the major suggestions were to have more videos, more interactive presentations, improved website layout and better quizzes.

For the course itself, the more frequent requests were to have more workshops and more sessions interacting with Faculty.

The question: **How will the course be of help in your ongoing project work?** received many interesting answers:

- a) The course content will provide me with a deeper understanding of relevant concepts, methodologies, and best practices in my field. It will equip me with the tools and techniques needed to tackle challenges and make informed decisions throughout the project lifecycle. Additionally, interacting with instructors and fellow learners during the course can offer valuable perspectives and opportunities for collaboration. Overall, the course will enhance my abilities and positively impact the progress and outcomes of my ongoing project.
- b) Participating in IUIS-SMI-FAIS Immuno-Morocco course offered opportunities to connect and engage with fellow students and researchers in the field. This networking enabled meaningful discussions, facilitated idea exchange, and created possibilities for fruitful collaborations that can significantly enhance my project work.
- c) The course helped me to refine my next hypothesis and explore more deeply my project work.
- d) This course will help me to have other more attractive perspectives for the pursuit of my project especially thanks to the possible collaborations I made.
- e) From a general point of view, seeing and hearing the way in which others approached their research, opens the panorama in the way of thinking about my own research topic, as well as, having acquired knowledge in the field of immunotherapy beyond pd- 1 and ctla-4. Finally, I found all the teachers very inspiring. Sometimes one feels a bit frustrated when things don't go as expected,

but this was undoubtedly an injection of energy and inspiration; as Dr. Hongwei said, try, persevere, until you achieve it.

- f) Even though we are not at the level of grant writing, writing in general is a huge part of our degrees and so learning new ways of writing is always helpful. I am also new to the field of oncology and this course helped me get familiar with terms. It was a good balance of lectures vs talks.

Suggestions to improve future courses:

- a) More lectures showing research results, more practical workshops.
- b) Including meet the faculty session could be interesting and help us to overcome the intimidation we could feel in front of the faculty.
- c) More practical sessions, even recorded videos on how to use specific pieces of equipment, would be appreciated. This will really go a long way for people like us that don't have the opportunity to use these machines.
- d) Sitting at round tables was not comfortable especially if one must turn the chair to follow presentations, also if faculty can sit amongst students that will be great to bring them closer.
- e) Slightly reduce lectures, give more time to writing projects, a departure dinner for the last day would be great.
- f) The flow cytometry workshop would be better if we learned how to analyze output data using the software during the session.
- g) Ask the faculty to avoid sitting together. If students want to approach senior members to ask questions, they probably will avoid the situation if many faculty members are together.
- h) It would have been good if the grant writing groups were assigned a little more in advance, to be able to work beforehand. The week before the trip, is usually very busy for students and so having the online meetings sooner would be better.
- i) The poster presentation on the last night of the course was not well attended; only one faculty showed up. So please avoid posters on the last night as everyone is preparing for their grant writing presentation.

Comments on the grant writing exercise:

- a) Digging in into a new subject, different from your research subject, was good but we did not have much time, it was frustrating.
- b) Some group members were not motivated to work.
- c) I enjoyed it very much, especially with the use of imagination, it was a good exercise for us as young researchers; working within a group with each one of us from a different country was perfect. I couldn't stop my tears when I said goodbye to my group.
- d) The most difficult part was to agree about a theme. I did learn how to listen to other ideas, criticisms and how to step back with my own idea to work hard on someone else's idea for the superior interest of the team.

- e) I enjoyed it. It provided valuable training for future grant writing. It also allowed for collaborative decision-making, conflict resolution and teamwork. Moreover, the exercise improved my persuasive writing and project planning skills.
- f) I really enjoyed this part of the course because I personally learned a lot, especially team working, analysing data, critical skills ...It was an excellent experience, and the mentor was the best; we learned a lot and he was excellent.
- g) I really enjoyed this activity; we were very lucky with the group. It was very difficult at first to discuss various proposals and different approaches, since each one works on a particular topic and methods, but it was very enriching. To understand each other, we also had to know a little more about the work of each one. With a little more time, or guidance in defining our theme, I think we could have done a better job. On the other hand, I had the opportunity to meet incredible people, since by sharing so much time, in addition to talking about science, we were able to get to know each other in a more personal way, learn from each other's cultures, and I consider this invaluable.
- h) We had a great facilitator that not only gave us their expertise but reminded us to keep going when it gets tough. I think it's a great exercise and teamwork is a skill that we can all improve on as we advance in our careers.

Program

ONLINE ACTIVITIES

Friday, April 21 – Thursday, June 1

Immunopaedia Online Pre-course (www.immunopaedia.org.za)

Wednesday, May 24

13h00 – 14h00 Online Grant Writing Session 1 (Zoom)

Monday, May 29

13h00 – 14h00 Online Grant Writing Session 2 (Zoom)

IN-PERSON COURSE

Monday, June 5

14h00 - 18h00 Arrival and Registration

18h00 - 19h30 Welcome and Introduction

President of the Hassan II University-Casablanca

Dean of the Faculty of medicine and Pharmacy-Casablanca

IUIS Education Committee Chair

FAIS Vice-President

SMI President

20h00 Dinner

Tuesday, June 6

Session I: Cancer surveillance and anti-tumor Immune response
Chairs: Jamal Hafid and Daniel Olive

- 08h30 - 09h00 Epidemiology and Cancer Surveillance in North Africa.
Majdouline Obtel, Mohammed V University of Rabat, Mohammed VI Center for Research and Innovation, Rabat, Morocco
- 09h00 - 09h30 Fundamental Principles of the Immune Response.
Clive Gray, Stellenbosch University, South Africa
- 09h30 - 10h00 The Immune Response in cancer.
Asma Gati, Tunis El Manar University, Tunis, Tunisia
- 10h00 - 10h30 Coffee Break
- 10h30 - 11h00 The Basics of Immunotherapy.
Asmaa Naim, Mohammed VI University for Health and Sciences, Casablanca, Morocco
- 11h00 - 11h30 The role of the tumor microenvironment (TME) in B-ALL.
Hind Medyouf, Goethe University, Frankfurt, Germany
“EMBO Young Investigator Lecture”
- 11h30 - 12h00 Discussion of the five talks
- 12h00 - 14h00 Lunch

Session II: Flow cytometry applied to cancer research and diagnosis

- 14h00 - 17h00 Flow Cytometry Workshop (including coffee break)
Claude Lambert, Saint-Etienne University Hospital, Saint Etienne, France
Fouad Seghrouchni, Mohammed VI Center for Research and Innovation, Rabat, Morocco
Thomas Mattes, Geneva University, Switzerland
- 17h30 - 19h30 **Grant Writing Session 1**
Michelle Letarte, SickKids Hospital and University of Toronto,

Canada
 Clive Gray, Stellenbosch University, South Africa,
 with all Students and Mentors (Olivier Boyer, Barbara Seliger, Dieter
 Kabelitz, Monica Guzman, Hongwei Zhang, Derk Amsen, Choukri
 Ben Mamoun and Majdouline Obtel)

20h00 Dinner

Wednesday, June 7

Session III: The Immune Microenvironment in hematological malignancies
Chairs: Barbara Seliger and Abdallah Badou

08h30 - 09h00	Components and key regulators of the TME. Daniel Olive, Institut Paoli-Calmettes, Marseille, France
09h00 - 09h30	Targeting TME and leukemia stem cells in AML. Monica Guzman, Weill Cornell Medical College, Cornell University, USA
09h30 - 10h00	Cancer immunomonitoring in AML and solid tumors. Daniel Olive, Institut Paoli-Calmettes, Marseille, France
10h00 - 10h20	Coffee break
10h20 - 10h50	Assessment of Measurable Residual Disease (MRD): a practical approach. Monica Guzman, Weill Cornell Medical College, Cornell University, USA
10h50 - 11h50	General discussion on above 4 talks
12h00 - 14h00	Lunch
14h00 - 16h00	Poster Session 1
16h00 - 16h30	Coffee Break
16h30 - 19h30	Grant writing Session 2 All students and mentors
20h00	Dinner

Thursday, June 8

Session IV: **Novel Immuno-therapeutic pathways**
Chairs: Monica Guzman and Choukri Ben Mamoun

- 08h30 - 09h00 T cells at the center of immunity in solid tumors.
Derk Amsen, University of Amsterdam, Amsterdam, The Netherlands
- 09h00 - 09h30 Functional lymphocyte cross talk and the role of checkpoint inhibitor therapy.
Barbara Seliger, Martin Luther University Halle-Wittenberg and Institute of Translational Immunology, Medical School, Brandenburg an der Havel, Germany
- 09h30 - 10h00 TME: Obstacles and opportunities for innovative cancer immunotherapy.
Salem Chouaib, Institut Gustave Roussy, Paris, France
- 10h00 - 10h30 Coffee break
- 10h30 – 11h00 Chimeric Antigen Receptor (CAR) T cells: principle and applications.
Olivier Boyer, University of Rouen, France
- 11h00 - 11h30 Immunotherapeutic potential of gamma/delta T cells.
Dieter Kabelitz, University of Kiel, Germany
- 11h30 – 12h00 Harnessing Natural Killer cells in cancer therapies.
Eric Vivier, Institut Universitaire de France, Marseille, France (online)
- 12h00 - 13h15 General discussion of above 6 talks
- 13h15 - 14h30 Lunch
- 14h30 - 16h30 **Poster Session 2**
- 16h30 - 20h00 Free time, visit to Marrakech
- 20h00 Gala Dinner in Marrakech Medin

Friday, June 9

Session V: **TME and novel Immuno-therapeutic pathways**
BioNTech Sponsored Session
Chairs: Dieter Kabelitz and Derk Amsen

- 09h00 - 09h30 TME: Immune escape strategies.
Shubhada Chiplunkar, ACTREC, Mumbai, India (*online*)
- 09h30 - 10h00 Immunosuppressive TME and New Therapeutic Strategies.
Sanae Ben Mkaddem, Mohammed VI Polytechnic University,
Ben-Guerir, Morocco
- 10h00 - 10h30 Characterization of immune-relevant microRNAs in tumor cells
and their clinical potential.
Barbara Seliger, Martin Luther University Halle-Wittenberg,
and Institute of Translational Immunology, Medical School,
Brandenburg an der Havel, Germany
- 10h30 - 11h00 Coffee break
- 11h00 - 11h30 Cancer Vaccines
Shubhada Chiplunkar, ACTREC, Mumbai, India (*online*)
- 11h30 - 12h00 Application of microRNAs and mRNA vaccines for the treatment of
cancer patients.
Barbara Seliger, Martin Luther University Halle-Wittenberg,
and Institute of Translational Immunology, Medical School,
Brandenburg an der Havel, Germany
- 12h00 - 13h00 Discussion of above 5 talks
- 13h00 - 14h30 Lunch

Session VI: Workshop on “Conversion of discoveries into entrepreneurship”
Chairs: Olivier Boyer and Fouad Seghrouchni

- 14h30 - 15h00 From Basic and Translational Science to Biomedical
Entrepreneurship.
Choukri Ben Mamoun, Yale University, New Haven, USA
- 15h00 - 15h30 On the translation of scientific discoveries into industrial projects.

Eric Vivier, Institut Universitaire de France, Marseille, France
(online)

15h30 - 16h00	Journey from Prototype to Commercial Product. Hongwei Zhang, R&D, Abbott Point of Care, Ottawa, Canada
16h00 - 16h20	Coffee Break
16h20 – 17h45	Round table discussion and opportunities for young scientists
17h45 - 20h00	Grant writing Session 3 All students and mentors
20h00	Dinner

Saturday, June 10

Session VII: *Student Grant Proposal Presentations* *Chairs: Clive Gray and Michelle Letarte*

08h30	Submission of Grant Presentations
08h30 - 9h30	Rehearsal of Grant Presentations in student groups
09h30 - 10h45	Student Grant Proposal Presentations and Evaluation I
10h45 - 11h15	Coffee Break
11h15 - 12h30	Student Grant Proposal Presentations and Evaluation II
12h30 - 13h30	Awards for Best Grant proposal and Official Closing
13h30	Lunch and Departure