European Federation For Immunogenetics

NEWSLETTER

October 2018 - Issue 86

.....from the EFI President

Dear colleagues and friends,

It is a great pleasure and honour for me to be addressing my first words to you as the new EFI president. Firstly, I would like to thank all of you who gave me your support and trust to lead our society. I promise to do my very best in order to navigate our "EFI ship" in such a way that our society and its members continue to increase their relevance in the field Histocompatibility, Immunology and Transplantation.

Let me start with warmly thanking on behalf of all of us Elissaveta Naumova, our immediate past president, for the excellent and very successful presidency she has had in the last three years and for the way she led our society. Among other things, Elissaveta managed to a) dramatically improve the spirit of interaction and collaboration within EFI, thus promoting networking and acting as an excellent motivator for all members who voluntarily work in various committees of EFI, and b) promote our society internationally by pursuing agreements with national H&I societies as well as international scientific societies in the field of Transplantation and Immunology, thus increasing EFI's visibility and relevance. First fruitful results of these seeds have already been harvested. Again, thanks Elissaveta for all you have done for EFI in the last three years!

This is the first EFI Newsletter after our annual conference in Venice. Therefore, I also would like to thank Valeria Miotti, Carlo Carcassi and the rest of the local organizing team for the excellent work in putting together a very successful EFI annual meeting. We all enjoyed being in Lido and when a couple of weeks after our conference the Cinema festival was carried out in the same, we could all see on the TV the places we had spent many hours listening to scientific presentations and discussing with colleagues and friends hot topics in the field of H&I, transplantation, cell therapy etc. Here I also would like to extend our gratitude to the industry which always has supported our society with their substantial financial contribution without which our annual conference would not have been possible.

One of the important and main goals of our society is the opportunity it provides to its members to network and interact within our field but also to provide a platform for exchanging ideas and plan projects with members of other societies working adjacently in the fields of immunology and transplantation. As mentioned above, Elissaveta started an initiative by formalising our relationship with various national and international societies. As a result of this, EFI was invited to contribute to the annual meeting of the European Federation of Immunological Societies (EFIS) by putting together a session on clinical aspects of Immunogenetics. This session at this year's annual EFIS meeting in Amsterdam and was very well attended. Many thanks to Katharina Fleischhauer, Frans Claas and Ludvig Sollid who represented our society at this prestigious meeting, as well as to Elissaveta Naumova who catalysed the contact to EFIS and chaired this joint session.

EFI has also signed an agreement with the Indian Society for Histocompatibility and Immunogenetics (ISHI). We have been asked to contribute to their annual meeting and a joint session has been scheduled for ISHI's annual conference in November this year (ISHICON), where Andrea Harmer and Sebastiaan Heidt will represent our society. We wish them

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....FROM THE EDITOR'S DESK

I hope you all have had a good summer break, which this year gave us more sunshine than ever! Before you lies the latest edition of the EFI Newsletter, which contains the first Presidential introduction by our new President Joannis Mytilineos.

This edition contains multiple reports of the bursary recipients on the excellent joint EFI - AIBT meeting held in Lido, Venice in May this year. The wonderful and relatively quiet island of Lido was a perfect location for the meeting, with the option to be emerged in Venice culture after a short boat trip. I would like to thank the conference chairs Valeria Miotti, Carlo Carcassi and Antonio Amoroso for their hard work to organize this meeting.

Furthermore, I would like to bring to your attention that the HLA journal, the official journal of EFI, has received its first impact factor after the name change from Tissue Antigens. The first impact factor of HLA is 2.558, which makes HLA one of the highest scoring journals in our field. As you can read in the 'Highlights from the HLA Journal' section, a variety of original research is published in the journal, so please consider your next manuscript for publication in the HLA journal.

As always, I hope that you enjoy reading the EFI Newsletter and I very much look forward to your contributions for the next edition.

Sebastiaan Heidt

Deadline for contributions to EFI Newsletter 87 is December 15, 2018.
Please send your contributions by e-mail to s.heidt@lumc.nl

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good success and thank them for representing EFI in the Indian subcontinent. EFI is going to have joint sessions with other societies too in the near future. There is a plan to have a team which will coordinate EFI's representation in meetings of other societies as well as the representation of other societies on EFI meetings. This group will include members from the EFI board, and the scientific and education committees. There are plans for mutual representation of EFI, ESOT and EBMT in each other's upcoming annual meetings, respectively.

Another important goal of EFI is education and training of young members of our society. The International summer school of H&I (ISS) has been one of the most successful events towards this goal, giving the opportunity to young scientists to present their work and interact closely with opinion leaders in the field of H&I from Europe, the Americas and Asia/Australia. The ISS was carried out annually, but mainly due to financial restrictions it was "cut down" to every other year. ASHI, APHIA and EFI recently decided to re-establish the old turn system and we are happy to announce that from 2019 on the ISS will be carried out annually again. In 2019 the ISS will in the area of Quebec in Canada for which the faculty has been selected already and a first planning meeting will be at the upcoming ASHI meeting. In 2020 it will be EFI's turn to organise the ISS somewhere in Europe, so if any of you is enthusiastic and wants to host this prestigious event, please contact the chair of the education committee, David Turner or EFI secretary Mats Bengtsson. In 2021, the ISS will be carried out by APHIA somewhere in Australia or South Asia. It is worth to be mentioned that the three organising societies will very soon be supported by the Arab Society for Histocompatibility and Immunogenetcs (ARSHI). The ISS-Memorandum of Understanding is currently being revised in order to reflect all the above changes.

An issue that kept us all busy in the last couple of months was the mandatory implementation of the new European data protection directive (GDRP). As a result of this, EFI had to inform its members accordingly, and the Web page had to be changed. We are in the process of completely refurbishing our Web site and EFI has reserved fuds in order to do so. We hope that within the next couple of months the new Web page will be launched with more functionality and data safety for EFI and its members.

For many years, EFI had an IT working group taking care of IT issues which occasionally came up. With Bioinformatics becoming a substantial part of our work, EFI recognized that Bioinformatics is now a core business within H&I. In order to address this fact adequately, EFI decided to "upgrade" the IT working group to a newly created IT & Bioinformatics committee. We are grateful and glad that Eric Spierings accepted to chair this committee and look forward to the great work which will be produced by him and his highly motivated group.

As often stated in the past, exchange of knowledge and continuous education are important goals of EFI and we have always tried to support our members towards these goals. Therefore EFI gives bursaries for participation to meetings, for support of regional educational events and for promoting training visits of EFI members to other laboratories. The deadlines for submission of bursary applications were somewhat confusing and EFI has decided to harmonize these deadlines. This process is now completed and we hope that applying for bursaries will be easier in the future. EFI is committed to continuously support its members towards training and education and will do so as long as the finances allow.

This year's EFI autumn business meeting will be carried out in Leiden, 12th - 14th of October. During this meeting EFI will discuss the long planned topic of a corporate Professional Congress Organiser (cPCO). It is planned that for EFI meetings from 2022 onwards the organisation of the meeting should be carried out jointly by a cPCO -mid-term contracted by EFI- and a local PCO who along with the local organisers will be taking care of the local issues, whereas the cPCO will be mainly managing the industrial exhibition and sponsoring. This model was very successful at the EFI conference in Kos and EFI has decided that this would be the right way to go. Several PCOs have responded to a bid that EFI published earlier this year and the EFI board intends to decide on our future cPCO at the autumn meeting. We will be having our annual EFI meetings in Lisbon 2019, in Glasgow 2020 (joint meeting with BSHI), and in Amsterdam 2021 (joined meeting with the IHIWS). The bids for 2022 and 2023 will also be discussed in Leiden. In this context it should also be mentioned that EFI is working on an annual meeting manual which will help future applicants for the EFI conference to prepare their applications accordingly.

Before closing, I would like to remind everyone to the fact that this year we will have again elections. Several positions will become vacant and I would like to encourage everyone who feels that he/she would like to contribute to EFI's work to consider submitting his/her application. EFI would not exist if its members where not active. We are a society with capable and highly motivated members. We look forward to receiving your applications! Watch out for the announcements in this issue of the EFI newsletters and please make sure to give your votes in the elections later this year!!!

EFI has always been standing for exchange, interaction, collaboration and solidarity among its members. This is particularly important in these days, where countries unfortunately start again to raise borders and block the spirit of cooperation and solidarity that has been predominant in Europe in the last decades. I am proud to lead a society like ours and I am proud that we as EFI reach out our hands to our sister societies within and outside Europe in order to promote knowledge, training, education, and science in the fields of Histocompatibility and Transplantation Immunology for the good of our members, and the patients we serve!

Yours

Joannis Mytilineos

EFI President

European Federation for Immunogenetics – Executive Committee Elections

Elections to take up post during the General Assembly at the EFI Conference, 2019

All EFI members are invited to nominate candidates to fill the following vacancies that will arise on the EFI Executive Committee:

- Secretary
- Treasurer
- Three Councillors

The Officers (Secretary, Deputy Secretary, Treasurer and Deputy Treasurer) may serve a three year term with the possibility of re-election for another three years. As the accounts for EFI are registered in France, it is desirable that the Deputy Treasurer is also based in France. The EC at its meeting in Venice suggested to re-appoint the four Officers.

Councillors serve three years and can be re-elected for a second term, but only after one year interval.

The present EFI Executive Committee members and their end-of-terms are shown below.

All nominated individuals must complete the 'Nomination Form', which requires seconding by ten paid-up EFI members from at least two countries.

Members of the Executive Committee are requested to participate only in the nominations made by the Executive Committee which will take place during the autumn meeting.

Completed Nomination Forms, accompanied by the candidates brief biography (200 words maximum, excess words will be deleted), including their proposed contribution to the Executive Committee and an electronic photograph suitable for publication should be received by Sandra van Hensbergen at the EFI Central Office (ajvanhensbergen@lumc.nl) by the morning of Friday the 5th of October 2018.

An election will be held if multiple nominations are received for any of the vacancies. The election will take place electronically. Please ensure that your email address is up-to-date by checking your membership account on www.efi-web.org.

Position	Name	From	End of term
President	Joannis Mytilineos	Germany	2021
Secretary	Mats Bengtsson	Sweden	2019 (1st term)
Deputy Secretary	Dave Roelen	the Netherlands	2019 (1st term)
Treasurer	Gwendaline Guidicelli	France	2019 (1st term)
Deputy Treasurer	Katia Gagne	France	2019 (1st term)
Councillor	Pierre-Antoine Gourraud	France	2020 (1st term)
Councillor	Teresa Kauke	Germany	2019 (1st term)
Councillor	Neema Mayor	UK	2020 (1st term)
Councillor	Valeria Miotti	Italy	2019 (1st term)
Councillor	Fatma Oguz	Turkey	2019 (1st term)
Councillor	Jean Villard	Switzerland	2020 (1st term)

Report on the EFI General Assembly held in May 11th 2018, during the 32nd annual meeting in Venice, Italy

Report prepared by Mats Bengtsson, EFI Secretary and Dave Roelen, deputy secretary

1. Opening

The EFI president Elissaveta Naumova opened the General Assembly meeting and welcomed all EFI members present. There were approximately 110 members present.

2. Minutes of the General Assembly 1st June 2017 Mannheim

The minutes of the General Assembly, held June 1st, 2017 in Mannheim which were published in the EFI newsletter September 2017, issue 83 were approved.

3. Report of the EFI President

Collaboration with National Societies

The EFI president reported that to further strengthen the work on education, accreditation and other activities, EFI has for a number of years worked to formalize the relationship with national societies for histocompatibility and immunogenetics. There are now 11 signed relationships with 10 European societies and 1 from India; the Japanese society will follow soon. In line with the agreements a meeting with the presidents of national societies was organised on May 11th. The collaboration regarding education, accreditation, and national guidelines was discussed and all agreed on that such a meeting should be organised annually. The President continued reporting of a highly successful educational workshop in Istanbul were also the Turkish Ministry of Health participated. EFI looks forward to welcome many more laboratories in Turkey to apply for EFI accreditation.

Relationship with other societies

EFI also has signed relationships with other European scientific societies such as the EBMT and EFIS. The EFI President has had one meeting with the president elect of the EBMT during the EBMT meeting in Lisbon, in which cooperation in education and scientific projects were discussed and planned. A meeting with the board of the European Federation of Immunological Societies (EFIS) was held in Sofia and it was decided that there will be a EFI symposium at the 5th European Congress of Immunology (ECI) in Amsterdam this autumn. In addition, EFIS will host a symposium on basic immunology at our annual meeting in 2019. A meeting with the presidents of APHIA and ASHI has also been organised and it was decided to share educational knowledge (ASHI university) and that the Summer school will be held annually (ASHI 2019 as next). The collaboration of EFI, APHIA and ASHI with the IHIWS was also discussed in the presence of the organisers of previous WS (M. Fernandez-Viña) and with next WS (S. Heidt and E. Spierings).

Declaration of Istanbul

In 2004 the World Health assembly urged member states to take measures to protect the poor and vulnerable from transplant tourism and to address the problem of international trafficking in human organs and tissues. In 2006 representatives from the Transplantation Society met with the International Society of Nephrology and conceived the idea of developing a formal declaration that would inspire and unite all those engaged in combating unethical practices. In 2008, scientific and medical bodies from 78 countries drafted the Declaration of Istanbul that was published in July 2008 in the Lancet. Today more than 120 International Societies endorse the declaration. The president proposed EFI should also do this. This was approved by all members present.

Summary of activities of 3 years as a president

Elissaveta Naumova finished by summarizing her three years as president with a focus on collaboration both within EFI and with other societies. And thank you to the officers (also A.M. Little), councillors, the committee chairs and the 3 ladies in the office in Leiden (Ingrid, Sandra and Sonja).

4. Report of the EFI Secretary, Mats Bengtsson

Executive Committee Elections

There were no elections this year, but there will be a number of vacancies next year. Members that wish to be considered should apply before October 5th. The procedure is published on the EFI website. There will be three vacancies for councillors as T. Kauke, V. Miotti and F. Oguz will come to the end of their terms. All officers, the treasurer, dept treasurer, secretary, dept secretary have served their first term but have the possibility to be re-elected. Elections will be during spring 2019.

Future EFI Conferences

Next year's annual meeting will be held in Lisbon and then in Glasgow followed by a joint meeting with IHIWS in Amsterdam 2021.

Applications for the EFI meetings in 2022 and 2023 are now welcome, forms are available on the EFI website and must be received before September 15, 2018. The applications will be reviewed at the EC autumn meeting. The EC is currently investigating the possibility to work with one contracted PCO for the commercial exhibition but this has yet to be finalized.

New EFI committee: EFI IT and bioinformatics committee

Eric Spierings has been asked to chair this new EFI committee. Members who like to be part of this committee can react via the application form on the website. Sandra van Hensbergen and Neema Mayor already have worked on social media (Facebook and Twitter).

GDPR

Because of the EU General Data Protection Regulation (GDPR) all members will receive an e-mail with explanations: authorization has to be given via your personal page at the EFI website after logging in.

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[1] Zhang X and Reinsmoen NL, Front Immunol, 2017
[2] Cardinal, JASN, 2016

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5. Report of the EFI Treasurer Gwendaline Guidicelli

The EFI treasurer presented a combined overview of the of the annual budget for the EFI Office and Accreditation over 2017. Both the accounts in France and Leiden had a positive result: total €102.380. The Mannheim conference had a result of €133.717, thank you C. Süsal and colleagues!

The forecasted budget for 2018 is in balance with a net result of €1100. For the accreditation the budget will be different compared to previous years as the travel expenses have been included in the fee for laboratories, but still the net result is scheduled to be €244.

Bursaries

Four education and training bursaries were awarded after review by the Education Committee and reports have been published in the newsletter. For the annual meeting this year 10 bursaries were awarded at €900 each. In addition, two bursaries were given to participants at the East-West meeting and two members received support to attend other EFI approved meetings. Support was also given to the Region 8 & Balkan EPT meeting and the East West Conference. In total the support for educational purposes was €23.000. There was one question from the membership about how EFI are dealing with the substantial amount of money on the bank account, upon which the treasurer explained that there will be expenses for the website and that the EC will come with plans. The budget for 2018 was approved by the membership.

6. Report of the EFI committees

a/ Report from the EFI accreditation Committee Chair, Andrea Harmer

Accredited laboratories and Commissioners

The number of accredited laboratories has reached a plateau and is now 264. In 2017 a total number of 84 EFI inspections were performed in 22 different countries.

Three Commissioners have retired; Guadalupe Ercilla, Francoise Hau and Andrea Bontadini, The three new members are Eduard Palou for region 9+10, Sylvie Tourne for region 6+11 and Marco Andreani for region 7.

Inspection travel costs:

From January 2018 there will be a new annual fee for accreditation of €1050. This flat fee will also include all inspection travel costs so there will be the same cost every year for laboratories.

Accreditation website

The accreditation website has been updated and went live the week before the annual meeting week.

Educational activities

The AC organized a meeting with the Turkish Lab directors in April 2018, participated in the ASHI Inspectors workshop in September 2017 and also arranged the well-attended annual inspectors workshop in Venice on May 9th.

b/ Report from the Education Committee Chair, David Turner

Committee Membership

An overview of the members was presented. Two members will rotate of, Peter Horn and Marco Andreani, so there will be two new positions that have to be filled later this year. People can apply via the application form on the website.

Evaluation of the EFI Conference

Traditionally only the Teaching sessions have been evaluated during the annual conference but for the Venice meeting there will also be a survey of the whole meeting. It will be sent to participants by e-mail after the meeting and only those who complete will get a certificate indicating CME/CPD credits awarded.

Endorsement of regional meetings

During the last year, 6 regional meetings have requested EFI endorsement. EFI educational credits are now awarded at those meeting, 1 credit per hour educational activity.

ETHIQ Diploma for technical staff

The work with the European Technical Histocompatibility and Immunogenetics Qualification has been finalized. There is a need to start this as a pilot together with a national organisation. Documents might need to be translated and training managers need to be identified and on-line questions for assessment need to be developed.

ESHI Diploma

So far there have been 15 applicants from 11 different countries, of those 13 were eligible to take the exam. Three exams have been taken in Venice.

CME-CPD scheme

It has been decided that holders of the ESHI diploma will need to show ongoing CME/CPD. To facilitate this, a simple spreadsheet has been developed to record activities. This has been tested during 2018 with around 30 participants.

c/ Report of the External proficiency testing committee chair, Falko Heinemann

Committee membership

An overview of the members was presented, Katarzyna Kubic (Wroclaw) has joined the EPT representing region 5; Central Europe. Pascale Loiseau representing region 6 and 11 (France & Switzerland) will leave the committee so new members from those regions are needed.

Update of standards for laboratories and providers

The update of EPT providers regarding registration has been finalized. The update of standards for Labs has resulted in some confusion regarding number of samples and this will be addressed this autumn.

The Standards for EPT providers have also been updated and placed on website.

The Manual for inter-laboratory-exchanges has also been finalized and is available on the EFI website. Inter-laboratory exchanges should only be used in case official EPT programs cannot be used for various reasons.

Education.

A “Meet the Expert” session was arranged this year: not many participants but very interesting discussions.

d/ Report from the Scientific Committee chair, Katharina Fleischhauer

Committee members

An overview of the committee members was presented, new to the committee is James Traherne from the UK.

EFI Conferences – Julia Bodmer Award

For the Venice meeting the scientific programme was organized and this included review of 325 abstracts (64 orals and 261 posters). The organization of next year’s meeting in Lisbon is in progress. Guidelines on how to prepare the scientific programme have been made and passed on to the LOC in Lisbon.

For the Julia Bodmer Award four high quality applications from four different countries were received. All EFI members are welcome to propose candidates for this award.

e/ Report from the Standard Committee Chair, Juha Perasaari

Committee members

An overview of the committee members was presented, during 2018 Chantal Gautreau will retire so new applications are welcome.

EFI standards

EFI standards v 7.0 is effective from the 1st of January 2018. They are a complete reorganization of the standards but also contain new items such as KIR and MICA typing as well as reporting antibody and cross match results. The procedure manual is now version 2.0 and will be published on the website. There is now a two-year revision cycle of the standards so next version will be from 2020. The planned changes are standards for haploidentical transplants, real time PCR standards and capillary electrophoresis standards.
The committee continues its collaboration with ASHI through teleconferences and also by having representatives from ASHI at EFI meetings and vice versa.

7. Next EFI Conference

The next EFI meeting will be held in Lisbon, Portugal, May 8th-12th, 2019.

8. EFI medal

The EFI medal is awarded annually by the EFI Executive Committee to recognize the achievements of individuals who during the course of their career, have made a significant contribution to EFI. This year the EFI medal was awarded to Cristina Navarrete and Guadalupe Ercilla. Andrea Harmer presented the medal to Cristina Navarreta and Jaume Martorell to Guadalupe Ercilla. The award is described elsewhere in the newsletter.

9. Installation of new EFI president

The outgoing EFI President Elissaveta Naumova expressed her sincere appreciation to all EFI committees and the EFI Execute committee for their support during her presidency. Elissaveta welcomed Joannis Mytilineos as the new president and handed over the engraved EFI tankard.
The General Assembly was closed at approx. 19.50.

Update from the EFI Education Committee September 2018

European Specialisation in H&I (ESHI) Diploma

The requirements to apply for the ESHI Diploma oral examination are detailed in the 'Portfolio' document available on the UEMS website (http://www.uems-surg.org/divisions/transplantation/transplant-immunology2). Applicants must demonstrate a period of sustained training (3 years for medics and 5 for scientists) within H&I, undertaken in an EFI accredited lab under appropriate supervision. Upon acceptance of the Portfolio logbook the candidate will be invited for the oral examination, either at the annual EFI Conference or at the Autumn EFI Business meeting. The next exam will be at the EFI meeting in Lisbon in May 2019. Applications for the examination should be made via the Section of Surgery/Transplantation/Transplant Immunology page of the UEMS website (see above) where documents can be uploaded. Payment can be performed via Paypal upon application. Since June 2014 a total of 15 candidates have submitted portfolios for consideration to sit the ESHI Diploma exam; 13 candidates have been examined with 11 candidates passing. The award of the Honorary ESHI Diploma expired on the 31st August 2015 and a total of 251 ESHI Honorary Diplomas were granted. Please note, as described below, the EFI Education Committee and the European Board for Transplant Immunology (EBTI) have decided that in the future evidence of participation in a CME/CPD scheme will be required to ensure ESHI Diploma Fellows have maintained their H&I knowledge and experience sufficiently to retain certification.

EFI Continued Medical Education (CME) / Continued Professional Development (CPD)

The EFI Education Committee established a pilot EFI CME-CPD scheme for 2018 to allow members to record professional activities which help them to retain their knowledge and skills in H&I. In some countries such schemes already exist, but the new EFI scheme is aimed at members who have no other formal mechanism for recording CME/CPD events. **For those members who hold the ESHI Diploma (either Honorary or by examination) providing evidence of ongoing CME/CPD, either from a local recognised scheme or via this new EFI scheme, will be a mandatory requirement in the future to retain certification.**

Also, the recording of training and development events in this EFI scheme will be accepted for EFI Accreditation purposes. The pilot EFI CME-CPD scheme has 31 registered participants, 24 of which are ESHI Diploma holders. At the end of 2018 the Education Committee will review the scheme and the participation of the registered individuals and are hoping to launch a full scheme in 2019. At the moment participation will be free to EFI members, although in the future a small fee may be required for the re-issue of updated ESHI Diploma certificates.

EFI Education and Training Bursaries

Applications for Education and Training Bursaries to promote training in the field of H&I by enabling visits to other laboratories, are now being received four times each year. Details of the closing dates, the process and the application form are available on the EFI website bursaries page http://www.efi-web.org/bursaries.html.

ASHI/APHIA/EFI Summer School

A joint International Summer School (ISS) will be held at the Marriott Springhill Suites, Old Montreal in Montreal, Quebec from June 14th to 18th 2019. The ISS provides a focused course on all aspects of theoretical and applied H&I. To encourage discussion the course is limited to a small group of participants (30-40) and participants are also invited to present their own research. It represents a great opportunity for those studying towards higher H&I specific qualifications as well as a chance to meet others working in the field in different parts of the world. More details on the application process will be available on the website soon.

Standards Committee Report

The EFI Standards v7.0 became active on January 1st, 2018. Standards and tracking document, which notes all the changes from version 6.3, are available on the EFI website (http://www.efiweb.eu/efi-committees/standards-committee.html). With this version we introduced a new format of the standards that will be the basis of future versions. In addition, new standards describing which party takes responsibility of the histocompatibility component of the transplant in haematopoietic stem cell transplantation were added. Also standards regarding reporting of antibody and crossmatch results were introduced.

We are currently planning the next version of the standards, and suggestions and comments regarding the development of the EFI standards are warmly welcomed. For the next version we are working with standards regarding haematopoietic stem cell transplantation in order to adapt current developments with mismatched and haploidentical HSCT. For the methodological standards we are introducing standards for real time PCR and for capillary electrophoresis. With our new biennial revision cycle, the next version of the standard is planned to become active from January 1st 2020.

Procedure Manual v2.0 for the EFI Standards and Quality Assurance Committee became effective on April 2018. In this manual we describe our procedures and practices. Procedure manual is also available on the EFI website.

A vacancy for membership in our committee was announced in Venice as Chantal Gautreau will retire. I would like to thank Chantal for her commitment and excellent work!

Juha Peräsaari (Helsinki, Finland)
juha.perasaari@bloodservice.fi
Chair of the EFI Standards and Quality Assurance Committee

Accreditation of Histocompatibility and Immunogenetics Laboratories: Achievements and future prospects from the European Federation for Immunogenetics Accreditation Program

A review of the role of accreditation in assuring quality in histocompatibility and immunogenetics services has been published in the journal HLA: Immune response Genetics. As well as discussing the importance of accreditation the review highlights some of the achievements of the EFI accreditation programme.

The first H&I laboratories achieved EFI accreditation in 1995 and currently there are over 260 EFI accredited laboratories in 36 countries. The program depends on the voluntary participation of the inspectors, who are all experts in the field of H&I, and who, over the last 22 years, have performed over 1400 on-site inspections of laboratories. Inspection findings reveal the areas which are most frequently found to be deficient in meeting the requirements of the standards and this can be used to inform educational and other activities with the aim of improving laboratory compliance with the standards. The EFI standards have been regularly updated to reflect changes in the field with 19 versions over the last 22 years and data from the accreditation program shows how laboratories have changed their practices to incorporate new techniques which support patient care.

The review is available to EFI members through their membership access to the journal. Harmer A, Mascaretti L, Petershofen E. HLA. 2018;92:67-73 https://doi.org/10.1111/tan.13289

Andrea Harmer, Accreditation Committee chair

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Ceppellini Lecturer 2018 – Professor Lorenzo Moretta

Each year at the annual EFI Conference, a scientist who has made substantial contributions to the field of Immunogenetics is honored by the Society and invited to present their work in the form of the Ceppellini Lecture. The Lecture is named in honor of Ruggero Ceppellini (1917-1988), the Italian geneticist who greatly influenced the HLA field.

The first Ceppellini Lecture was delivered in 1988 by the late founder of EFI, Jon van Rood. Over the past five years, it has been held by Effie Petersdorf (2016), Frans Claas (2015), Marco Colonna (2014), and James McCluskey (2013). A complete list of Ceppellini Lecture Awardees can be found on the EFI website www.efi-web.org/awards.

This year's Ceppellini Lecture was delivered by Lorenzo Moretta, Director of the Department of Immunology at the Pediatric Hospital Bambino Gesù in Rome, at the Annual EFI Conference in Venice on May 9, 2018. Professor Moretta has made ground-breaking discoveries in cellular immunology over the last decades, as he was the first to describe the existence human T cell subsets in the 1970's, and to clone and functionally characterize activating and inhibitory NK cell receptors in the 1990's. The latter work, for which he is known to virtually all members of the EFI community, was carried out in close and fruitful collaboration with his recently deceased brother, Alessandro Moretta (1952-2018). Lorenzo obtained his MD from the University of Genova, Italy in 1972, and went on to specialize in Microbiology at the same University until 1980, with a 2-year period as visiting scientist at the University of Alabama in Birmingham, USA. Between 1980 and 1984 he was Director of the Clinical Immunology Laboratories at the Ludwig Institute for Cancer Research in Lausanne, Switzerland, before becoming Professor of General Pathology and Pathophysiology at the University of Genova. He served as Director of the Immunopathology Laboratories at the Italian National

Cancer Institute in Genova from 1994-2000, as Scientific Director of the Istituto Giannina Gaslini in Genova from 2000-2015, and as President of the European Federation of Immunological Societies from 2012-2015. In 2015, he moved to the Pediatric Hospital Bambin Gesù in Rome to pursue further studies in basic and applied research in the area of tumor immunology and cellular therapy, in close collaboration with Professor Franco Locatelli, Clinical Director of the Department of Hemato-Oncology, Cellular and Gene Therapy at the same Hospital. Professor Moretta is author of 613 peer-reviewed publications with a Scopus h-index of 113 and over 45.000 citations, and was the most cited Italian scientist in the 1980's. His seminal contributions earned him numerous prestigious Awards, including the Cancer Research Institute W.B. Coley Award in 1998 (with K. Kärre and R. Steinmann), the Yvette Myent Prize from the Institut Curie in 2001 (with K. Kärre and A. Moretta) and the Guido Venosta Prize from the Italian Association for Cancer Research in 2006. Reciprocally, he is regularly approached for nominating candidates for the Nobel Prize in Physiology or Medicine. EFI is proud to include the Ruggero Ceppellini Award 2018 in this distinguished list, in recognition not only of the pioneer work Lorenza Moretta has contributed to our field in the past, but also of his continuing present endeavors which build the bridge from basic science to clinical translation in pediatric cancer patients.

Katharina Fleischhauer – on behalf of the EFI Scientific Committee

EFI MEDAL RECIPIENT: DR CRISTINA NAVARRETE

Dr Cristina Navarrete was awarded the EFI medal at the EFI General Assembly in Venice in recognition of her contribution to EFI and to the international Histocompatibility & Immunogenetics community.

Cristina was born in Santiago, Chile and completed her early training in H&I there. Following the military coup d'état in Chile Cristina moved to England as a political refugee in 1976. She quickly found a post in a Blood Transfusion Service laboratory in London. In 1978 she moved to the Department of Immunology, London Hospital Medical College where she completed her PhD under the supervision and direction of Professor Hilliard Festenstein. At the London Hospital Cristina was part of a renowned research and clinical laboratory where staff of many different nationalities worked together. This ethos of collaboration is something which Cristina continued to promote throughout her career in H&I.

In 1993 Cristina moved to the North London Blood Transfusion Service, spending the rest of her career in the Blood Service. She was appointed the National Head of H&I Services for the Blood Service in England in 2000.

Whilst in this role Cristina was instrumental in helping to establish the British Bone Marrow Registry and the London Cord Blood Bank. She was also a Principle Investigator with a research group that had many different areas of interest including the role of NIMAs in cord blood transplantation, mesenchymal stem cells and developing new techniques including next generation sequencing for both HLA and HPA.

Cristina has always placed the patient at the heart of everything she did at work. She is a great advocate for the importance of quality in H&I and was responsible for the first laboratories in England which become EFI accredited. She was also very much involved in the development of standards for cord blood banking and was an inspector for FACT Netcord.

Education is also something Cristina regarded as essential to ensure patients receive the best services. She was always supportive of staff developing their careers and made sure everyone she was responsible for had the opportunity to participate in educational activities. She also worked hard to help put in place opportunities for H&I scientists worldwide to have the best training and education possible and served as the Chair of the EFI Education Board from 2007-2010.

Cristina has been a friend and mentor to many in the H&I community. She has given freely of her time, knowledge and experience to promote the importance of quality, education and collaboration in the service of patients. For these reasons she is a worthy recipient of the EFI medal.

Julia Bodmer Award 2018 – Dr. Maxime Rotival

The first Scientific Lecture at the Opening Ceremony of the annual EFI Conference is given by a young scientist winner of the Julia Bodmer Award (JBA). This Award was created in memory of Lady Julia Bodmer (1934-2001), one of the founders of H&I and a mentor to EFI, which she served as President from 1996 to 1998. Julia was well aware of the importance of young scientists for the future of our field, and was known for her encouragement and support to younger generations. The JBA winner is selected by majority voting within the EFI Scientific Committee, in a competitive review process between the applications filed. The first JBA Lecture was delivered in 2002 by Benedicte Lee. Over the last five years, it has been held by James Lee (2017), Hannah Siddle (2016), Céline René (2015), Clemens Hermann (2014), and Daniele Focosi (2013). A complete list of JBA winners can be found on the EFI website (http://www.efiweb.eu/awards/the-julia-bodmer-award.html)
This year, among four applications from four different countries, the selected JBA winner was Maxime Rotival, staff research member of the Human Evolutionary Genetics Laboratory at the Institut Pasteur in Paris.

With Maxime, the JBA went to a trained biostatistician, stressing the increasing relevance of bioinformatics for cutting edge science in immunogenetics. Maxime obtained a Master Degree in statistics from the University of Paris in 2007. He then went on to receive a PhD in statistical genomics in 2011 from the same University, working on expression quantitative trait loci – eQTL – in monocytes contributing to the risk of artherosclerosis and type I diabetes. Pursuing his interest in the heritability of gene expression and its association with human disease, between 2011 and 2014 he spent a 3-year postdoctoral period in the Integrative Genomics Group at the Imperial College in London.

Here he identified novel gene networks involved in macrophage fusion relevant for chronic inflammation in glomerulonephritis patients, thereby highlighting new candidate drug targets for this disease. In 2014, Maxime joined the Human Evolutionary Genetics Laboratory directed by Lluis Quintana-Murci at the Institut Pasteur in Paris, first as a postdoc under EU funding from a Marie Curie Fellowship, and since the beginning of this year as a permanent research staff member. Here, Maxime made major contributions to our understanding of the population genetics of the human immune response.

In a milestone paper published in Cell two years ago, he used RNA sequencing to comparatively analyze the immune response to different pathogens in Europeans and Africans. He found significant differences in immune-response regulatory variants between

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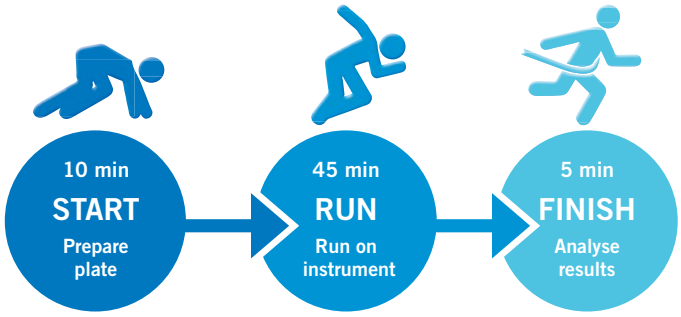

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these populations, and showed that these variants are preferential targets of natural selection, with significant shaping by admixture of humans with Neanderthal. These results give unprecedented insights into the evolution of the human immune system, and highlight genes and functions of particular relevance over the course of human history, which might be the ones to focus on in further studies of the pathogenesis and treatment of human infection. Maxime's data demonstrate the power of combining innovative technologies and biostatistics for breaking new ground in our understanding of human health and disease.

In his JBA lecture, Maxime gave an excellent overview of his findings, tailored to the understanding by an audience with polymorphic scientific background such as the attendees of the EFI Conference. The vivid discussions he could be found involved in with established and young scientists alike during the rest of the Conference, testify the interest his work has raised in our community.

EFI Medal recipient: Guadalupe Ercilla Gonzalez

EFI has decided to give Guadalupe Ercilla Gonzalez the "EFI medal", to recognize that during the 46 years of active professional life she has made a significant contribution to EFI.

1. She was a curious scientist, with eyes wide open since the very beginning. Her first paper was published in 1974, whereas the last manuscript is still in her computer, in between around 100 papers were published.

2. She was an excellent EFI Inspector and commissioner. She has used her good manners and her "savoir fair", to convince hundreds of professionals to introduce improvements in their laboratories. By doing that, she improved patient wellbeing around the world.

3. All her life was dedicated to diversity, but especially to find compatibility within diversity. She can make compatible in the same conversation: comments about African, Scandinavian or Mexican literature; history about how people live in Namibia, in Peru, or in Patagonia.

4. She has a special ability to detect what other people need to be happier, it doesn't matter if it is someone next door in the Lab or living on the other side of the planet. Thanks for all that, this Society, this world, more than ever, needs women like you.

Jaume Martorell

Jon van Rood Award 2018

The Jon van Rood Award (JvRA) was initiated in 2011 in honor of the late Jon van Rood (1926 – 2017), founding father of EFI and discoverer of the HLA system. The JvRA winner and two runners-up are selected amongst the 8 presenters at the Best Abstract Session by a jury composed of the attending Past EFI Presidents.

The JvRA winner 2018 was Andrew G. Brooks from the University of Melbourne, Australia, for his presentation "The allotypic architecture of HLA-B57 allotypes alters peptide conformation to regulate inhibition of NK cell activation through KIR3DL1". The two runners-up were Rainer Blasczyk, Hannover Medical School, Germany for his presentation "Invisible organs made by genetic engineering to turn off MHC prior to allogeneic transplantation prevent a pro-inflammatory cytokine

response in the recipient", and Sophie Limou, University of Nantes, France, for her presentation "Epigenome-wide association study reveals immunogenetic targets of DNA methylation modification by HIV-1".

Best Poster Awards 2018

Amongst the Abstracts presented as Posters at the Annual EFI Conference, three receive a Best Poster Award selected by a Poster Review Panel nominated by the Local Organizing Committee, based on the quality of their presentation during the Poster Wine & Cheese session on the second day of the Conference.

The three Best Poster Award winners 2018 in random order were Esteban Arrieta-Bolños from the University of Essen, Germany for his poster entitled "In silico prediction of non-permissive HLA-DPB1 mismatches in unrelated HCT by functional distance", Chrysanthi Tsamadou from the University of Ulm, Germany for her poster entitled "Quantification of HLA-C surface expression in 400 healthy German blood donors" and Gideon Hönger from the University Hospital Basel, Switzerland for his poster "Eplet and PIRCHE-II analysis of antibody reactivity after first pregnancy".

Bursary reports from the EFI annual meeting in Venice

EFI offers a wide range of bursaries and among those are the bursaries for attending the annual meeting. There is no age restriction but applicants must be EFI members for at least one year at the time of application. In 2018 we received 27 applications from our members. Bursaries are preferentially given to participants with presentations at the conference. All recipients of a bursary were grateful to EFI for receiving the support, which enabled them to attend the meeting. For the meeting in Venice, 11 bursaries were given and here are their reports.

Thomas Turner, London, United Kingdom

The 32nd annual EFI conference took place in Venice, Italy, once the home of esteemed scientist and artist Leonardo da Vinci. Appropriately, the meeting's slogan was "Art and Science: the evolving picture of immunogenetics". Leonardo's contribution to both fields was paid tribute to by Pietro Cesare Marani on the last day of the conference. The meeting began however with a different tribute to another giant of their field, to the late Jon van Rood, by Frans Claas. A very fitting and personal tribute that was appreciated by everyone in the auditorium.

The evolution of immunogenetics theme was maintained with high quality presentations from across the field, often using cutting-edge technologies. Topics included using mesenchymal stem cells to treat GvHD, testing the latest sequencing technologies for HLA typing, the immunopeptidome, genetic modification to downregulate the MHC for organ transplantation and epigenetic modifications in HIV infection, the latter two coming second and first in the Best Abstracts session respectively.

There was also a trend towards combining different techniques and models to improve our understanding of immunity and transplantation. Teaching session 3 was well delivered to a packed auditorium by Marcelo Fernández-Viña, and Katharina Fleischhauer. Together they gave a broad and thorough overview of the tools required for successful HSCT. They covered HLA allele frequencies and haplotypes in different populations, anti-HLA antibodies, structural and expression models for permissive mismatches, particularly for HLA-DPB1. Increasingly, high-throughput technologies are allowing more and more of the human genome to be interrogated for relevance to immunogenetics and transplantation. It is important for researchers in these fields to be aware of the advances in knowledge and their potential impact on clinical practice.

An increasing number of H&I laboratories appear to be adopting NGS strategies for HLA typing, with several poster presentations describing laboratories' experience with these technologies, as well as NGS based assessments of allele and haplotype frequency from across the world's populations. Amongst the leaders in this field are DKMS, whose recent publication on their dual-redundant sequencing strategy has led to the submission of 1056 novel and confirmatory HLA alleles. Viviane Albrecht and colleagues

were presented with the *HLA* journal Award for this work. Submission of novel, and importantly, confirmatory alleles to the IPD-IMGT/HLA Database is of benefit to all of us in the field and should continue to increase as more typing labs turn to NGS technologies. The importance of these efforts was reinforced in Oral Session 4 on Haematopoietic Stem Cell Transplantation by Neema Mayor (Anthony Nolan, UK) with data on a retrospective analysis of a patient donor cohort typed to ultra-high resolution. Any mismatch, including non-coding and intronic, was detrimental to patient overall survival.

The next day a special joint session between EFI and the WMDA was held. This session covered the history and future of unrelated donor registries by Lydia Foeken and the pharma-economics of CB banking in the haplo-era by Sergio Querol-Giner. With more and more transplant options for patients and the increasingly admixed nature of the world's population, international collaborations to improve shared resources such as donor registries are vital for the future. These talks were followed by Carolyn Hurley on how to choose the best unrelated HSC donor, again an important overview where the amount of information available to choose an appropriate donor is continuing to grow. With the increasing use of diverse, cutting-edge technologies and broad international collaborations fostered by meetings such as this successful EFI conference, the field of immunogenetics is experiencing a Renaissance of its own.

Jesse Bruijnesteijn, Rijswijk, The Netherlands

New technologies to characterize and analyse the HLA region: during this parallel oral session on new techniques and bioinformatics, speakers introduced their insights into the latest's techniques to characterize the complex HLA system.

The first talk by Johannes Dapprich introduced Region-Specific Extraction (RSE) as capturing technique to obtain 20 kb DNA fragments, which then can be sequenced by the Oxford NanoPore Technologies' MinION platform. The group demonstrated that approximately 700 capturing primers were required to isolate the entire 4.8 Mb MHC region. The obtained DNA segments were then directly sequenced, and illustrated that the combination of RSE and a long-read sequencing technology could characterize any genomic region, and could detect methylation profiles without the need for a bisulfide conversion. The reliability and accuracy of the NanoPre MinION platform were discussed extensively, as initial accuracy of genotyping calls were 90% to 98%. During this session, however, Vineeth Surendranath presented data that was generated on the MinION platform using the latest chemistry version, and showed that all 96 benchmarking samples (HLA-A, -B, and –C) were genotyped at a 100% concordance with the benchmark pretypings. Even more, the group showed that the MinION platform is viable and efficient in identifying novel alleles. Another approach is followed by the group of Steffen Klasberg, which combined two methods to characterize *MHC* class I and II genes, and several *KIR* genes. Using shotgun sequencing, they obtained highly accurate short reads, but obtained low phasing information. This was resolved by combining the shotgun data with Single Molecule, Real time (SMRT) sequencing data, which enabled the characterization of longer reads. The group used an R package, DR2S, to obtain phased reference sequences by combining both sequencing methods.

This session did not only highlight the novel techniques that enables the characterization of complex regions, also innovative bioinformatics tools to analyse the meta-data sets were discussed. Kazutoyo Osoegawa presented a software tool (FamHLAHap) that compared genotypes of parents and their offspring, which were obtained from family studies of the 17th International HLA and Immunogenetics Workshop (17th IHIWS), to define HLA haplotypes in an automated fashion. Using this tool, the HLA haplotypes of 1460 nuclear families (trios and quartets) were defined, allowing the identification of potential meiotic recombination, and enabling HLA haplotype/disease association studies.

The improved techniques resulted in an increasing amount of data and complexity concerning the MHC region. The IPD-MHC database provides an official source of all available sequence data, which is all expertly curated. Not only HLA data is included, but the nearly 9.000 reported alleles cover 78 different species. The latest update on this database was presented by Giuseppe Maccari, whom nicely illustrated a universal cross-species data submission and display tool. Also, an alignment tool has been introduced, which allow users to compare inter- and intra-species loci at different resolutions. Furthermore, regions with sequence similarity could be identified with the integrated BLAST tool. Overall, this updated IPD-MHC database enables users to easily access the available and curated MHC data.

As a whole, this session gave a comprehensive overview of the current techniques that can be used to characterize the MHC (and KIR) region. In addition, the highlighted software tools improve the characterization approaches to obtain highly accurate HLA haplotypes that might be beneficial for future transplantation studies. The software tools are now mainly developed for the characterization of HLA, but might also be applicable to the KIR complex, which will even further improve the field of transplantation.

Eleonora Draghi, Milan, Italy

Thanks to the EFI bursary, I had the chance to attend for the first time an international meeting. This experience was particularly rewarding and stimulating as my abstract has been selected by the Scientific Committee for an oral presentation, giving me the opportunity to introduce my Ph.D. project and discuss with the expert of the field. Among the plenary sessions, I especially appreciated the 5th, entitled "New frontiers in immunogenetics", focused on

novel technologies to address relevant questions in the field of immunogenetics.

Ido Amit, from the Weizmann Institute, Israel, opened the session with an interesting and stimulating talk about how single-cell technologies are changing our understanding of the immune system, ranging from cancer to neurodegenerative diseases. A cell's identity is defined by its molecular profile, including genomic, epigenomic, transcriptomic, proteomic and metabolomic. The recent development of approaches sensitive enough to capture individual cells offers the opportunity to identify new cell types and describe novel cellular states and pathways. Key to the study of single cells is the ability to efficiently isolate them; FACS-based isolation has long been employed, but the demand for higher throughput led to the development of microfluidic approaches, in which cells are captured in droplets or nanowells for processing. More recently, combinatorial indexes strategies have been used to increase throughput without the need of microfluidic.

These improvements are coupled to "omics" platforms in order to measure the DNA, RNA or protein content of individual cells. In the meanwhile, bioinformaticians have developed algorithms for representation of multidimensional data. The advent of single-cell approaches has been of particular relevance for the study of the hematopoietic compartment, as immune cells are involved in almost every process in the organism and their dysfunction has been related to several diseases, including cancer. The speaker showed how, starting from the previously described techniques, his team was able to capture the immune profile of early lung adenocarcinoma lesions, finding altered T cell and NK cell compartments; moreover, they identified changes in tumor-infiltrating myeloid cells, linked to dysfunctional anti-tumor response. Thus, single-cell analysis provides a powerful tool for the rational design of novel immune-therapies. Although the role of the immune system has largely been studied in cancer, little is known about its role in the onset and progression of a neurodegenerative disorder like Alzheimer's disease. Taking advantage of a murine model of AD and pairing it to transcriptional single-cell analysis, Ido Amit and his team described a novel subpopulation of microglia associated with neurodegenerative diseases, identifying markers, localization and pathways associated with these cells. This unique microglia-type could play a role for the development of future strategies to treat AD or other neurodegenerative diseases. Finally, the speaker introduced the audience to a novel technique developed combining photoactivable fluorescent reporters, two-photon microscopy and single-cell RNAseq aimed at investigating the cellular composition of niches. They applied NICHE-seq to immune cell networks, demonstrating how this novel approach is broadly applicable and reproducible.

The second speaker, Markus Löffler, from the University of Tubingen, Germany, introduced the audience to the immunopeptidome, defined as the set of epitopes allocated onto HLA molecules. As epitope presentation on the cell surface is essential for the recognition of pathogens, metabolic malfunctioning or malignant cells, investigate the immunopeptidome is relevant not only to unveil the mechanisms at the basis of antigen processing, presentation and response, but also to develop novel therapeutic approaches for many diseases, including autoimmune diseases and cancer. In the past years, many efforts have been made to improve the identification and prediction of epitope binding to HLA molecules. HLA immunopeptidomes are usually investigated combining peptide elution from immunoprecipitated HLA molecules and sequence identification via tandem mass spectrometry. The main limitation of this approach resides in the variability and post-translation modifications of the potentially 20 amino acids that compose the epitope. Despite the technological improvements, still antigen processing and presentation are poorly understood. Interestingly, a recent study has demonstrated how spliced peptides, which results from cut and paste by the proteasome, previously thought to occur rarely, actually account for one-third of the entire HLA class I immunopeptidome in term of diversity and one-fourth in terms of abundance.

To supervise the research on the immunopeptidome, European institutes are currently setting up an atlas of ligands, collecting material from autopsy tissues, in order to collect data on which ligand is expressed and in which context. As mentioned before, one of the main field of interest and application for the immunopeptidome is represented by immuno-oncology. Malignant cells are characterized by the aberrant expression of wildtype antigens or by the presentation of the so-called neoantigens, defined as epitopes expressed uniquely by tumor cells and derived from genetic mutations or genomic rearrangements. In a recently published work, Löffler and his team described the naturally presented HLA-ligandome of colorectal cancer (CRC) and corresponding non-malignant colon tissue, revealing specific CRC-associated pathways, including well known cancer- and infection- related pathways. Moreover, they were able to identify a subset of immunogenic tumor-specific peptides which represent promising candidates for immunotherapeutic applications. Finally, the speaker reported a study in which, using advanced mass spectrometry analysis, researchers could investigate melanoma-associated immunopeptidome, discovering a large spectrum of putative target antigens; moreover, 4 peptides were proven to be immunogenic via neoantigen-specific T-cell response. These latest discoveries are of particular interest in the sight of developing personalized cancer vaccines, based on the ligandome of the patient.

Reconnecting to the last study presented by Markus Löffler, Derin Keskin, from the Dana Farber Harvard Cancer Institute, United States, gave a speech about neoantigen-based peptide vaccines, which currently represent one of

the most promising strategy to treat cancer. CAR-T cells and immune checkpoint blockade antibodies have been clearly demonstrated to be effective in tumor clearance; however, they are characterized by the lack of a durable immune response. Moreover, severe side effects often cause the premature suspension of the treatment. Cancer vaccines could overcome these limitations by generating de novo immune responses inducing naïve T cells, or by amplifying already existing tumor-specific T cells. To be effective and specific against the tumor, vaccines should be based on tumor-specific epitopes, in order to direct the immune system against the tumor, to lower the residual self-recognition and to avoid tolerance due to epitopes shared between malignant and healthy tissues. In a recently published paper, Catherine J. Wu and her team demonstrated the feasibility, safety and immunogenicity of a personalized vaccine based on up to 20 predicted tumor neoantigens. The study was conducted on 6 patients affected by melanoma, a cancer type characterized by a high mutational burden. Vaccination consisted in 5 priming doses and 2 booster vaccinations. Of the 6 enrolled patient, which all underwent clinical resection of the tumor, 4 had no recurrence after 25 months from vaccination, while the other 2 patients experienced recurrence of the disease and were then treated with anti-PD-1 therapy, experiencing complete remission of the tumor. Another group from Germany produced similar results, developing a vaccine based on RNA molecules, instead of neoantigens peptides, which were injected intranodally. The outcome of the clinical trial were comparable to the previous one. These data provide the rationale for the further development of this approach, alone or in combination with other therapeutic strategies. Finally, the speaker underlined one of the main problems behind personalized vaccine production: patients who could benefit from the administration of tumor vaccines are usually affected by late-stage tumors or by tumor types which progress fast; still, it takes time to generate a personalized vaccine, even months. Moreover, T cells could go towards exhaustion, which suggest the combination of vaccination with immune checkpoint blockade therapies. To conclude the speech, Derin Keskin briefly mentioned the idea to produce universal vaccines, thus suitable for all patients affected by tumors which shared specific neoantigens, which I found particularly fascinating and intriguing.

Thuja Meurer, Essen, Germany

This year's EFI conference was hosted on the 11 kilometer-long sandbar Lido in Venice, northern Italy. Venice's Lido is home to the city's famous International Film Festival, the Venice Casino, and the remarkable Hotel Excelsior. However, instead of the celebrities in show business, this time you could meet the celebrities from Immunogenetics at the Lido Casino and the Palazzo del Cinema, the two venues for the EFI Conference 2018.

This was the second time I attended the annual EFI conference and it was very nice to notice some faces I met last year. The conference's program was very diverse, going from MHC population genetics, through bioinformatics and to immunotherapy. Because there were not too many overlapping sessions, it was possible to listen to almost all of the talks. The aim of going to conferences is generally to do networking, exchange your knowledge with other researchers, and mainly to see what is new in the field. However, as the motto of this year points out "Art and Science: The evolving picture of Immunogenetics", all new things evolved over time, and sometimes you should look back in history. For a young scientist like me it was very interesting to hear some of the history of Immunogenetics and Histocompatibility and, especially, to see how HLA was discovered. Hence, the very first talk of the opening ceremony "In memory of Jon van Rood" by Frans H.J. Claas made a big impression on me. Jon van Rood was born in 1926 in Scheveningen and was one of the founders and former president of the European Federation for Immunogenetics in 1985. Together with Jean Dausset he discovered the HLA-system and realized the importance of HLA in transplantation medicine. I could not help to make a photo of one Professor Claas's slides, where he showed a picture of an arm with different skin grafts from different donors to visualize the importance of HLA matching in transplantation. This experiment was performed among the physicians and nurses at Professor van Rood's hospital, something which nowadays would seem unimaginable from an ethical point of view.

Going back to the here and now, it becomes apparent that more and more people in our field are using NGS. For example, there was a teaching session on how NGS technology is changing the way of HLA typing, an oral session of new technologies where the majority of talks dealt with NGS use, and several posters that presented NGS data. It became clear to me that our field is in need of incorporating more and more bioinformaticians in order to cope and make sense of the huge amounts of data that NGS technology provides us with.

Another interesting point for me as an aspiring HLA-DPB1 expert is to see now how a lot of colleagues are considering HLA-DPB1 in their studies. This was not always the case: for a long time just HLA-A,-B,-C, -DR and -DQ were considered for matching in allogeneic hematopoietic stem cell transplantation (HSCT). The assessment of non-permissive mismatches of HLA-DPB1 in HSCT is becoming more and more taken into account in donor selection.

Another interesting issue in adoptive immunotherapies in HSCT is CAR-T cell therapy. In the session "HSCT current clinical perspectives" Chiara Bonini presented her interesting work on CAR-T cells and how this field is moving forward – increasing safety through the use of suicide genes, redirected T cell specificity, and the increasing function and persistence of CAR-T cells. Not only CD19 can be target for CAR-T cells. According to the interesting data presented by Professor Bonini, CD44 is also currently being explored. One

of its isoforms (CD44v6) is specifically expressed by cancer cells and its use as a target for immunotherapy was tested by Professor Bonini's group in a mouse model. The data show that infused primary blasts could be efficiently eliminated through the use of CD44v6 CAR-T cells. Another approach in adoptive T cell therapy presented by Prof Bonini was the identification of tumor-specific T cell receptors (TCRs) to generate a tumor-specific library, followed by the transfer of these TCRs into lymphocytes. Simultaneously, CRISPR/CAS technology was used for the knockout the T cell's endogenous TCR. Furthermore, it was discussed which T cell subset one should use for this approach, either memory T cells, which persist longer, or effector T cells, which are more active. It was very encouraging to see how CAR-T cell therapy is rapidly evolving at the moment.

Overall, it was a very informative and stimulating conference for me and my development as researcher in Immunogenetics.

Gia-Gia Toni Hò, Hannover, Germany

This year's EFI meeting was filled with excellent scientific talks. The plenary sessions, as well as the oral sessions, encompassed a broad range of different topics. My report is concerned with the best abstract session that was held on the last day of the meeting.

The best abstract session was chaired by Prof. Katharina Fleischhauer and Dr. Luca Mascaretti. I had the honour to give the first talk and presented the role of the main metabolite carbamazepine-10,11- epoxid (EPX) in adverse drug reaction in B*15:02^{+} carrier. The autoimmune pathology of B*15:02^{+} patients following carbamazepine administration can be explained by the structural alteration of B*15:02 through EPX. The next presenter Dr. Lucy Sullivan (Australia) talked about the specificity of T cell receptor (TCR) to distinguish between self- and non-self-peptides presented by HLA-E. The similarity of UL40 peptide from human cytomegalovirus (VMAPRTLIL) and the self-peptide (VMAPRTLVL) represent a specificity challenge for the TCR. Interestingly, the TCR affinity for HLA- E/UL40 was higher than the affinity for HLA-E self-peptide complexes. Additionally, Dr. Sullivan showed that the co-expression of natural killer cell receptor CD94-NKG2C also contributes to the fine-tuning of T cell receptor affinity and function. The session continued with a presentation about the creation of invisible organs given by Prof. Rainer Blasczyk (Germany). In order to reduce the allograft rejection due to HLA mismatches immunologically invisible organs were made by genetic engineering to turn off MHC prior to transplantation in an animal model. After transplantation of silenced lungs it could be observed that the levels of cytokines were significantly lower compared to the control group. Additionally, all control group animals showed severe rejection and couldn't reach the end of monitoring period whereas all recipients of silenced lungs could be monitored over the entire period. These findings show the potential of invisible organs to improve long-term graft survival. The next talk was given by Prof. Andrew Brooks (Australia) about how the potency of a KIR ligand is dictated by the proportion of peptides on the cell surface. The allotypic architecture of HLA-B*57:01 and HLA- B*57:03 differ only at two residues within the peptide binding cleft. They share significantly overlapping peptide repertoires but show variation in their capacity to inhibit NK cell activation via KIR3DL1. He demonstrated that not only the peptide sequence but also the conformation of the peptide influences the affinity of NK cell receptor and his ligand. Prof. Sophie Limou (France) continued the session with her talk about epigenome-wide association study of immunogenetic targets of DNA methylation modification by HIV-1. The DNA methylation analysis revealed that the host genome DNA methylation profile is impacted by HIV-1 infection. The differentially methylated sites are located in relevant genes for HIV replication (eg. PARP9, HLA, CCR locus, CD8). The study extends the opportunity for discovery of new critical host factors that are interacting with the virus. The next presentation was given by Dr. Luca Vago (Italy) was dealing with to date largest collaborative study on immunobiology of post-transplantation relapses. Twenty-seven transplant centers from across the globe formed a HLALOSS consortium. The study confirms the clinical relevance of HLA loss as a major mechanism of recurrence, including after HSCT from unrelated donors. The session was continued by Dr. Anita van der Zwan (the Netherlands). She presented a comprehensive analysis of the maternal myeloid and lymphoid immune compartments from the beginning of pregnancy until parturition. In the first trimester innate-like CD4^{+} cells are predominately present. The amount of these cells decreased towards end of pregnancy and a mixture of naïve and T_{reg} population are present at the end of pregnancy. The study contributes the understanding of the feto-maternal organization of immunity. The last presentation was dealing with the first report of acute myeloid leukemia (AML) transmission following solid organ transplantation given by Prof. Antonio Amoroso (Italy). Before transplantation, there were no clinical or laboratory records of the donor led to suspect AML. But retrospective analysis revealed that TET2 and NPM1 mutation were already present in the donor. Due to immune-suppression and possible loss of HLA, upon transplantation leukemic clones progressed to overt leukemia in all three recipients in less than two years. The best abstract session was filled with excellent scientific findings. All presentations provide new insight in the field of immunogenetic. It was a really great session.

Inkeri Lokki, Helsinki, Finland

This was my first EFI conference and proved to be a great opportunity for learning more about MHC genetics and networking with experts in the field. Furthermore, the scientific quality of speaker sessions was outstanding.

In Oral Session 7: Reproduction, Autoimmunity, Infection, and Cancer we heard several well prepared and informative

presentations. First, Jill A. Hollenbach provided evidence that the population specific distribution of HLA-DRB1 allele *15:01 associate with multiple sclerosis particularly in the population with African ancestry. By identifying an associating splice acceptor variant rs8084 she showed that the alternative isoform of HLA-DRA and DRB1*15:01 may form an alternative conformation with potential consequences for antigen presentation.

In the second oral presentation of session I had the opportunity to describe our results concerning the association of MHC genes and hemolysis, elevated liver enzyme levels, and low platelet level (HELLP) syndrome in the Finnish population. HELLP syndrome, a rare life-threatening complication of pregnancy is often considered to be a complication of the more common hypertensive disorder pre-eclampsia. Our results highlight that the immunogenetic background of HELLP bears association to susceptibility of cardiovascular diseases in the Finnish population as well as autoimmune diseases, and is quite distinct from the previously described immunogenetic associations in pre-eclampsia.

The third presentation by Mehmet Tevfik Dorak concerned the opposing effects of expression QTLs on HLA-DR and HLA-DQ genes in association with autoimmune disorders as evidence for mixed isotype heterodimer formation. Interestingly, he showed that a common risk SNP for ten autoimmune diseases correlated negatively with expression of DRA and positively with DRB1. In conclusion, the HLA class II gene associations revealed by GWAS in autoimmune diseases may be linked to mixed isotype heterodimer formation rather than expression on the antigen presenting cells.

Nicolas Vince, the fourth speaker, showed that in the African-ancestry populations of Americas, the HLA-DRB1*09:01 allele is associated with severity of asthma outcome. His talk highlighted the importance of conducting research with population specific references as well as the power of deep genotyping data in comparison to GWAS in pinpointing the associating alleles with precision in relation to not only the population but also to the well-characterised phenotype.

The fifth speaker Marja Marchesani presented her discovery that in the Finnish coronary artery disease patients a novel risk variant has been uncovered in the *BTNL2* gene. The novel haplotype influences expression levels of *HLA-DR4* and *AGPAT1* genes in the MHC.

Gil Benedek presented sixth. The data explored the severity of progressive multiple sclerosis in males. CD74 levels were increased with disease severity. The hypothesis of migration inhibitory factor (MIF) and it's receptor CD74's influence in the disease progression has been validated in a mouse model and opens an avenue for novel sex-specific therapeutic approaches.

In his second talk of this session, Mehmet Tevfik Dorak explored computational methods for pinpointing disease associations in schizophrenia risk. He has uncovered that the extended HLA (xHLA) class I region SNPs have an effect on the risk for schizophrenia through immune system pathways and altered DNA methylation patterns.

The session closed with Katarzyna Bogunia-Kubik's presentation on a MICA polymorphism influencing MICA serum levels and the clinical outcome of anti-TNF therapy in 279 rheumatoid arthritis patients. She has identified a SNP in the MICA whose homozygous carriers had significantly worse clinical response TNF inhibitors. Genotyping this SNP has a potential to be a genetic predictor of response to TNF inhibitor therapy in rheumatoid arthritis.

Overall, this session highlighted the importance of population-appropriate analyses. Furthermore, the diversity of MHC genes' disease associations extends from the population level to sex-specific mechanisms.

Anita van der Zwan, Leiden, The Netherlands

The theme 'Art and Science' was apparent throughout the conference, starting with a violin performance at the opening ceremony and emphasized with a lecture on Leonardo da Vinci at the closing ceremony.

I was impressed by the variety of subjects discussed during the plenary sessions, ranging from MSCs, exosomes and ILCs to auto-immunity and adoptive T cell therapies in transplantation. In plenary session 1, Adrian Morelli showed beautiful work on unravelling the semi-direct pathway of recipient T cell activation in the lymphoid organs by donor MHC molecules present on recipient dendritic cells (DCs). These recipient DCs do not have donor MHC on their cell surface, but acquire the MHC via extracellular vesicles (EVs) coming from donor DCs. The graft releases clusters of exosomes resulting in recipient APCs being cross-dressed with donor EVs with donor MHC antigen. His data was supported by very nice live imaging of recipient DCs acquiring MHC via these clusters of EVs. Hergen Spits shared interesting data on the plasticity of innate lymphoid cells (ILCs), where ILC3 that have a protective role in the gut can change into ILC1 upon infection. Once the infection is resolved these ILC1 change back to ILC3. Plasticity also occurs between ILC1 and ILC2.

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Chiara Bonini discussed several adoptive immunotherapies during the third plenary session. CAR T cells are effective, but their limitation is that they only recognize surface antigens and no intracellular antigens. An alternative approach is the use of TCR-engineered T cells, where T cells are stimulated with antigen resulting in clonal expansion. Over time a polyclonal population emerges with dominant TCRs. These TCRs can then be isolated and TCR gene transfer performed. A technique even better than TCR transfer is TCR gene editing using the CRISPR/Cas9 system. Relapse in patients after adoptive T cell therapy is possibly caused by the T cells expressing more co-inhibitory receptors such as PD-1. For the future, Chiara Bonini mentioned using CRISPR/Cas9 to knock-out the co-inhibitory molecule TIM-3 in adoptive T cells. A relatively new field is the use of Tr1 cells (co-expression of LAG3 and CD49b) in the setting of HSCT, as was described by Silvia Gregori. She discussed a clinical trial in which the cell therapy product used contains donor-derived CD4+ T cells anergized with tolerogenic patient-derived DC-10 and recombinant human IL-10. DC-10 were shown to efficiently promote Tr1 differentiation *in vitro*.

I was happy to see a talk on single-cell technologies by Ido Amit in the last plenary session. We are moving towards an era of big data and it is important to understand how all this data should be analyzed and also specifically how to interpret the statistics.

What makes EFI unique to any other conferences I have attended is the Tulip Run. An excellent opportunity to get some exercise and see your colleagues outside of business attire. Quite a lot of runners and walkers showed up at 7am on Thursday in front of the Palazzo del Casino to run/walk a route that took us along the beaches of Lido!

Thomas Goeury, Geneva, Switzerland

My attention was drawn to the Open Meeting of the Population Genetics Working Group (OM- PGWG). The objectives of the PGWG are to provide new guidelines and bioinformatics tools for population data reporting and analysis, and to contribute to the characterization of the HLA genetic diversity, in priority of European populations (their main achievement last year was the publication of the Common and Well Documented alleles in Europe, HLA 2017 Feb;89(2):104-113). The Working Group is composed by Marco Andreani, Zorana Grubić, Derek Middleton, Alicia Sanchez- Mazas (*chair*) and José Manuel Nunes, and coordinated by Katharina Fleishhauer at the level of the EFI Scientific Committee

In the first talk, Alicia Sanchez-Mazas (Geneva, Switzerland) presented the last achievement of the group, creating a new category of publication in the HLA journal. This publication is the *Population Report*, and aims to be a rapid mean of publishing a genetic description of a population in terms of HLA and related loci.

Then, in the second talk, José Manuel Nunes (Geneva, Switzerland) presented the *Family Phaser* Tool, from the Gene[Rate] online framework. This program is useful to phase multi-locus haplo- types by using family genetic data.

Katerina Tarassi (Athens, Greece) presented a study on extended haplotypes in Greek families. The study was divided in two parts. In the first part, 200 unrelated individuals of Greek origin typed using PCR-SSO/SSP yielded only two long range HLA-A~B~C~-DQB1~-DRB1~DPB1) haplotypes with a frequency above 1 %. This number of « frequent » haplotypes raises to 5 when DPB1 is no longer considered. In the second part, 25 families (parents and siblings) were typed on 11 HLA loci using NGS. The most common haplotype found was A* 01:01:01~C*07:01:01:01~B*08:01:01:01~DRB3*01:01: 02:01~DRB1*03:01:01:01/02~DQA1*05:0 1:01:02~DQB 1*02:01:01~DPA1*01:03:01:02~DPB1*04:01:01:01/02, as in all populations of European descent.

Mehmet Dorak (London, UK) presented a work about exploring very long range linkage disequilibrium within the extended HLA region, where more than a thousand pairs of SNPs mapping to the extreme ends of HLA showed long range LD. The longest range was 3,737,167 bp, between two SNPs in HLA-A and HLA-DPA1 regions.

On behalf of the PGWG, Alicia Sanchez-Mazas (Geneva, Switzerland) presented an extension of the catalogue of Common and Well documented alleles : a preliminary catalogue of Confirmed and Well-Determined (CWD) haplotypes for Europe, where similarly to CWD alleles, a haplotype is « confirmed » if it is found at least in 3 occurrences per family study in at least 3 different family datasets, and « well-determined » if all its two locus haplotypes exhibit frequencies above 1 % and a significant positive linkage disequilibrium in at least 3 populations.

The session conclusion was a call for a collaboration, to add family or population data, in order to complete the preliminary work and publish by fall 2018 a first catalogue of CWD haplotypes.

Sonja Jaman, Split, Croatia

This year's annual EFI Conference in was the first one I attended since I've started working in the field of immunohistocompatibility in the Tissue Typing Laboratory in Clinical Hospital Centre Split. The conference program was very promising and exciting, and it is reasonable to say it was quite difficult do decide which sessions to attend or which to cover for this report. The session I found particularly interesting was the Oral session concerning haematopoietic stem cell transplantation which addressed the subject of improving stem-cell transplantation outcome and overall survival using novel technologies, protocols and donor-matching strategies.

The session started with Neema P.Mayor from Anthony Nolan Research Institute in London presenting their comparison between "the gold standard" for matching recipients and unrelated donors (UD) for haematopoietic cell transplantation at allelic level for HLA class I and HLA class II (10/10 matched, with HLA-DPB1 matching advised) with HLA matching at ultra-high resolution (UHR) using Single Molecule Real-Time DNA sequencing in order to determine is there actual clinical benefit of HLA matching at UHR level. After re-typing a cohort of around 900 UD-HCT pairs transplanted for malignant diseases, it was shown that almost 30% of pairs had their matching status redefined after UHR-HLA typing, and overall survival was significantly improved in 12/12 UHR HLA (HLA-DPB1 alleles included) matched pairs compared to those previously identified as 12/12 matches, but now known to be mismatched. Among other findings from this study (including CMV matching), the overall conclusion was that UHR-HLA matching achieved by including exons outside of the antigen recognition domain, introns and untranslated regions, can significantly improve outcome for haematopoietic cell transplantation outcome from unrelated donor.

Another interesting lecture introduced the idea of possible positive impact of non-shared HLA-C allotype expression levels in a single HLA-C mismatched unrelated HSCT setting (by Chrysanthi Tsamaoudu from Institute of Transfusion Medicine in University of Ulm). In order to investigate the effect of patient's non-shared C allotype expression levels on outcome of the HSCT, this group analysed the impact of high- and low-expressed PNS-C allotypes on HSCT outcome on overall survival, disease free survival, relapse incidence and non-relapse mortality in transplanted patients. The most interesting finding from this work was the correlation of high-expression of non-shared C allotype and better overall survival due to lower non-relapse mortality. Since cause of death analysis revealed a tendency for lower infection - related mortality in the high expressed PNS-C, it is suggested that possible reason for better overall survival could be due to potentially better infection control. Since there are limited number of similar studies performed so far, at the end of a lecture it was emphasized that these findings must be confirmed by examining independent and significantly larger cohorts in order to draw any definite conclusions.

Rachel Crossland from Newcastle University presented their work which involved identifying a list of microRNAs that could possibly be considered as useful diagnostic biomarkers for cutaneous acute graft- versus-host-disease, which is a major complication that often occurs after allogenic HSCT. The group performed microRNA profiling by RT-qPCR on group of aGvHD biopsies compared to healthy volunteers to draw out candidate microRNAs which were additionally validated on independent cohort of samples. Expression of four different microRNAs were found to be elevated in cutaneous aGvHD and significantly associated with survival outcome which could indicate potential use of those microRNAs as diagnostic biomarkers for aGvHD and also as predictive biomarkers for overall survival.

Other than these lectures many other topics and subjects were covered during plenary and teaching sessions, as well as luncheon sessions where many of the conference sponsors presented their latest technologies and methods available. All in all, I found the entire conference very useful and stimulating experience, and it was a great pleasure in taking part in an event where so many colleagues from different countries share their findings and ideas.

Nicolas Vince, Nantes, France

The European immunogenetics and histocompatibility conference covers an interesting diversity of topics. One topic caught my attention this year: genetic association studies of *HLA* and beyond with diseases. In addition to myself, I counted 3 presentations on this matter during the oral session 7 "Reproduction, Autoimmunity, Infection & Cancer" and 2 during the plenary session 4 "Immunogenetics beyond HLA".

Francesco Cucca (Istituto di Ricerca Genetica e Biomedica, CNR, Cagliari, Italy) presented data from a large genetic study on Sardinian population. He focused especially on a specific variant associated with multiple sclerosis (MS): BAFF-var, an insertion-deletion variant (GCTGT->A, BAFF-var corresponds to rs200748895 and rs374039502 together), which is the strongest association with MS, within TNFSF13B (BAFF), in this population ($P=1.2x10^{-9}$, OR 1.27). MS prevalence in the Sardinian island is particularly high compared to its latitude, and BAFF-var shows a remarkable difference in frequency between Sardinia and the rest of Europe: 26.5% in Sardinia, 5.7% in Italy, 4.9% in Spain, 1.8% in UK and Sweden. This frequency spectrum is explained by a strong positive selection for BAFF-var, that could have come from Malaria infection but Francesco Cucca rather believed it was through throat infection. BAFF-var creates an alternative polyadenylation signal that generates a shorter 3'UTR transcript lacking a miRNA binding site leading to increased levels of soluble BAFF. The consequences are higher number of B-cells and immunoglobulins, reduced levels of monocytes and an increased risk of autoimmunity.

Stephen Sawcer's (University of Cambridge, Department of Clinical Neurosciences, Cambridge, UK) presentation was a lesson on how to interpret GWAS results using MS as an example. He delivered his thoughts about the complexity of mathematical models' interpretation translated to biology, notably with this famous sentence "all models are wrong, but some are useful"; meaning that as models are a simplification and cannot perfectly reflect reality, they must be interpreted with caution. Calculation power is crucial as it determines our confidence upon the identified associations and their possible biological interpretation. Indeed, capacity to reach the significant threshold for association ($P<5x10^{-8}$

for GWAS) is dependent of different parameters: prevalence of the disease, frequency of the associated allele, effect size and size of the cohort. Furthermore, the biological effect of associated alleles can depend on different models: additive, dominant or recessive effect, as well as partial dominance can be encountered. He exposed also the difficulty of prediction from genetic score. In uncommon or rare complex diseases, genetic risk factors are multiple and exert modest effects; a genetic score will be of limited value as individuals with risk alleles will not drastically modify their overall risk especially when the disease is rare. This presentation was of particular interest to understand the complexity of genetic associations with multifactorial diseases and their biological interpretation.

Jill Hollenbach (University of California, San Francisco, CA, USA) explored the well-known *HLA-DRB1*15:01* association with MS. Particularly, Hollenbach and colleagues identified a SNP in *HLA-DRA* gene in complete LD with *HLA-DRB1*15:01* that creates an alternative isoform of HLA-DRA. This alternate isoform exhibits a very low level of expression compared to the normal size one but can form stable heterodimers with HLA-DRB1 while preserving the 3D structure. This alternate heterodimer could potentially have an impact on peptide presentation and modulate T cell activation.

Inkeri Lokki (University of Helsinki, Helsinki, Finland) presented a study on the rare HELLP (hemolysis, elevated liver enzymes, and low platelet count) syndrome. They typed *HLA* and *KIR* genes for 25 family trios and compared them to 20 family trios controls. They did not identify any significant association with KIR-HLA combination. The most significant association was found with HLA-DRB1*08 allele in HELLP mothers (P=0.001) and fathers (P=0.003) but not in children. Additionally, they identified in HELLP mothers a higher frequency of carrying HLA-B*08~C*07:01~DRB1*03 haplotype with deficiency of the *C4A* gene (24% vs. 6% in controls, P=0.006). Overall this work focused on a preliminary HLA association study with the rare syndrome HELLP, additional HLA typing or a replication cohort will be needed to confirm the results.

Katarzyna Bogunia-Kubik (Hirszfeld Institute of Immunology and Experimental Therapy, Polish Academy of Sciences, Wrocław, Poland) explored *MICA* rs1051792 polymorphism and its related expression in 279 rheumatoid arthritis (RA) patients. The SNP was not associated with predisposition to RA but showed association with bad clinical response after anti-TNF therapy (P<0.001 for the GG genotype). Moreover, this genotype was associated with higher MICA concentration during anti-TNF therapy. This SNP, modifying MICA protein sequence (V129M), seems to be a pQTL (protein quantitative trait loci), which associates with response to treatment in RA patients.

Overall, these diverse presentations from different background exemplify that genetic associations with immunologic related diseases are a great opportunity to increase knowledge over pathologies with the ultimate goal of finding actionable gene and translate this knowledge to clinical applications.

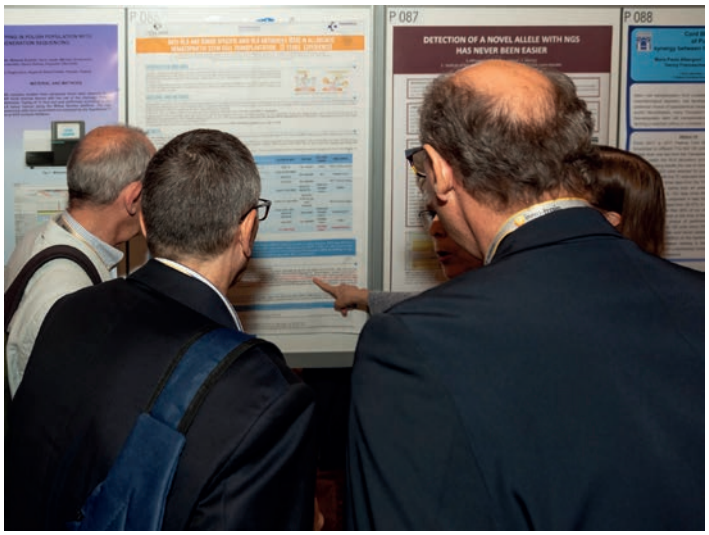
Anastasia Pavlova, St-Petersburg, Russia

This year organizers welcomed speakers from all over Europe, as well as from USA and Australia. Around 260 posters were presented during the scientific poster reception.

Firstly, I attended the session dedicated to the problems of the "New technologies and bioinformatics" chaired by E. Cozzi and E. Spierings. M.T. Dorak presented work of several institutions from USA, UK, and Germany. His presentation "Next-generation target capture and direct long read sequencing of the major histocompatibility complex" outlined a method of region-specific extraction (RSE) of large DNA segments (20kb+) as a test with reduced cost (usage of regular oligonucleotide primers); simple workflow (manual or automatic) and as compatible with all NGS platforms. It was showed that RSE is an innovative and beneficial method, for instance, it has high diagnostic coverage, it allows testing 30-50 times more samples per NGS run and it can sequence from GC-rich loci, unknown linked regions and repeats. M.T. Dorak described their work on direct sequencing of RSE DNA with minION as well as successful detection of methylated CpGs in genomic MHC sequences after RSE enrichment.

K. Geneugelijk from University Medical Center Utrecht with "Simulating thrombocyte transfusions to investigate the role of T-helper and B-cell epitopes on the risk for platelet refractoriness" presented data that indicated T-helper epitopes related to HLA antibody formation in severe aplastic anemia patients which warrant further investigations.

The last presentation in this session was "Computational simulations demonstrate the feasibility and benefit of epitope matching for kidney transplantation" by M. Niemann. He outlined the importance of epitope matching (that it can be included in kidney allocation without negative side effects on waiting time); that simulating allocation system is extremely powerful; and, finally, that epitope match improves at the cost of HLA match grade.



During the luncheon session held by GenDx M. Viken from the Oslo University Hospital shared their achievements by start using NGS-typing. Their laboratory now provides better service for patients, for example, they typed more genes with the higher resolution, reduced time from arrival of samples to reporting results, the identification of unsuitable family donors became quicker, as well as they improved identification of haplotypes.
D. Bories from Henri Mondor Hospital Creteil (France) and M. Penning (GenDx) talked about their work in the field of chimerism and HLA.

During the oral session on “Immunotherapy, Gene therapy, Cellular therapy” chaired by R. Blascyk and M. Bengtsson some interesting information was presented. For example, E. Draghi a Ph.D. student from Milan reported her results of CRISP/Cas9 screening for the identification of novel players in leukemia immune escape in vivo. F. Mrazek from Olomouc (Czech Republic) shared his results on SNP rs1800795 in IL-6 (IL6-174G/C) which was repeatedly associated with increased risk for severe aGvHD and transplant-related mortality after aHSCT. However, they observed no significant relationship between serum levels of any of 92 investigated inflammation-associated molecules and the IL-6 genotypes of the recipient and donor. The last presentation on this session was from M. Lindemann (Germany). Their group studied 47 kidney transplant recipients and showed no evidence for an increase in HLA or MICA antibodies after vaccination with Prevenar (Pfizer) in clinically stable kidney transplant recipients. Their results invalidated concerns that immune activation after pneumococcal vaccination could enhance alloresponses.

And my first day, very intense on new information and interesting presentations, finished with the presentation (collaboratively with my coworker Dr. I. Pavlova) of our poster “Associations of cytokine polymorphisms and cytogenetic profiles in multiple myeloma patients from the North-West region of Russia” which took place on the 3rd floor of Palazzo del Casino during Scientific Poster Reception.

The problem of gene polymorphisms in patients with multiple myeloma was also presented by the group of scientists from Poland. It was useful to get some additional information about regarding this problem. Also in our poster session “Reproduction, Autoimmunity, Infection and Cancer” there were number of posters related to my topic of interest - polymorphism of cytokine genes.

Hopefully, new connections that I made during this conference and poster session, new data, results and studies from different laboratories and countries can lead to a very interesting projects and collaboration among scientific world.

Membership update

J. Nilsson, Zuric, Switzerland
R. Toth, Budapest, Hungary
A. Partyka, Wroclaw, Poland
P. D’Addario, Livorno, Italy
Y. Louzoun, Ramat Gan, Israel
E. Trovato Salinaro, Camposampiero, Italy
C. Giraudo, Cordoba, Argentina
M. Azzaro, Catania, Italy
B. Dobrevski, Skopje, Macedonia
V. Cunill Monjo, Palma, Spain
J. Wielińska, Wroclaw, Poland
E.E. Gurer, Istanbul, Turkey
G. T. Ho, Hannover, Germany
P. Bergamaschi, Pavia, Italy
P. Cepek, Pilsen, Czech Republik
M. Panagiotis, Athens, Greece
C. Cervelli, L’Aguila, Italy
A. Pilunov, Moscow, Russia
S. Vivers, London, UK
A. Vernaza-Kwiers, Panama City, Panama
A. Primorac Maric, Mostar, Bosnia and Herzegovina
D. Nedic, Mostar, Bosnai and Herzegovina
S. Periathiruvad, Nugambakkam Chennai, India
R. Bamrdouf, Jeddah, Saudi Arabia
D. Augusto, San Francisco, United States
H. Siamenau, Minsk, Belarus
D.S. Ramon, Phoenix, United States
J.S. Silva, Curitiba, Brazil
J.T. Williams, London, UK

EFI-EFIS Joint Symposium at the 5th European Congress of Immunology on September 3rd, 2018

Following the formal agreement signed between EFI and the European Federation of Immunological Societies (EFIS) to increase their collaboration on common scientific interests, the EFIS Board invited EFI to organize a joint Symposium at the recent ECI 2018 Congress in Amsterdam, the Netherlands. In agreement with the EFI Scientific Committee, the Symposium was entitled "HLA in Transplantation and Autoimmunity", with presentations by Frans Claas (Leiden), Katharina Fleischhauer (Essen) and Ludvig Sollid (Oslo) on the topics of HLA in Solid Organ Transplantation, HLA in HSCT and HLA in Autoimmunity, respectively.

The Symposium, chaired by EFI past president Elissaveta Naumova (Sofia) and by EFIS nominee Mieke Boots (Groningen), was well attended saw vivid discussions after each of the presentations.

A reciprocal invitation for a joint EFIS-EFI Symposium at the upcoming EFI Conference 2019 in Lisbon has been issued by the EFI Executive Committee for which topic and speaker nominations are expected shortly.

Massive Open Online Course on kidney, pancreas and islet transplantation

As of March 2018, the Leiden University Medical Center (LUMC) offers Continuing Medical Education (CME) credits for medical professionals that have finished the Massive Open Online Course (MOOC) on kidney, pancreas and islet transplantation.

The MOOC is developed by transplant specialists of the LUMC in collaboration with the Leiden University's Centre for Innovation. Through interactive lectures, unique animated movies and real time videos, medical students and health care professionals learn everything about the world of clinical kidney transplantation.

By earning CME credits, medical professionals can meet the requirement as professional to maintain their competence and update their knowledge about new developments in the field. Depending on the workload, 5 to 13 CME credit points can be obtained for the course.

Ex-learners that have finished the MOOC previously and obtained a Coursera official Course Certificate can also apply for CME credits through the Boerhaave Continuous Medical Education webpage. More information on how to apply for CME credit can be found on the website of Boerhaave continuous medical education and the MOOC Clinical Kidney Transplantation course page.

More information on the course and the CME accreditation can be found on the course page of the MOOC Clinical Kidney Transplantation

If you have any questions regarding the CME credits please email moockidney@lumc.nl
Thank you and kind regards,

Prof.dr. M.E.J. Reinders
Leiden University Medical Center

News from the EFI Committee for External Proficiency Testing

The EFI Committee for External Proficiency Testing refers to the publication of the *Manual for inter-laboratory exchanges* which has been created to provide assistance to laboratories lacking access to official EPT programs. The Version 1-4 (January 2018) has been approved by the EFI Executive Committee on May 9th, 2018 and can be downloaded from the EFI website:

https://www.efi-web.org/efi-committees/ept-committee.html

The Manual also comprises in several addenda easy to apply procedures for cell and DNA isolation, blood isolation to aliquots and examples of result forms for all relevant techniques.

Falko Heinemann and Yvonne Zoet (chair and co-chair of the EPTC)

Highlights from the HLA journal

By Luca Vago, Section Editor HLA journal

Persistence of de novo donor-specific HLA-antibodies after lung transplantation: A potential marker of decreased patient survival

Schmitzer M, Winter H, Kneidinger N, Meimarakis G, Dick A, Schramm R, Klotz LV, Preissler G, Strobl N, von Dossow V, Schneider C, Weig T, Hatz R, Kauke T.
HLA. 2018 Jun 10. doi: 10.1111/tan.13306.
Highlights: Recent studies have evidenced that de novo appearance of donor-specific antibody (DSA) after lung transplantation can increase the risk of chronic lung allograft dysfunction (CLAD), accelerate its progression, and ultimately decrease post-transplantation survival. In this study, the Authors analyzed longitudinally in time the sera of 72 patients who received lung transplantation, comparing the clinical outcome of those who never developed DSAs (68%) with the one experienced by patients who developed a transient (14%) or persistent (18%) DSA positivity. They report that only persistence of DSAs over time represents an independent risk factor for post-transplantation mortality, and suggest that longitudinal monitoring of DSAs can be relevant in tailoring salvage interventions.

Activating killer-cell immunoglobulin-like receptor haplotype influences clinical outcome following HLA-matched sibling haematopoietic stem cell transplantation

Heatley SL, Mullighan CG, Doherty K, Danner S, O'Connor GM, Hahn U, Szer J, Schwarer A, Bradstock K, Sullivan LC, Bardy PG, Brooks AG.
HLA. 2018 Jun 25. doi: 10.1111/tan.13327.
Highlights: Numerous studies have shown that Natural Killer (NK) cell can have a significant role in modifying the outcome of allogeneic hematopoietic stem cell transplantation, but the best model to predict NK cell-mediated effects is still debated, strongly depending on the HSCT setting under analysis. In this study, the Authors address the impact of the donor KIR genotype on the outcome of 152 patients transplanted from HLA-identical siblings for a number of hematological disorders. They evidenced a significantly improved overall survival for patients transplanted from donor carrying KIR B haplotypes, encompassing not only inhibitory, but also activating KIR genes. This beneficial effect appeared to be explained by decreased risk of graft-versus-host disease and relapse, and suggest that typing for KIR genes might be relevant for donor selection in the setting of HLA-identical allogeneic HSCT.

The major histocompatibility complex homozygous inbred Babraham pig as a resource for veterinary and translational medicine

Schwartz JC, Hemmink JD, Graham SP, Tchilian E, Charleston B, Hammer SE, Ho CS, Hammond JA.
HLA. 2018 Apr 23. doi: 10.1111/tan.13281.
Pigs represent a fundamental food supply and a promising resource for the xenotransplantation of organs. Thus, preventing and controlling swine infectious disease and a more detailed understanding of the genetic variation that underpins immune responses in pigs are highly warranted. In this brief report, the Authors utilized direct sequencing and PCR-based sequence-specific typing to analyze in detail the Major Histocompatibility Complex (MHC) of Babraham pigs, a highly inbred breed developed in the United Kingdom 50 years ago. This allowed them to demonstrate that the MHC of Babraham pigs is largely homozygous. This limited immunogenetic variability is expected to reduce heterogeneity in their immune interactions, rendering Babraham pigs an attractive model for basic and translational research.

Prevalence, distribution and amplitude of the complement interference phenomenon in single antigen flow beads assays

Guidicelli G, Visentin J, Franchini N, Borg C, Merville P, Couzi L, Taupin JL.
HLA. 2018 Jun;91(6):507-513. doi: 10.1111/tan.13263.
Highlights: Anti–human leukocyte antigen (HLA) antibody detection in solid-phase single antigen flow beads (SAFB) assays can be quenched by binding of C4 and C3 activation products, leading to troublesome false negative results if sera are not pretreated with EDTA. In this study, the Authors quantified in two independent patient cohorts the frequency, predictability and distribution among HLA antigens of this "complement interference" phenomenon. They detected interference in 29.5% and 45.9% of patients in class I and II, respectively, with HLA-DQ and HLA-C being the most and least affected antigens, respectively. At least one antibody specificity was falsely negative for about 3% of sera in class I and 9% in class II. The high frequency of complement interference reported in this study highlights the importance of systematically pretreating sera with EDTA before performing SAFB assays.

An SSP-PCR method for the rapid detection of disease-associated alleles HLA-A*29 and HLA-B*51

Amstutz U, Schaerer D, Andrey G, Wirthmueller U, Largiadèr CR.
HLA. 2018 May 15. doi: 10.1111/tan.13296.
Highlights: HLA-A*29 and HLA-B*51 are strongly associated with birdshot uveitis and Behçet's disease, respectively, and their typing can be helpful in patient with a difficult differential diagnosis. Nevertheless, no simple routine diagnostic assays are available to date for their specific detection. In this brief report, the Authors develop sequence-specific priming-polymerase chain reaction (SSP-PCR) assays for the detection of HLA-A*29 and HLA-B*51, using a single PCR reaction per allele, and validate the optimal reliability of newly-developed assays using previously HLA-typed samples, representative for the large majority HLA-A and -B alleles in Europeans. These reactions might thus represent a practical and effective tool to facilitate the diagnosis of HLA-associated autoimmune disorders.

Finally we would like to point the attention of the EFI newsletter readership to the special issue of HLA published in May and collecting the Abstracts presented at the 32nd European Immunogenetics and Histocompatibility Conference held at Venice Lido, and to the excellent monthly review articles published in the latest issues of HLA, focused respectively on NKG2D ligands (June issue), on NK cell immunotherapy for liver cancer (July issue), and on the achievements and future prospects of the EFI laboratory accreditation program (August issue).

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