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Editorial

# EMBO Workshop on Antigen Processing and Presentation, Salamanca, Spain, 2017

The XVIII century building of the Hospedería del Colegio Arzobispo Fonseca in Salamanca (Spain) hosted in May 28–31 2017 the EMBO Workshop on Antigen Processing and Presentation. This was the 9th of the APP series that, driven by the initial impulse of the late Eli Sercarz, started in 1995 in Oxnard, California, continuing with its 10th edition in Paris (France) in 2019, a meeting organized by Anne Hosmalin and Bénédicte Manoury.

During the Workshop, the city Salamanca was preparing for the commemoration in 2018 of the 800th birthday of its University, the third oldest in Europe and fourth in the world. Despite their long lives, though, both the University and the APP field are extremely lively enterprises, full of activity and overflowing with enthusiasm. The Workshop was witness of the exciting moment the field is living these days, with powerful new tools at its disposal and with the ever nearer challenge of translating the knowledge from the basic scientific endeavor to its therapeutical application.

Elucidating the mechanisms of novel pathways of antigen presentation is necessary, because which antigens are presented determines how immunity to an infection, tumor or self proteins starts, and how they will be resolved. These cornerstones of the APP field were beautifully framed by the two Keynote lectures by Peter van Endert, dealing with the ins and outs of antigen cross-presentation, essential for the initiation of an immune response, and by Emil Unanue, on altered antigen processing as the potential trigger for autoimmune diabetes. Cancer immunotherapy, which has shifted dramatically the outcome of several types of tumors, is arguably the field with the highest impact in which the study of antigen processing and presentation is crucial. The use of immunopeptidomics to identify tumor-associated neoepitopes and how these epitopes are processed and presented, were some of the topics addressed during the meeting. Other omics revealed new players and pathways regulating and contributing to antigen presentation. The foundations of the Antigen Processing and Presentation field would be weaker without a strong knowledge of the impact of the different pathways on how the immune response is orchestrated *in vivo*, and on how they affect critical parameters such as immunodominance, memory or tolerance. These were addressed in the meeting, and will certainly enjoy well-deserved attention in future events.

Perhaps as important as the new and exciting results, are the open questions and mysteries, old and new, that luckily still haunt the researchers, old and new, working in the field. These questions appeared throughout the Workshop and some were highlighted in the Roundtables arranged during the meeting, which also issued warnings when analyzing and interpreting big data, and provided some valuable advice to ensure the soundness of the interpretations.

Hopefully, some new light on these issues will be provided in future events, and surely new questions will arise that will keep the field as exciting as ever. In the meantime, some of the authors who presented their work in Salamanca generously agreed to write short papers for this Special Issue of Molecular Immunology; we are sure you will enjoy reading them.

From the cloister of the Hospedería Fonseca: An artisitic rendition of a MHC-presented peptide?

(Image provided by the Fundación General de la Universidad de Salamanca.)

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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