Travel Grant Report Form

Name and origin of applicants

[State name and origin of applicants]

Marie Skougaard, Department of Clinical Immunology, Aarhus University Hospital, Denmark

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Purpose granted

[State purpose of the study granted in the application]

The purpose of the study travel was to gain knowledge and competences in the procedures of pre-transplant virtual crossmatch (V-XM), which in several transplantation centers has been included prior to transplantation as a replacement or addition to the pre-transplant Complement-Dependent Cytotoxicity crossmatch (CDC crossmatch) performed in the majority of member countries of Scandiatransplant.

Amount granted

[Amount granted in DKK]

58.000 DKK

The stay was further funded by the Central Denmark Region (*Internationaliseringspulje)*, see financial statement for further details.

Time and place of visit

[State time and place of visit]

August 30th, 2025 – October 6th, 2025

Report

[Report of the visit/study – 300 words]

At Department of Clinical Immunology, Aarhus University Hospital (AUH), an essential step in the immunological pre-transplant risk assessment is Complement-Dependent Cytotoxicity crossmatch (CDC-XM), which is performed prior to all kidney transplantation, as well as heart transplantation of HLA-immunized patients. With virtual V-XM, the immunological risk assessment is performed based on an HLA-antibody assessment with the identification of HLA-antibody specificity and strength of the HLA antibodies in patients before transplantation. Implementation of the V-XM in the current workflows will strengthened the risk assessment through increased sensitivity and improved workup procedures. Additionally, the implementation of V-XM could potentially reduce the number of CDC-XMs, making it possible to omit the CDC-XM prior to selected transplants, which may ultimately be resource-saving.

The stay largely fulfilled the original purpose, and the knowledge gained about the different V-XM approaches can be effectively implemented after local adaptions in the section for transplant immunology at AUH, adapting it to the workflows and high-quality immunological evaluation we offer. However, a full implementation is expected to take longer time, as it involves a series of steps to ensure that we comply with the quality standards we are nationally and internationally accredited under. This includes changing our EFI (European Federation for Immunogenetics) accreditation, where it must be assessed that the laboratory meets the applicable V-XM standards. Further, the implementation of V-XM will be conducted in close collaboration with clinical partners, as new procedures will also require updates to existing collaboration agreements. In connection with the implementation work, contact will be maintained with the H&I laboratories at The Royal Infirmary of Edinburgh and Gartnavel General Hospital Glasgow, Scotland, for continued exchange of experiences.

Evaluation

[Personal evaluation and “lesson learned”]

The first very important lesson learned was that the V-XM approach is not identical for the two Histocompatibility and Immunogenetics (H&I) laboratories in Edinburgh and Glasgow. Differences in approached included, among other things, which patients were eligible for V-XM transplant list. Evaluation of patient eligibility was carried out continuously as long as they are on the waiting list for transplantation. An evaluation that involved several factors to consider regarding antibody status, the complexity of the patient, and the potential definition of unacceptable donor tissue types. Coming from a Danish transplant immunology lab supporting two transplant centers (Aarhus and Odense) it was highly relevant to acknowledge these differences in workflows, as the same will required for the local adaption of the V-XM procedure during implementation og V-XM in Denmark to ensure the continued best possible support of clinical partners and the two transplant centers.

In addition to the introduction to the different approaches, I was also introduced to the logistics of maintaining patient lists to ensure continuous evaluation of V-XM patients. This included decisions on

how frequently HLA antibody tests should be performed, and the relevance and procedures of adding additional pre-transplant analyses needed prior to transplantation. A workflow that is considered more dynamic upon donor offers. Further, I sat in on the professional discussions during listing of patients and upon donor offers to understand how V-XM is practically performed when donor were accepted for specific patients. Additionally, this included how the transplantation immunologist, upon a donor offer, can decide to convert patients who were not initially scheduled for V-XM to be transplanted based on updated HLA antibody tests for V-XM. A practice that is more dynamic compared to the current workflow for pre-transplant risk assessment in section for transplant immunology at AUH.

Implementation of the V-XM will require competency development in our laboratory for both medical doctors and laboratory technicians at our the department. The stay in Scotland provided me with the insight on which skills are required to perform the V-XM and how training programs can be organized. As the V-XM will result in more data on specific HLA antibodies, including their specificity and strength, it will introduce a higher degree of data complexity, which we need to ensure all on-call doctors and laboratory technicians can manage.

Lastly, the stay was an incredible opportunity to established contacts and expand my international network within H&I in United Kingdom as I further participated in the annual meeting in the British Society for Histocompatibility and Immunogenetics (BSHI). With a much larger population base in the United Kingdom and consequently more transplantations performed, strong collaborative relationships with British partners are considered highly advantageous for my and the section for transplantation immunology. These collaborations should also contribute to the development of our laboratory and the bilateral exchange of knowledge and experiences.
