Dear Colleagues,

Welcome to the third issue of IHIWS Connects, the newsletter for the 17th International Histocompatibility and Immunogenetics Workshop (IHIWS), to be held in Pacific Grove, California this September. We would like to provide a brief update on the status of the workshop components and projects as they stand today.

Currently, we have 127 unique laboratories/organizations registered to participate in the workshop. Progress has been made in the management and definition of requirements of all components and projects. In addition, several new projects have been added under the NGS of Full-length HLA genes component.

We are very excited to announce that registration is now open for the 17th International HLA & Immunogenetics Workshop (IHIWS) event. Register here: http://ihiws.org/event-registration.

NGS of full length HLA genes: Component Updates

Reference Cell Lines Project

The goal of this project is to sequence Cell Lines (collected historically by the previous workshops) with complete NGS sequence of HLA genes performed by multiple laboratories, the results of which will serve as an unambiguous reference of the evaluation of each reagent/platform used. If your laboratory is planning to submit NGS HLA typing data for the various projects of the 17th IHIWS, your participation in this project is required, as the results will be used for performance validation.

We have been working in coordination with the major NGS genotyping software platform vendors to integrate their output report with the 17th IHIWS NGS data collection system. This will allow a more effective and standardized transfer of NGS genotyping data that includes GL String, consensus and locus data and, ultimately, meeting the Minimum Information for Reporting Immunogenomic NGS Genotyping (MIRING) and Histoimmunogenetics Markup Language (HML) 1.0 data reporting standards. While some platforms have HML or XML reports ready, others are still

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Informatics of Genomic Data: Component Update

The integration of the NGS genotyping software platforms currently in use by participants of the 17th International HLA and Immunogenetics Workshop is a big part of the process of completing the IHIWS database system, allowing a systematic and comprehensive collection and analysis of NGS data.

To this end, we held a Vendor Summit which was attended by representatives from GenDx, Illumina, Immucor/Sirona, Omixon, PacBio Systems, Scisco Genetics, Thermo Fisher/One Lambda, Anthony Nolan Research Institute as well as our own IHIWS Informatics and database team members.

Please visit the IHIWS website at ihiws.org/17th-ihiws-vendor-summit to read more about the presentation and conclusions from the Summit.

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Pharmacogenetics and HLA

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Serious adverse reactions to some drugs are associated with certain HLA alleles in some ethnic groups, but have not been investigated in other populations. It is also likely that additional associations will be established for other drugs with increasing awareness of possible immunogenetic predisposition.

The overarching goal of the Pharmacogenetics project is to establish an ongoing registry for compilation of data on the incidence of associations of HLA alleles and/or other immunogenetic factors with adverse drug reactions in different populations. Specifically, this project will include a retrospective study of HLA alleles in patients of different ethnic groups who have adverse reactions to carbamazepine.

If you are interested in participating in this project, contact the project leaders or check out the www.IHIWS.org website for additional information.

Immunogenetics of Aging

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The aging process is very complex and longevity is a multifactorial trait, which is determined by genetic and environmental factors. The aim of the component “Immunogenetics of Aging” is to identify new biomarkers for successful aging and an increased capacity to reach the extreme limits of life-span by analysis of immune response genes. In addition to classical HLA loci (HLA-A,-B,-C,-DRB1/3/4/5, -DQB1, -DQA1, -DPB1), genes in the extended MHC region such as MICA will be included in the analysis. Polymorphisms in pro- and anti-inflammatory cytokine genes (IL-2, IL-6, IL-10, IL-12, IFNγ, TNFα, TGFβ) with possible correlation to the level of gene expression, KIR, MBL, Toll-like receptor genes could also be analyzed.

The overarching goal of this project is to identify new biomarkers, including extended HLA haplotypes, cytokine genes, other MHC-encoded loci and innate immunity genes, for successful aging and an increased capacity to reach the extreme limits of life-span. The objectives of the project will include:

- Extended HLA haplotype analysis using NGS technology of samples collected during 14th, 15th and 16th IHIWS, including healthy randomly selected elderly individuals, young controls, and families with long-lived members. Additionally, new samples will be collected.
- Analysis of polymorphisms in regulatory and/or coding regions, with a possible impact on the level of gene expression of pro- and anti-inflammatory cytokines in elderly and young/middle age individuals.
- Analysis of innate immunity gene polymorphisms in elderly and young/middle age individuals.
- Perform linkage and association analysis in order to identify extended immunogenetic profiles that could be relevant to understand better the mechanisms of longevity and could be applied as new molecular targets for prevention, immunopharmacology and immunotherapy.

Learn more on our website: ihiws.org
Register to participate on our database: workshop.ihiws.org
Register to attend the 17th IHIWS: http://ihiws.org/event-registration

Mapping of Serologic Epitopes: Component Update

Dr. Dolly Tyan, Ph.D., Component Chair

Leaders: Marcelo Fernandez-Vina Ph.D., Robert Bray Ph.D., Peter Nickerson M.D., Frans Claas Ph.D., Ms. Rhonda Holdsworth

Liaison: Donna Phelan CHS

We continue to make progress in this component. Fourteen laboratories participated in the Epitopes Pilot Project by performing solid phase antibody testing on the same 5 samples. Testing included IgG SAB I, IgG SAB II, Bio-C1q SAB I, Bio-C1q SAB II using IHIWS SOPs, custom and commercial reagents provided by the Workshop organizers. The results are being analyzed and should be available by the end of the year 2016. An important part of this project includes data analysis to understand limitations and nuances for each protocol or reagent used, as well as the opportunity to evaluate algorithms for analysis and ways of capturing data. This latest task will rely on the use of a secure FTP server to house the raw data files, the IHIWS database that will include the sample's profiles, demographics and other pertinent information, as well as a program that will compile and analyze the data.

The goals of the Mapping Serologic Epitopes component can be summarized as follows:
1. To determine what HLA epitope mismatches are immunogenic
2. To determine what outcomes are related to immunogenic epitopes

The expectation is that all the participants will contribute data and or samples for the component, analysis will then be performed based on the specific project of interest.

Stay in Touch

Thank you for taking a moment to stay up-to-date on the status of the 17th IHIWS. We are thrilled to see so much progress being made, and look forward to our discussions in Pacific Grove, California beginning on September 6, 2017. For further information, please visit our website at ihiws.org, or contact Program Manager, Tami Vayntrub at tamara.vayntrub@stanford.edu. Reservations for the workshop and accommodations will be announced soon.