# Diagnostics WG

Co-leaders:
Christopher Gooley (Microsoft Health)
Florian Rubelt (Roche Sequencing Solutions)
Nicholas Schwab (University of Muenster, Germany)
AIRR-C V meeting 2020/12

# WG facts

1. Founded as an interest group at the 2019 AIRR-C IV meeting in Genoa
2. Status WG after decision by the Executive Sub-Committee
3. Regular calls on the first Tuesday of the month at 11am EST
    a. So far: 14 calls
    b. usually >20 participants each call

# Who we are and what we do

1. Purpose:
    a. The Diagnostics WG **explores the possibility of applying AIRR-seq technology as a diagnostic tool to the clinics.** While there has been tremendous progress in the field in terms of understanding the rearrangement of T- and B-cell receptors, binding to antigens, and basic biological function, this understanding has not yet led to larger clinical applicability. The WG wants to find out why this is the case and what the **AIRR-C can do to expand AIRR-seq** techniques (sequencing and analysis) into the field of **diagnostics**.
2. Goals:
    a. Evaluate the usage of AIRR-seq data for diagnostic purposes. These include diagnosis, prognosis, monitoring purposes, inclusion biomarkers for clinical studies, etc.
    b. Identify bottlenecks or challenges for AIRR-seq based clinical assays. These can be software tools, but also data sets or general approaches (statistical, machine learning, pattern recognition, etc).
    c. Collaborate with other AIRR-C WG to brainstorm and promote further development and applications of AIRR-seq clinical testing (e.g. potential project design, standard data collection, software tools, extension to new diseases or uses …).
    d. Represent a link between the AIRR-seq community and regulatory agencies when it comes to using AIRR-seq as a diagnostic tool.
    e. Support the AIRR-C efforts with regard to the sequencing analysis of the immune response against the novel coronavirus SARS-CoV-2.

# WG aims for 2020

1. Become ratified as an official AIRR-C Working Group
    a. done
2. Work with the Common Repository WG to establish standardized data sets of clinical AIRR-seq data in order to facilitate development of diagnostic tools
3. Publish a manuscript describing the current state of AIRR-seq for diagnostic purposes and its potential
    a. In minor revision
4. Identify major bottlenecks in the usage of AIRR-seq for diagnostic purposes
    a. Survey performed

# WG aims for 2021

1. Work with other interested WGs on a chapter in Immunogenetics about AIRR sequencing methodology from the standpoint of using them for diagnostics (our part) and help where we can in the other parts

2. Establish a podcast-like interview series with experts in the AIRR sequencing diagnostic space to discuss their work and views
    a. Work with diagnostics WG members, communications- and the meetings subcommittee to help source interviewees and for technical support; Work with TABS for distribution
    b. Potential topics:
        i. Discuss published and future use cases for AIRR sequencing diagnostic testing starting with e.g. MRD, Covid-19
        ii. Diagnostic methods and study design
        iii. Commercial & Research Use Only application of diagnostic techniques

# Points to ratify by the AIRR-C

1. Diagnostics as an official WG
2. Co-Leaders: Gooley/Rubelt/Schwab
3. Aims 2021:
    a. Working on the Immunogenetics chapter(s)
    b. Establishing the podcast-like interview/discussion series

# WG aims for 2021

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