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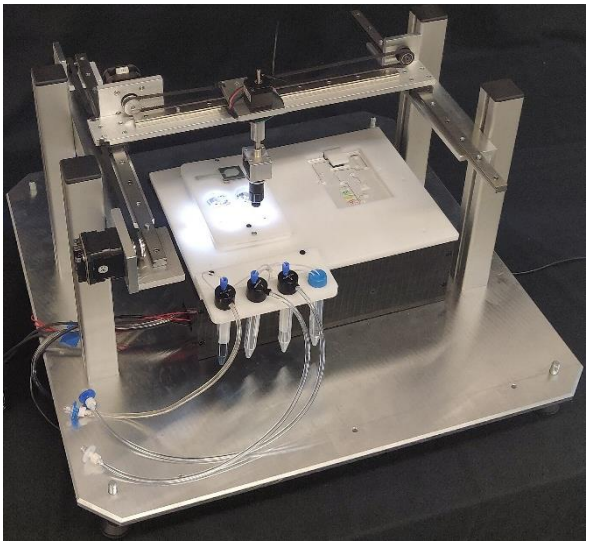
Prototype Presentation of Integrated Biomaterial Risk Assessment Testing System PANBioRA

The PANBioRA testing device will contribute towards minimising the adverse reactions after the implantation of biomaterials. After two years of intense research, a first prototype integrating different testing systems was presented to the project consortium. This first prototype version is composed of a cytotoxicity integrated system including a machine-learning-based image analyser. Further elements such as an organ-on-chip system testing module will be integrated in the course of the project.

With the integration of different testing modules developed by various project partners, an important milestone was reached halfway through the PANBioRA project. Full of excitement, the PANBioRA consortium met in Dublin from 13-15 January 2020 for the bi-annual partner meeting. One of the highlights of the meeting was the presentation of the first prototype of the PANBioRA device.

Dublin City University, as a project partner is involved with the integration of the various testing systems into one single instrument, the PANBioRA device. They demonstrated their current status of work including a microfluidic system connected to sensors for cytokine and cytotoxicity tests which were integrated. Additionally, the system contains an integrated microscope mounted on a high precision cartesian robot which allows capturing and magnifying images of cells used for cytotoxicity tests at resolutions suitable for quantitative multiparametic analysis.



PANBioRA Prototype © DCU

The Irish design company, Dolmen presented the modular design of the device housing containing the different testing modules. The cytotoxicity tests and microscope movement stage are housed in one module, whereas the cytokine test technology is contained in a separate module. Now, this first prototype design will be validated by the consortium and tested with respect to functionality and user-friendliness. Based on the feedback, the design will be further refined and presented as the second prototype by the end of the project.

The presentation of the project's first prototype was one of the many achievements of the project. Significant advances were made by developing a new immunoprofiling method for biomaterials based on the Mimotope Variation Analysis allowing the assessment of patient-specific interactions between biomaterials and the immune system. Further, the work on biomechanical characterisation as well as predictive modelling in respect to biomaterial treatment was successfully carried on.

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The PANBioRA consortium will be at the World Biomaterials Congress in Glasgow from 19-24 May 2020. Meet the consortium and catch a glimpse of the prototype, at the booth as well as during the workshop session “New approaches for a Comprehensive Risk Assessment of Biomaterials - Horizon 2020 PANBioRA Project”. With an interesting and diverse programme, the conference will bring together research and industry in the field of biomaterials.

For further information please visit www.panbiora.eu or follow PANBioRA on Facebook, LinkedIn, Twitter, Research Gate and check out our project video: YouTube.

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