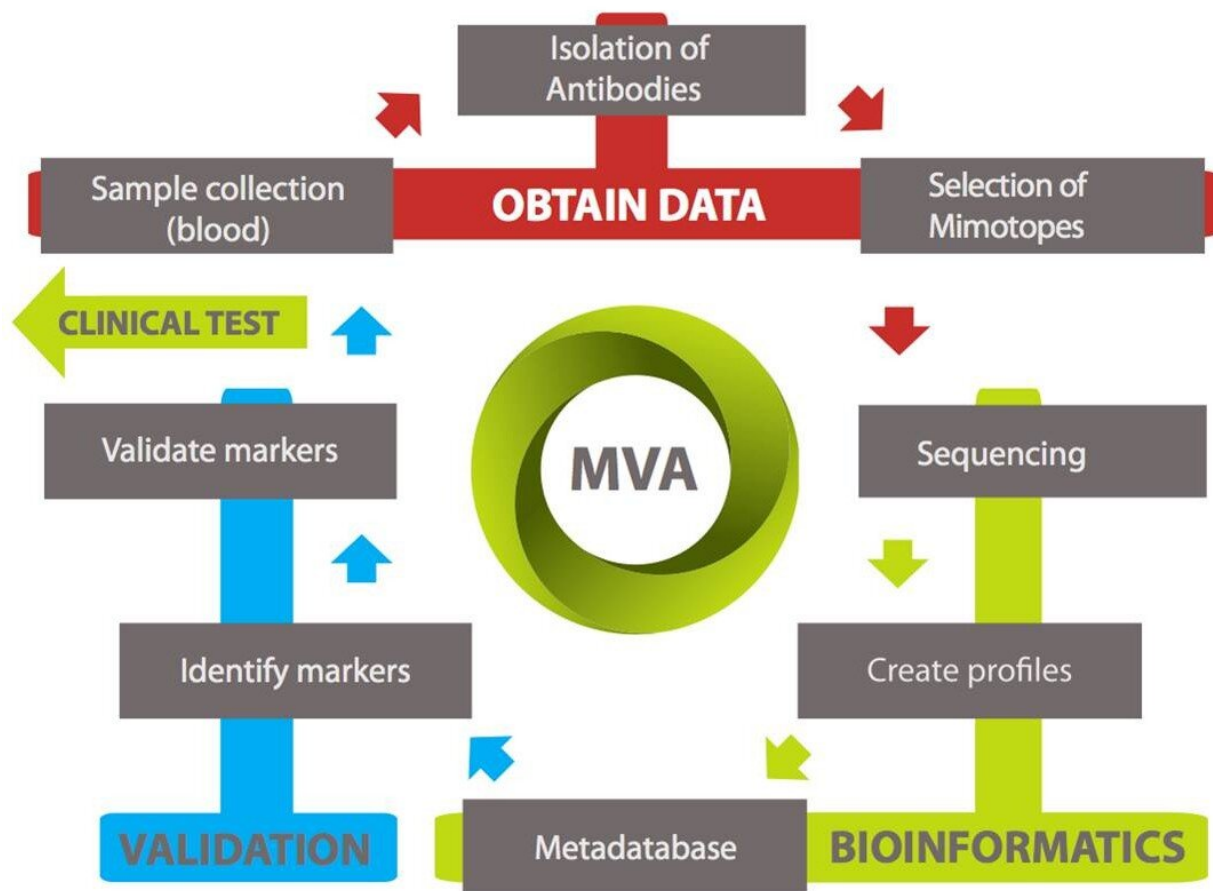


# Risk assessment at nanoscale level: A closer look at the mimotope variation analysis

August 16 2019, by Melanie Ungemach



Credit: Protobios, [www.protobios.com](http://www.protobios.com)

Since January 2018 the EU project PANBioRA is developing a modular

system for a comprehensive risk assessment of biomaterials. The instrument will be able to compare different biomaterials and help doctors to choose the best suited material for a patient before implantation. Another function of the system is the risk assessment of new biomaterials (synthesized or obtained by modification of known biomaterials), which might have unforeseeable interactions with the immune system.

In this context, one important analysis that is part of PANBioRA's approach is the Mimotope Variation Analysis that allows the assessment of patient-specific interactions between biomaterials and the [immune system](#).

Beginning of June the 17 PANBioRA partners have met in Brussels for their first official periodic review meeting in month 18 of the project. In the presence of a representative of the European Commission each partner has presented the performed work since the beginning of the project as well as main results achieved.

The PANBioRA system is composed of four different types of analyses allowing [biomaterial](#) risk assessment at nano-, micro- and milliscale level. During the first 1½ years of the project, different project partners have worked on these analyses with significant progress.

Among these different testing systems, there is the Mimotope Variation Analysis (MVA) developed and patented by the Estonian biotechnology company Protobios which has never been used in the framework of biomaterial assessment before. Immune responses contribute to the development of many common disorders (e.g. Alzheimer's disease) but also to immunologic diseases including infectious diseases (e.g. tuberculosis, hepatitis, pneumonia). With the MVA technology, Protobios has developed a method to create a personalized outline, called immunoprofile, allowing to define an individual's humoral [immune](#)

[response](#) profile. Over the past years Protobios has developed a metadatabase of immunoprofiles of more than 2000 individuals. This enables them to predict an individual's susceptibility to specific diseases.

For PANBioRA, the MVA technology is being further developed and adapted to identify a patient-specific response of the immune system to biomaterials. A biomaterial specific immunoprofile database is being generated allowing to comprehensively understand the properties, interaction and fate of engineered biomaterials in relation to human health and environment. This will pave the way for the design of new generations of biomaterials with tailored functional and immunological properties. As PANBioRA is aiming to provide a faster, reliable and quantitative assessment of new biomaterials, the MVA technology plays a substantial part in the overall PANBioRA system.

One of the major challenges for the upcoming project months will be to successfully integrate the different test modules, developed within the project in one comprehensive system. Until the beginning of next year, a first prototype of the whole system will be ready in order to further test, improve and validate. PANBioRA will provide substantial health benefits for millions of patients who are candidates for receiving medical implants by improving their function and reducing the chance of failure due to inflammation.

**More information:** For more details on PANBioRA please visit: [www.panbiora.eu](http://www.panbiora.eu)

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