

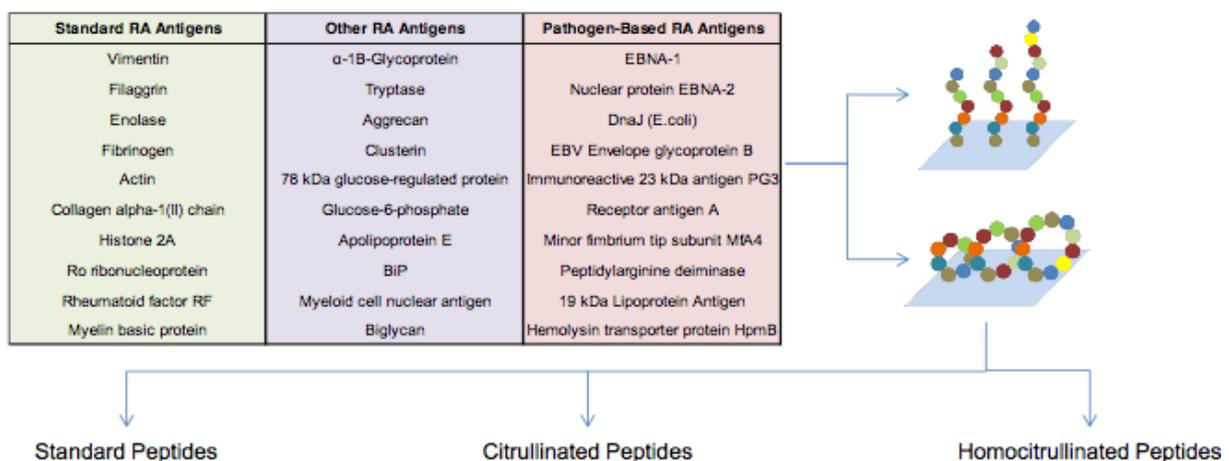


## SeroRA® - The Most Powerful Library for IVD and CDx Development in Rheumatoid Arthritis

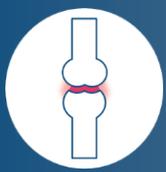
With an incidence of 0.5 to 1%, rheumatoid arthritis (RA) is one of the most frequent autoimmune disorders. If not treated at early disease stages with an appropriate therapy, RA can ultimately lead to irreversible joint destruction. Therefore, early RA diagnosis and RA patient stratification is of utmost importance for the outcome of the disease.

Early RA diagnosis and the differentiation between drug responders and non-responders is predominantly based on detection of rheumatoid factor (RF) or antibodies against citrullinated peptides (anti-CCP) and citrullinated vimentin (anti-MCV). However, up to 30% of all patients are seronegative for these standard biomarkers and remain with a false or undefined diagnosis.

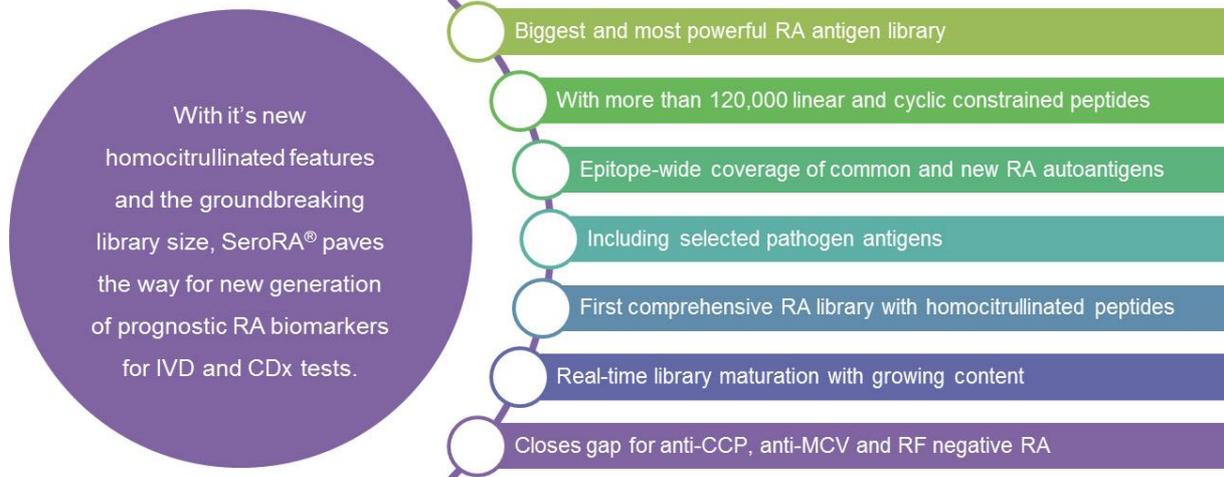
For the development of new and better IVD and CDx tests for RA, PEPPERPRINT launched the novel SeroRA® library. SeroRA® is the world's largest and most powerful library of peptide antigens for the analysis of autoantibody responses in RA. The library covers more than 120,000 different linear and cyclic constrained peptides of known (vimentin, filaggrin, fibrinogen,  $\alpha$ -enolase etc.) and candidate RA autoantigens (cyclophilin A, BiP,  $\alpha$ 1-antitrypsin, clusterin etc.) and also includes peptides of pathogen origin such as EBNA-1 or DnaJ of *E. coli*. **For the very first time, the SeroRA® library enables an epitope-wide coverage of all known RA antigens including tens of thousands of corresponding citrullinated and homocitrullinated epitope variants.**



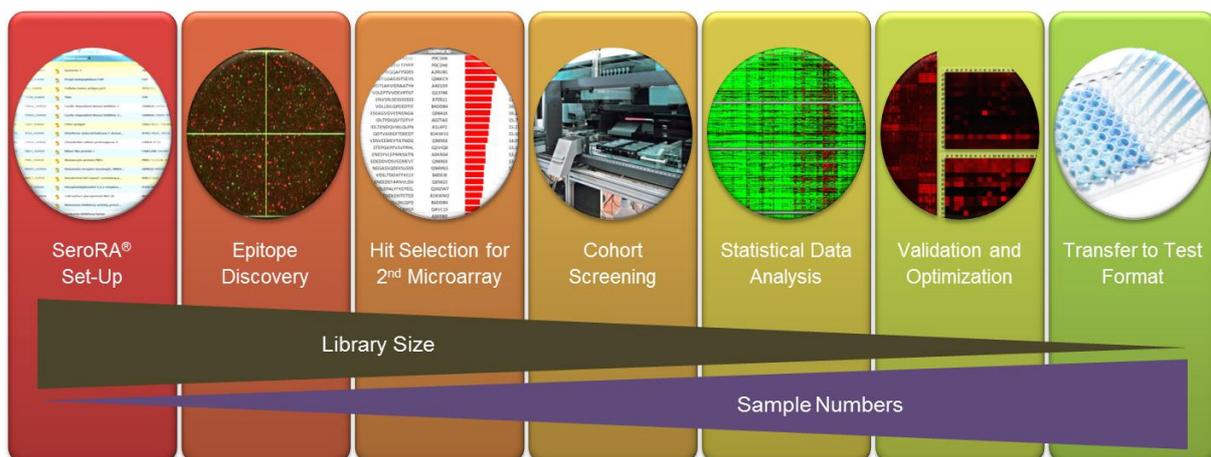
The novel SeroRA® library covers confirmed and candidate RA antigens as well as pathogen-based RA antigens translated into >120,000 different linear and cyclic constrained peptides with citrulline, homocitrulline and citrulline/homocitrulline variants. SeroRA® is the most powerful tool for CDx and IVD development for rheumatoid arthritis, and significantly exceeds the scale of all previous RA antigen libraries.



## SeroRA® Features



## SeroRA® Workflow



IVD and CDx development projects for rheumatoid arthritis start with the SeroRA® library set-up and the RA epitope discovery screening (IgG and optional IgA) with selected samples. Based on the results of the discovery screening, a focused second generation RA library is used for a validation screening with all serum or plasma samples. Group-wise statistical analysis of the microarray data is followed by epitope substitution scans for further peptide hit validation and optimization and transfer to the preferred diagnostic test format. Verification and validation of such test format according to regulatory agencies is optional.

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