A drug induced remission signature promises personalized therapy in RA patients

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State of the art

Today the objective for efficient Rheumatoid Arthritis (RA) therapy is not restricted to reduced synovial inflammation but to induce immunological and clinical lasting remission. Despite improvement in therapy of RA, anti-TNF alpha or anti-IL-6 (Tocilizumab) biologicals provide less than 20% of clinical remission. Interestingly, the complete remission can last up to 12 months in about 40% of these patients despite discontinuation of the above biologicals. In order to set up optimized strategy to obtain persistent clinical remission, new predictive markers of complete remission are needed.

Main Goal

By using Firalis BIOPREP panel, an innovative targeted gene sequencing panel of 2155 mRNA targets associated with immune-inflammatory pathways, we wanted to identify candidate biomarkers that have the potential to stratify patients for personalized therapy.

Methods

PAXgene RNA samples obtained from 18 RA patients treated with Etanercept (n=11) and Tocilizumab (n=7) who had achieved remission (DAS28 < 2.6) were directly profiled without RNA extraction with BIOPREP panel, a targeted sequencing kit based on HTG EdgeSeq platform. Data were extracted using HTG Parser software and normalized using EdgeR method. Student T-test was applied to find out targets which are significantly regulated.

Conclusions

- Preliminary analysis shows that a panel of candidate biomarkers has the potential to stratify patients for personalized therapy in RA patients.
- Longitudinal studies are required with RA patients treated with all biologicals to validate this signature and explore further dimensions.
- BIOPREP is an excellent assay to develop precision medicine applications for auto-immune disorders.