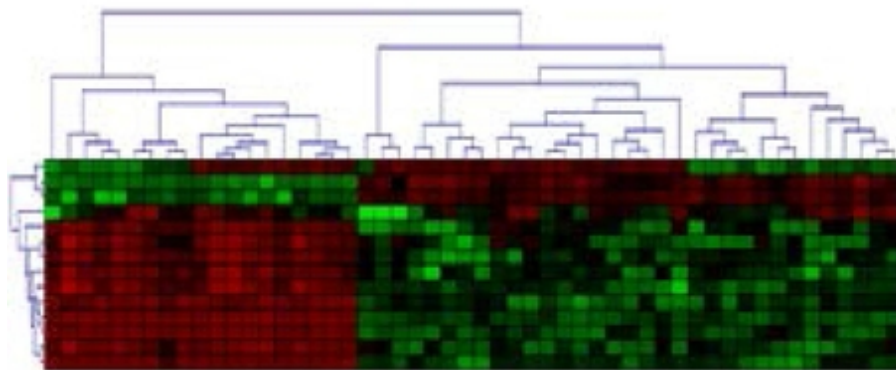


Prediction of Therapy Response to MTX in Patients with Rheumatoid Arthritis

Reference Number: TO 32-00011

Challenge

Methotrexate (MTX) is the most common disease-modifying anti-rheumatic drug (DMARD) even at the beginning of rheumatoid arthritis (RA). However, despite its efficacy and affordability, additional biologic agents are often required in order to achieve the recommended goals of low disease activity or remission. A fraction of about 50% of the patients does not benefit, but may be harmed by MTX-therapy - a systematic review estimated that >5% of hospitalizations of RA-patients are associated with adverse effects related to MTX. Potential indirect annual savings based on the prevention of adverse effects or non-responsiveness to MTX treatment have been calculated with >7 billion € in Germany and 175 billion € worldwide.



Hierarchical cluster to predict MTX responders (R), moderate responders (MR) and non-responders (NR)

Technology

Up to now there is no commercial test available to accurately predict individual response rates of RA patients prior to treatment with MTX, other disease modifying anti-rheumatic drugs (DMARDs) commonly used in RA or any biologics. To date two individual sets of 16 distinct biomarkers combined with a specific HLA haplotype for successful prediction of MTX therapy outcomes with specificity and sensitivity rates of 100% were defined and validated in more than 50 RA patients prior to therapy. These biomarkers identified so far by microarray analyses are candidates permitting a methodological translation to establish a diagnostic test on Custom TaqMan® PCR based array technology.

Benefits

- Allows accurate prediction of individual response rates of RA patients prior to treatment with MTX
- Specificity and sensitivity rates of 100%

Commercial Opportunity

In-licensing or industrial cooperation for further development

Developmental Status

Lab level, Patient Data, Biomarker validated by qPCR

Patent Situation

DE priority patent application (02/2014)

Further Reading

Mans K, Tandon N, Bonin M, Häupl T, Detert J, Backhaus M, Martus P, Listing J, Neumann T, Burmester GR, Stuhlmüller B: Prediction of response to methotrexate in patients with rheumatoid arthritis. Submitted (Clin. Pharm. Ther.)



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