

## THU0067 RHEUMATOID FACTOR INTERFERES WITH MULTIPLEX IMMUNOASSAYS IN RHEUMATOID ARTHRITIS PATIENTS

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**Background:** Multiplexed immunoassays enable parallel testing of multiple serum analytes and are increasingly utilized in RA research. Heterophilic antibodies, such as rheumatoid factor (RF), potentially interfere with such immunoassays.

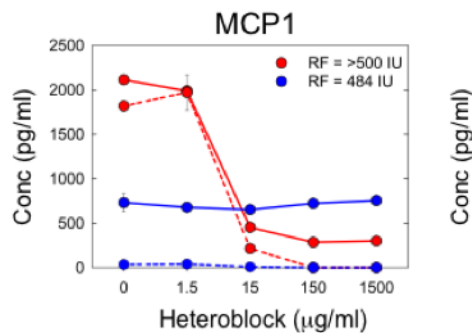
**Objectives:** We investigated the effects of RF interference on multiplex serum assays in samples from RA patients and identified methods to attenuate RF effects.

**Methods:** RF depletion studies: Serum was obtained from 9 RA patients and RF-depleted (RD) or mock-depleted (MD) by affinity absorption. Using Searchlight™ multiplex ELISA, RD and MD samples were tested in duplicate for A-SAA, E-selectin, IFNg, ICAM-1, IL1ra, IL2R, IL6, IL7, MMP1, MMP3, MMP9, RANTES, TIMP1, TIMP2, TNFR1, and TNFR2. RF interference (RFI) was defined as false elevation in analyte signal as assessed by the MD/RD ratio. RF levels were measured by nephelometry.

**Results:** RF ranged from 13-680 IU in MD samples and was undetectable in all RD samples (<10 IU). For 16 analytes tested in 4 patients with high RF levels (>100 IU), the mean MD:RD ratio was 3.61, and RFI was present in 43/64 (67%) tests. In 5 patients with low RF levels (<100 IU), the mean MD:RD ratio was 1.47, and RFI occurred in 15/80 (19%) tests. RF interference was also observed in Luminex multiplex immunoassays. Measurable levels of RF interference could be attenuated by heterophilic blocking agents. MCP-1 was representative of other analytes (Fig 1).

Fig. 1: Apparent MCP-1 concentrations in 2 patients with high RF and 2 patients with low RF levels and attenuation by a blocking agent.

### Image / Graph:



**Conclusion:** In serum from RA patients, RF interferes with the measurement of some analytes in multiplex immunoassays. RFI varied in an assay-specific manner. RF interference could be attenuated with heterophilic blocking agents. These findings are important to consider when interpreting data generated by multiplex assays in RA patients.

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