Plasma short-talin is a new rheumatoid arthritis monitoring biomarker independent of the inflammatory markers

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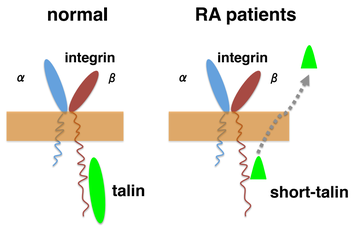
PURPOSE

Talin has been known as a cytoskeletal protein, which, by binding to integrin beta-subunit, enhances the inside-out signaling from intracellular to extracellular of integrins, cell adhesion, cell migration, and causes chronic inflammation and angiogenesis. Last 2012ACR meeting, we have reported that intracellular talin in RA patients is cleaved into short-talin and expressed predominantly in plasma. In 2011ACR meeting, we have demonstrated higher sensitivity and specificity of the plasma short-talin than those of anti-CCP antibody (ACPA). Although several RA biomarkers have been reported, some of them are not independent of the inflammatory markers like CRP and ESR due to the usage of the algorithm combined with them. In this paper, we investigated whether the plasma short-talin can be an RA biomarker independent of the inflammatory markers.

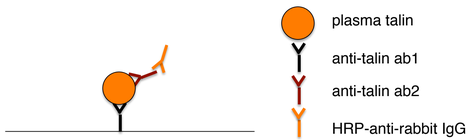


METHODS

1) Patients

RA patients (fulfilled 2010 ACR/EULAR Criteria)	n=51
Age	60.9 ± 14.4 y/o
DAS28	4.54 ± 1.20
untreated	31.4% (16/51)
treated with biologics	35.3% (18/51)

2) Quantification of plasma talin
<sandwich ELISA>



Plasma talin was evaluated using a sandwich ELISA with anti-talin ab1 (H-18: goat polyclonal anti-talin antibody) and anti-talin ab2 (developed from rabbits immunized with talin F1 portion) and quantified using a talin synthesized polypeptide as a standard.

3) Quantification of serum ACPA

Serum ACPA (anti-CCP antibody) was quantified using a commercial ELISA kit (MESACUP CCP TEST)

RESULTS

Fig.1

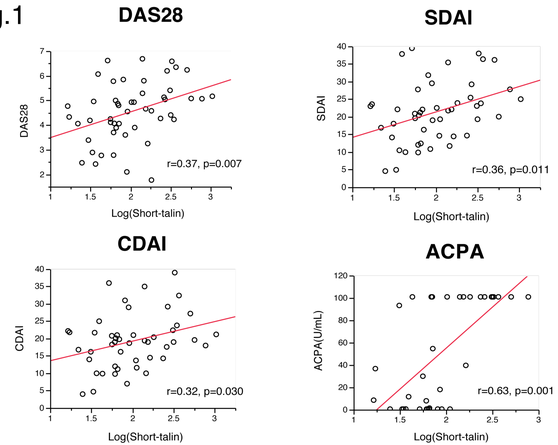


Fig.1 DAS28, SDAI, CDAI, and ACPA were correlated with the blood short-talin.
Plasma short-talin in 51 RA patients was quantified using a sandwich ELISA. As a result, DAS28, SDAI, CDAI, and ACPA were significantly co-related with the plasma short-talin.

Fig.2

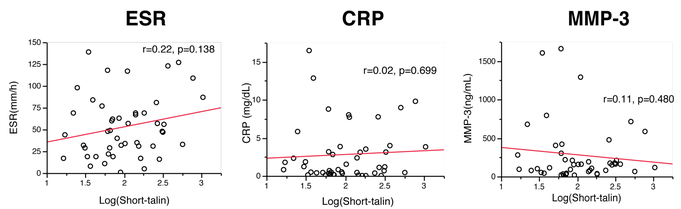


Fig.2 ESR, CRP, and MMP-3 were not correlated with the blood short-talin.
Plasma short-talin in 51 RA patients was quantified using a sandwich ELISA. As a result, ESR, CRP, and MMP-3 were not significantly co-related with the plasma short-talin.

CONCLUSION

The expression of the plasma short-talin could reveal the RA activity and can not only be an RA diagnostic marker, but also an RA monitoring biomarker independent of the inflammatory markers like ESR and CRP.