

BiologicMate™

Quantitative assay for ADAMTS5 mRNA

ADAMTS = a disintegrin and metalloproteinase with thrombospondin motifs

BiologicMate™

<Components> (for 21 tests)

- 1) Master Mix
- 2) ADAMTS5 MGB probe
- 3) β -actin MGB probe
- 4) ADAMTS5 Standard DNA
- 5) β -actin Standard DNA

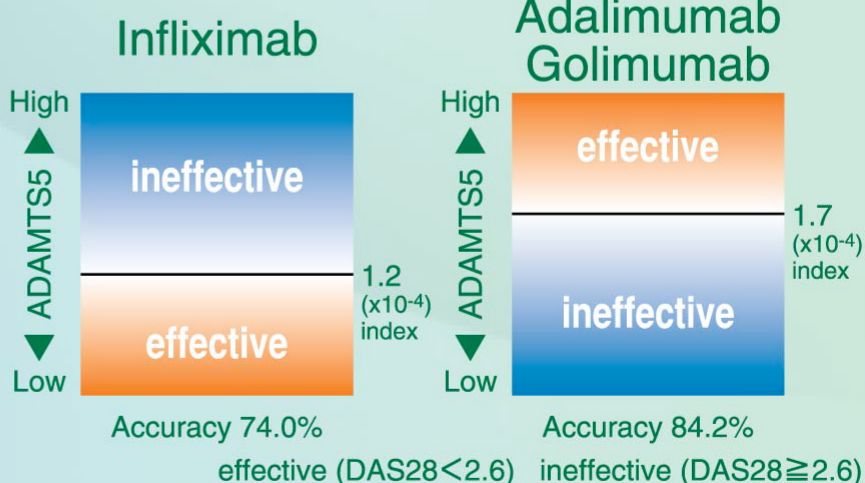
Extract of total RNA from blood

RT & cDNA synthesis

Real-time PCR

Quantification of ADAMTS5

Prediction of the efficacy
of biologics reagents in
rheumatoid arthritis by
the baseline blood
ADAMTS5 mRNA level



[Distributor]

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KAYTEE BIO

【What is ADAMTS5】

ADAMTS family molecules, which have the structural homology with MMP (matrix metalloprotease) family molecules and ADAM family molecules, have been reported to play a key role in aggrecan degradation in cartilage. To identify a biomarker for prediction of the response to biologics, ex, infliximab or adalimumab, we focused on ADAMTS5, because ADAMTS5 has been shown to have the ability to destroy cartilage through degradation of aggrecan, independently of tumor necrosis factor α (TNF α)^{1,2}.

1) Stanton H, et al. Nature 434:648-652, 2005

2) Amanda J, et al. European Cells and Materials 15: 11-26, 2008

【Significance of Measurement】

1 ROC curve for the baseline ADAMTS5 mRNA to detect the remission category

AUC (area under the curves) and the cut-off value were calculated from the Receiver Opening Characteristic (ROC) curves for the baseline peripheral blood ADAMTS5 mRNA levels to detect clinical remission (DAS28<2.6) category RA by infliximab or adalimumab treatment.

	Cut-off value of ADAMTS5 mRNA	AUC
Infliximab	1.2×10^{-4}	0.72
Adalimumab	1.7×10^{-4}	0.77

2 Predictive value of BiologicMate

1) Predictive value of low-ADAMTS5 ($<1.2 \times 10^{-4}$) for RA remission in infliximab treatment

Infliximab (n=100)

ADAMTS5	Remission	Non remission	Total
High	16	58	74
Low	16	10	26
Total	32	68	100

Accuracy ((16+58)/100) **74.0%**

PPV (16/26) **61.5%**

NPV (58/74) **78.4%**

2) Predictive value of high-ADAMTS5 ($>1.7 \times 10^{-4}$) for RA remission in adalimumab treatment

adalimumab (n=57)

ADAMTS5	Remission	Non remission	Total
High	5	7	12
Low	2	43	45
Total	7	50	57

Accuracy ((5+43)/57) **84.2%**

PPV (5/12) **41.7%**

NPV (43/45) **95.6%**