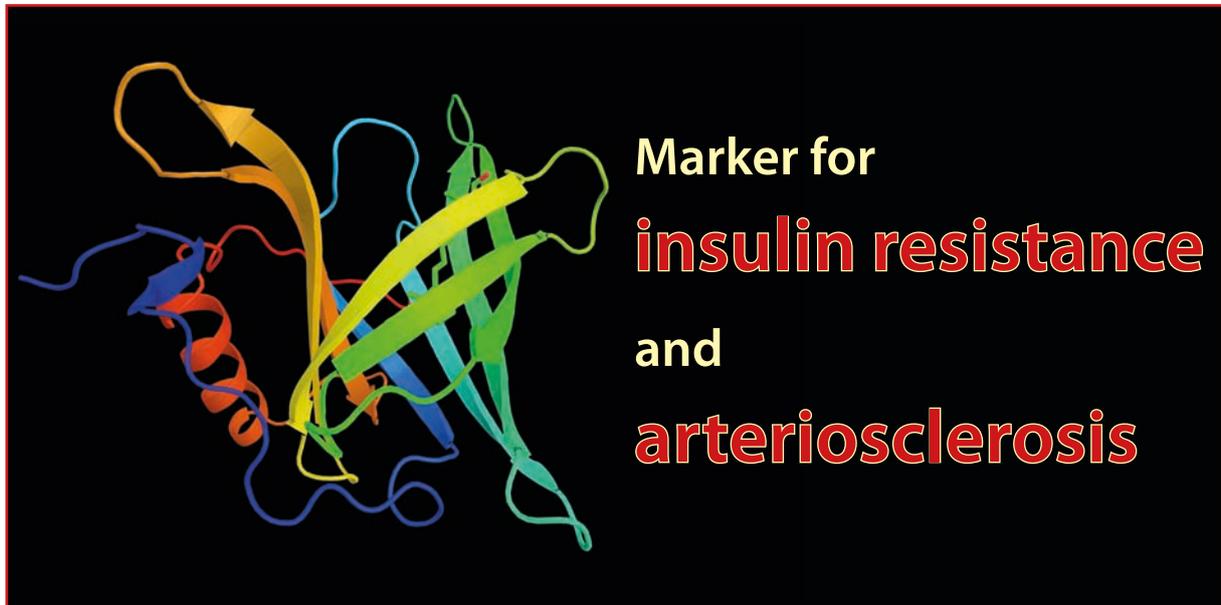


Retinol-binding protein



ELISA for the quantitative determination of RBP/RBP4 in plasma, serum, and urine

- ▶ detects **free RBP/RBP4** as well as **RBP4 complexed with transthyretin**
- ▶ Incubation time: 1h, 1h, 10-20min



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RBP/RBP4 (ELISA)

Retinol-binding protein 4 seems to play an important role in the development of insulin resistance

Retinol-binding protein (RBP) is a small (21 kD) transport protein for vitamin A which forms a complex with prealbumin in blood but loses its affinity for prealbumin once the vitamin has been delivered to the target cells. The free RBP molecule is rapidly filtered at the glomerulus and catabolized in the renal tubules after resorption by the proximal tubular cells (like other small molecules, e. g. β -2 microglobulin). In kidney disease with prevailing tubular changes these proteins are not reabsorbed and appear in the urine. Determination of RBP4 in urine is thus indicated for the early detection of a tubular proteinuria.

As published by Yang et al. (2005) the retinol-binding protein 4 (RBP4) **seems to play a key role in the development of insulin resistance**. The fat cell derived peptide RBP4 also modulates the glucose homeostasis and impairs the insulin sensitivity as well as insulin resistance. The elevation of serum RBP4 causes systemic insulin resistance, whereas its reduction improves the insulin action. As a conclusion from the results, the authors suggest that RBP4 alters insulin sensitivity in part by affecting insulin signalling in muscle through alterations in the amount of tyrosine-phosphorylated IRS-1 and PI(3)K activation. Thus, RBP4 may contribute to the pathogenesis of type 2 diabetes, and lowering RBP4 could be a new strategy for treating type 2 diabetes.

Graham et al. (2006) measured serum RBP4 (**with Immundiagnostik RBP/RBP4 ELISA**), insulin resistance, and components of the metabolic syndrome in different groups of subjects. They found **elevated RBP4 serum levels before the development of frank diabetes**. The authors concluded that RBP4 appears to identify insulin resistance and associated cardiovascular risk factors in subjects with varied clinical presentations.

Our ELISA detects free RBP/RBP4 as well as RBP4 complexed with transthyretin in serum, plasma, and urine.

RBP/RBP4	
Matrix	Serum, Plasma, Urine
Sample volume	20 μ L (Serum, Plasma) 100 μ L (Urine)
Test principle	ELISA
Cat. No.	K 6110

→ also available as 1-point-calibration test (K 6120)

Literature:

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- Qi et al. (2007) Elevated retinol-binding protein 4 levels are associated with metabolic syndrome in Chinese people. *J Clin Endocrinol Metab* 92:4827-4834.
- Aeberli I et al. (2007) Serum retinol-binding protein 4 concentration and its ratio to serum retinol are associated with obesity and metabolic syndrome components in children. *J Clin Endocrinol Metab* 92(11):4359-65
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- Graham et al. (2006) Retinol-binding protein 4 and insulin resistance in lean, obese, and diabetic subjects. *N Engl J Med* 354:2552-63
- Yang et al. (2005) Serum retinol binding protein contributes to insulin resistance in obesity and type 2 diabetes. *Nature* 436:356-62

Results achieved
by using the
RBP/RBP4-ELISA from
Immundiagnostik!

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