



# Strike out the adversity before it strikes your patients.

Dr Lal PathLabs presents

## “Homeostasis Model Assessment (HOMA)”

which is an early marker to estimate an individual’s degree of Insulin sensitivity (HOMA %S) and level of beta cell function (HOMA %B).



National Customer Care: ☎ 011-3988-5050

# HOMA

## What is HOMA?

Homeostasis Model Assessment (HOMA) is a mathematical model which can estimate an individual's degree of Insulin sensitivity (HOMA %S) and level of beta cell function (HOMA %B) from simultaneous measurements of fasting plasma glucose and insulin or C-peptide concentration.

## How does it work?

- Insulin resistance (IR) is a condition in which cells fail to respond to the normal actions of the hormone insulin, leading to high blood glucose level
- Beta cells in the pancreas subsequently increase production of insulin, further contributing to a high blood insulin level
- This often remains undetected for long time and can contribute to development of Type 2 diabetes or latent autoimmune diabetes of adults
- HOMA can help in the earlier detection of Insulin Resistance and thus prediction of diabetes

## The HOMA model

- This model correlates well ( $r = 0.88$ ) with the gold standard method for IR, i.e., **Euglycemic clamp method**
- This updated HOMA 2 model better reflects human physiology and is recalibrated to modern insulin assays
- The model can also be used in individuals to indicate whether reduced insulin sensitivity or B-cell failure predominates

## Clinical Utilities

- **Pre-diabetes** : To assess risk of developing diabetes in normal subjects with a first-degree relative with Type 2 diabetes<sup>1</sup>
- HOMA can be used to assess longitudinal **changes in B cell function and Insulin Resistance** in patients with diabetes to examine the natural history of diabetes<sup>2</sup>
- **Monitoring therapy** : HOMA can be used to assess response to treatment of Diabetes<sup>2</sup>

## References

1. Costa A, Rios M et al High prevalence of abnormal glucose tolerance and metabolic disturbances in first degree relatives of NIDDM patients: a study in Catalonia, a Mediterranean community. Diab Res ClinPract41:191–196, 1998
2. Use and Abuse of HOMA Modeling, Tara m Wallace, diabetes care, volume 27, number 6, June 2004



National Customer Care: ☎ 011-3988-5050

Corporate Office: 12th Floor, Tower B, SAS Tower, Medicity, Sec- 38, Gurgaon- 122 001,  
Haryana Tel: 0124- 3016 500 | Fax: 0124- 42344668

National Reference Lab: Sector-18, Block-E, Rohini, New Delhi- 110 085, [www.lalpathlabs.com](http://www.lalpathlabs.com)

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