The Lipoprotein Insulin Resistance Index (LP-IR), measured on LabCorp’s proprietary Vantera® platform, an automated nuclear magnetic resonance (NMR) clinical analyzer, combines six lipoprotein parameters associated with insulin resistance into a simple, clinically actionable score ranging from 0 (most insulin sensitive) to 100 (most insulin resistant).1 The LP-IR score enables routine assessment of a patient’s insulin resistance status1 and helps identify individuals at higher risk of developing type 2 diabetes (T2D), regardless of glucose level.2-5

LP-IR and Type 2 Diabetes

The LP-IR score has been shown to predict future T2D in the Multi-Ethnic Study of Atherosclerosis (MESA);7 the Women’s Health Study (WHS),8 the Prevention of Renal and Vascular End Stage Disease (PREVEND) Study,4 as well as in subjects on rosuvastatin treatment in the Justification for the Use of Statins in Prevention: an Intervention Trial Evaluating Rosuvastatin (JUPITER) trial.5 The association of LP-IR scores with incident T2D persisted after adjustment for measures of glycemia and other T2D risk factors and clinical confounders.2-5 Moreover, LP-IR scores predicted future T2D even in individuals at low risk for T2D based on their clinical profiles.1 Therefore, LP-IR may be a convenient way to monitor a patient’s risk of T2D before the risk is manifest by elevated glucose or HbA1c levels. LP-IR also may be useful to identify subsets of prediabetic patients with higher versus lower risk of progressing to diabetes.2-4 Lifestyle interventions producing weight loss and increased insulin sensitivity have been shown to lower LP-IR scores, suggesting that LP-IR changes may be useful for monitoring the effectiveness of treatments aimed at reducing weight and insulin resistance and preventing or delaying the onset of T2D.9,13

In contrast, LP-IR is a simple test for assessing insulin resistance that combines six simultaneously-measured lipoprotein parameters that each are associated with insulin resistance and T2D (large very low density lipoprotein particle number (large VLDL-P), VLDL size, small low density lipoprotein particle number (small LDL-P), LDL size, large high density lipoprotein particle number (large HDL-P) and HDL size).1 The LP-IR score exhibits a strong, graded relation with independent measures of insulin resistance, including HOME-IR and glucose disposal rate measured by the gold-standard hyperinsulinemic-euglycemic clamp method, the former being more reflective of hepatic and the latter of peripheral insulin sensitivity.1 The LP-IR score thus offers a simple, reliable way to assess a patient’s insulin resistance status in a clinical setting.1

LP-IR and Inulin Sensitivity

Insulin resistance and consequent β-cell failure are the core pathophysiologic defects that lead to T2D.6 Clinical trials have shown that lifestyle or pharmacological interventions that elicit weight loss and increase insulin sensitivity may delay the onset of T2D.7 However, many of the methods used to assess insulin sensitivity/resistance in clinical studies are costly and time-consuming, limiting their use in the primary care setting.8

The Lipoprotein Insulin Resistance Index (LP-IR) combines six simultaneously-measured lipoprotein parameters that each are associated with insulin resistance and T2D. Therefore, LP-IR may be a simple test for assessing insulin resistance that combines six simultaneously-measured lipoprotein parameters that each are associated with insulin resistance and T2D (large very low density lipoprotein particle number (large VLDL-P), VLDL size, small low density lipoprotein particle number (small LDL-P), LDL size, large high density lipoprotein particle number (large HDL-P) and HDL size). The LP-IR score exhibits a strong, graded relation with independent measures of insulin resistance, including HOME-IR and glucose disposal rate measured by the gold-standard hyperinsulinemic-euglycemic clamp method, the former being more reflective of hepatic and the latter of peripheral insulin sensitivity. The LP-IR score thus offers a simple, reliable way to assess a patient’s insulin resistance status in a clinical setting.

**References**