GB HealthWatch

# GB HealthWatch Launches GBinsight Genetic Testing and Analysis to Dissect the Genetic Basis of Type 2 Diabetes, Heart Disease and Obesity.

*GBinsight is a comprehensive and targeted next-generation DNA sequencing (NGS) assay designed to analyze the genetic architecture of complex diseases. Combined with a novel state-of-the-art bioinformatics analysis algorithm, GBinsight genetic testing and analysis promises to help scientists and clinicians gain genetic insights of common metabolic diseases and facilitate research on personalized prevention and medical intervention strategies.*

San Diego, CA- GB HealthWatch, a digital health and nutritional genomics company, announces the launch of GBinsight, one of the most advanced next-generation DNA sequencing-based genetic testing and analyses available for complex diseases such as type 2 diabetes (T2D), coronary heart disease (CHD), dyslipidemias and obesity. GBinsight is a simple and cost effective solution for researchers and clinicians to investigate the genetic underpinnings of a disease and focus therapies based on knowledge of the underlying biology. GBinsight NGS services are performed at a CLIA-certified and medical licensed genetic testing laboratory using Illumina's HiSeq platform.

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Dissecting genetic components of complex diseases remains one of the greatest challenges in the medical genetics field. Geneticists have shown that a significant portion (between 50-70%) of complex, cardiometabolic diseases is heritable. But unlike pure genetic disorders (so-called monogenic diseases), the genetic contribution to complex diseases is multi-factorial (or polygenic), which means many genetic variants in multiple biological pathways cumulatively influence susceptibility and genetic risk is conditional based on the dosage of exposure to disease-promoting environments. For example, the high availability of energy-dense foods combined with reduced physical activity creates a diabetogenic environment in modern day society. To make the challenge even greater, people of different races and ethnicities, or people with ancestors from different geographic regions of the world, can harbor very different sets of risk variants, which suggests that there is unlikely one set of genetic biomarkers universally functional for diagnoses. Thus different populations and individuals will have their own unique set of genetic variants and combinations. Traditional genetic analytical approaches have been unsuccessful in dissecting genetic risks of complex diseases.

GBinsight panels are built upon the current understanding of biological pathways and genetic landscapes underlying complex diseases. The sequence analysis includes selected exons, splicing regions and insertions/deletions that are in or near disease-relevant genes. Regulatory regions of genes that influence risk are also analyzed. A proprietary bioinformatics analysis pipeline developed by GB HealthWatch simplifies data analysis and includes actionable risk assessment reports. Researchers and clinicians can use these reports to detect pathogenic/likely pathogenic mutations, analyze polygenic risk scores, ascertain biological pathway involvement, and discover novel variants.

“GBinsight panels are unique,” said Dr. Mendel Roth, Scientist at GB HealthWatch. “In deciding which platform to use to uncover risk-associated DNA sequences, researchers and clinicians generally have two options. The first is to sequence the protein-coding regions within the genome, which allows for the potential identification of rare variants that can drastically alter the function of the gene and significantly increase disease risk. However, results from this type of analysis will show that only a small number of patients have a pathogenic mutation that explains their disease. The second option is to use genotyping arrays that, due to inherent technological limitations, can only analyze a set number of single base DNA changes (SNPs) that are relatively common in the general population. Unfortunately, with SNP arrays, many coding variants that are potentially high-impact with regards to disease risk could go undetected. GBinsight combines the best from both exon sequencing and array-based genome-wide association studies (GWAS) into a single assay. This approach allows for a more comprehensive assessment of the heterogeneous nature of complex disease risk – monogenic, polygenic and types in between can be analyzed in the same platform.”

GBinsight’s test catalog includes the following:
- Dyslipidemia Comprehensive Panel
- Familial Hypercholesterolemia Panel
- Familial Hypertriglyceridemia Panel
- Coronary Heart Disease Comprehensive Panel
- Type 2 Diabetes Comprehensive Panel
- Diabetes MODY Panel
- Obesity Comprehensive Panel
- Non-Syndromic Monogenic Obesity Panel

Because genetic risk for the majority of common metabolic diseases can be mitigated by dietary and lifestyle factors, GB HealthWatch developed the HealthWatch 360 mobile app for delivering dietary and lifestyle interventions to the general population. The app works in conjunction with the HealthWatch 360 Research Portal, which allows researchers to manage and analyze the diet, exercise and health data collected with the mobile app. Integration of GBinsight genetics panels with the research portal advantageously enables researchers to study gene-gene and gene-lifestyle interactions in observational and

interventional cohort trials. With this system, prevention and medical intervention strategies, and especially dietary interventions, for complex diseases can be experimented with, validated and refined. Given the epidemic of diet-induced chronic diseases in the United States and worldwide, it is imperative that we focus our efforts on precision nutrition as a key preventive strategy for improving the health of our future.

GBinsight was developed by GB HealthWatch in partnership with the Otogenetics Corporation, a CLIA-certified and licensed medical genetic testing company.

## About GB HealthWatch

GB HealthWatch is a nutritional genomics company. We develop state-of-the-art technologies to facilitate research on the molecular mechanisms, clinical efficacy and cost-effectiveness of translating genetic insights into personalized prevention and treatment strategies for complex diseases. GB HealthWatch offers the following tools:

GBinsight Genetic Testing and Analysis.
bit.ly/gbinsight
HealthWatch 360 mobile app and online tool for tracking dietary intake, exercise and health.
bit.ly/healthwatch360app
HealthWatch 360 Research Portal for academics and research institutes to study diet and health interactions.
bit.ly/h360-research
Visit the GB HealthWatch website to learn more:
www.gbhealthwatch.com

## About Otogenetics Corporation

Otogenetics Corporation is a CLIA-certified and licensed medical genetic testing company specializing in next generation sequencing services. Otogenetics offers high quality services for genome, exome, and RNA-seq for government and academic institutions, biotechnology and pharmaceutical companies, as well as medical doctors and clinics. Additional services and products provided by Otogenetics Corporation can be found at www.otogenetics.com