

## Metabolic

# Comprehensive metabolic testing expertise

Supporting our customers at every stage of therapeutic development with extensive metabolic testing capabilities

PPD™ Laboratory services combine a robust operational infrastructure with deep expertise in emerging metabolic endpoints to support programs focused on GLP-1 safety, mechanism-based biomarkers, and long-term cardiometabolic outcomes.

**Accelerated and integrated services:** Our bioanalytical and central labs work together to provide increased efficiency, data consistency, and coordination.

### Central lab expertise:

- Late-phase metabolic testing (HbA1c, glucose, lipids)
- Longitudinal signal tracking and early-to-late phase continuity
- Link early signals to clinical outcomes (MACE, HbA1c)

Biomarker methods available:

Tests	Methodology
HbA1c	HPLC
Fasting glucose	Hexokinase
Glucose clamp	Clamp
Lipid panel: LDL, HDL, ApoB, Total Cholesterol, ApoA1, Lipoprotein (a)	Enzymatic/ Immunoturbidity
Liver panel: ALT, AST, ALP, GGT, bilirubin	Enzymatic
Inflammatory markers CRP, hsCRP, IL-6, TNF-α, Ferritin	Fluorometric Immunoassay/ Fluoroimmunoassay
Endocrine markers: TSH, Cortisol, Adiponectin, Glucagon, IGF-1	Chemiluminescence/ Elisa
Pancreatic enzymes: lipase, amylase	Enzymatic
Protein Metabolism: Uric Acid, Creatinine	Jaffe/Enzymatic
ApoB	Immunoturbidity
LDL subfractions	Enzymatic
Lp(a)	Immunoturbidity
Insulin	Electrochemiluminescent
C-peptide	Chemiluminescence Immunoassay
hsCRP	Immunoturbidity
Adiponectin	Elisa

### Bioanalytical lab expertise:

- Early-phase metabolic testing (GLP-1, clamp studies, ADA)
- Fit-for-purpose validation for exploratory biomarkers
- Extensive scientific consultation, method development, and strict material handling protocols
- Scientific consultation that optimizes study design and endpoint selection

Biomarker methods available:

Tests	Methodology
GLP-1	Semaglutide in Rat Serum
Insulin & C-peptide	LCMS
Glucose clamp	Clamp
Muscle-specific Activin A GDF-15	LCMS
Bone turnover BSAP (Bone-Specific Alkaline Phosphatase)	ELISA
Neuroendocrine & adipokines Adiponectin Ghrelin FGF-21	ELISA
Muscle-specific: Myostatin, Follistatin, Irisin	LCMS, ELISA
Bone turnover: P1NP, Osteocalcin, CTX, NTX, TRAP 5b	ELISA
Neuroendocrine & adipokines: Leptin, Resistin, Visfatin	ELISA

**Primary benefits:**

- Early engagement with our lab scientific experts to develop assay strategies that influence study design and endpoint selection
- Expert technical support and scientific credibility in complex biomarkers
- Customized solutions to meet specific research needs
- Strong experience supporting early-phase biotech (e.g., IND packages, exploratory biomarkers)
- Support for class-based regulatory requirements
- Global footprint enables standardized sample processing, real-time tracking, and streamlined logistics across trial sites
- Transferred and cross-validated assays across our global network of bioanalytical and/or central labs

## Experience with more than 200 metabolic studies in the past 5 years.

**PPD Laboratory services**

Our high-quality scientific expertise is driven by state-of-the-art technologies and supported by a commitment to exceptional quality. Our clients benefit from comprehensive lab services spanning bioanalytical, GMP, central lab testing, vaccine sciences and biomarkers. Our laboratory services accelerate pharmaceutical development for small molecules, biologics and vaccines, allowing clients to make faster decisions about their compounds.

 Learn more at [ppd.com/our-solutions/ppd-laboratories/therapeutic-focus/](https://ppd.com/our-solutions/ppd-laboratories/therapeutic-focus/)

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