



## Validated Biomarker Assays

Charles River provides comprehensive laboratory support for all stages of product development, from early discovery and preclinical studies (non-GLP and GLP) through all phases of clinical development. Below is a list of validated immunoassays currently offered in multiple species (including human). For more information about a specific assay, or our other biomarker capabilities, please contact us at [askcharlesriver@crl.com](mailto:askcharlesriver@crl.com).

Test Parameter	Species
1,25-Dihydroxy Vitamin D	Human, Nonrodent, Rodent
25-Hydroxy Vitamin D	Human, Nonrodent, Rodent
3-HB	Nonrodent
Adiponectin (heavy molecular weight/total)	Nonrodent, Rodent
Adrenocorticotrophic Hormone	Nonrodent, Rodent
Aldosterone	Nonrodent, Rodent
Antithrombin III	Nonrodent
Bb Fragment	Human, Nonrodent
Total Bile Acids	Nonrodent, Rodent
Bone-Specific Alkaline Phosphatase	Human, Nonrodent, Rodent
Bone TRACP 5b	Nonrodent, Rodent
BoneTRAP	Nonrodent
C-Peptide	Nonrodent, Rodent
C-Reactive Protein	Nonrodent, Rodent
Terminal Complement Complex (sC5b-9)	Nonrodent
Total Complement Hemolytic Activity (CH50)	Human, Nonrodent, Rodent
Complement C3 (total C3)	Nonrodent, Rodent
C3a Fragment	Human, Nonrodent
C4a	Nonrodent
C4d Fragment	Nonrodent
C5a	Nonrodent
Calcitonin	Nonrodent, Rodent
Calprotectin	Rodent
Ceruloplasmin	Rodent
CIC-Raji	Nonrodent
Clusterin	Nonrodent, Rodent

EVERY STEP OF THE WAY

Test Parameter	Species
Corticosterone	Nonrodent, Rodent
Cortisol	Nonrodent
Cyclic Adenosine Monophosphate	Rodent
Cystatin C	Nonrodent, Rodent
Inflammation CBA	Human, Nonrodent, Rodent
Th1/Th2 Cytokine CBA	Nonrodent, Rodent
Cytokine Granulocyte Colony Stimulation Factor (G-CSF)	Human, Nonrodent
Cytokine Granulocyte Macrophage Colony Stimulation Factor (GM-CSF)	Human, Nonrodent, Rodent
D-dimer	Nonrodent
Dehydroepiandrosterone	Nonrodent
Deoxypyridinoline	Nonrodent, Rodent
Erythropoietin (EPO)	Rodent
Estradiol	Nonrodent, Rodent
Factor VII	Nonrodent
Factor VIII (Ab, Ag)	Nonrodent
Fatty Acid Binding Protein 3 (FABP3)	Rodent
Ferritin	Nonrodent
Fibrinogen C	Nonrodent
Fibroblast Growth Factor 19	Nonrodent
Fibroblast Growth Factor 21	Nonrodent
Fibroblast Growth Factor 23	Nonrodent, Rodent
Follicle Stimulating Hormone (FSH)	Nonrodent, Rodent
Gastrin	Nonrodent, Rodent
Glucagon	Nonrodent
Active Glucagon-like Peptide-1 (aGLP-1)	Human
Total Glucagon-like Peptide-1 (tGLP-1)	Human
Glutathione	Nonrodent
Alpha Glutathione S-Transferase (alpha GST)	Nonrodent, Rodent
Growth Hormone	Human, Nonrodent, Rodent
Haptoglobin (Hap)	Nonrodent, Rodent
Histamine	Nonrodent, Rodent
Total IgA	Nonrodent
Total IgE	Nonrodent, Rodent
Total IgG	Nonrodent, Rodent
Anti-KLH IgG	Nonrodent, Rodent
Total IgM	Nonrodent, Rodent
Anti-KLH IgM	Nonrodent, Rodent
Inhibin B	Nonrodent, Rodent
Insulin	Nonrodent, Rodent
Insulin-like Growth Factor (IGF)	Nonrodent

Test Parameter	Species
Insulin-like Growth Factor 1 (IGF-1)	Nonrodent, Rodent
Insulin-like Growth Factor Binding Protein 1 (IGFBP-1)	Nonrodent, Rodent
Insulin-like Growth Factor Binding Protein 2 (IGFBP-2)	Nonrodent, Rodent
Interferon- $\alpha$	Human, Nonrodent
Interferon- $\gamma$	Human, Nonrodent, Rodent
Interferon- $\gamma$ Inducible Protein 10	Human, Nonrodent, Rodent
Interleukin-1 $\beta$	Human, Nonrodent, Rodent
Interleukin-1RA	Human, Nonrodent
Interleukin-2	Human, Nonrodent, Rodent
Interleukin-4	Human, Nonrodent, Rodent
Interleukin-5	Human, Nonrodent, Rodent
Interleukin-6	Human, Nonrodent, Rodent
Interleukin-7	Nonrodent
Interleukin-8	Human, Nonrodent
Interleukin-10	Human, Nonrodent, Rodent
Interleukin-12/23(p40)	Human, Nonrodent, Rodent
Interleukin-13	Nonrodent
Interleukin-15	Nonrodent
Interleukin-17A	Nonrodent, Rodent
Interleukin-18	Nonrodent
Keratinocyte Chemoattractant-like	Nonrodent
Keratinocyte Chemoattractant Growth-regulated Oncogene	Rodent
Kidney Marker Albumin	Nonrodent, Rodent
Kidney Injury Marker KIM-1	Nonrodent, Rodent
Leptin	Nonrodent, Rodent
Luteinizing Hormone	Nonrodent, Rodent
Macrophage Inflammatory Protein-1 $\beta$	Nonrodent
Monocyte Chemoattractant Protein-1	Nonrodent, Rodent
Alpha 2 Macroglobulin (A2M)	Rodent
Beta 2 Microglobulin (B2M)	Nonrodent, Rodent
Microalbumin	Nonrodent, Rodent
Myeloperoxidase (MPO)	Rodent
Myoglobin	Nonrodent, Rodent
Myosin Light Chain 3 (MY13)	Rodent
N-Acetyl-b-Glucosaminidase	Nonrodent, Rodent
Atrial Natriuretic Peptide (ANP)	Nonrodent, Rodent
Brain Natriuretic Peptide (BNP)	Nonrodent
C-type Natriuretic Peptide (CNP)	Rodent
Neutrophil Gelatinase-Associated Lipocalin (NGAL)	Nonrodent, Rodent
Osteocalcin	Nonrodent, Rodent

Test Parameter	Species
Osteopontin	Rodent
Oxidative Burst	Nonrodent
Parathyroid Hormone	Nonrodent, Rodent
Phagocytosis	Nonrodent
Placental Growth Factor	Nonrodent
Plasmin Activity	Human, Nonrodent, Rodent
Plasminogen Activator Inhibitor-1/Serpin E1	Nonrodent
Progesterone	Nonrodent, Rodent
Prolactin	Nonrodent, Rodent
Intact N-Terminal Propeptide of Type 1 Procollagen	Human, Nonrodent, Rodent
Intact C-Terminal Propeptide of Type 1 Procollagen	Nonrodent
Proprotein Convertase Subtilisin/Kexin Type 9	Human
Prostate-Specific Antigen	Nonrodent
PTPlus	Human, Nonrodent, Rodent
Renal Papillary Antigen 1	Rodent
Retinol Binding Protein 4	Nonrodent
Sclerostin	Rodent
Serum Amyloid A	Nonrodent
Surfactant D	Nonrodent
C-Terminal Telopeptide Collagen Type 1	Human, Nonrodent, Rodent
C-Terminal Telopeptide Type II	Nonrodent, Rodent
N-Terminal Telopeptide (cross linked)	Human, Nonrodent
Dihydrotestosterone	Nonrodent
Testosterone	Nonrodent, Rodent
Free Triiodothyroxine	Nonrodent, Rodent
Total Triiodothyroxine	Human, Nonrodent, Rodent
Reverse T3	Rodent
Thyroid Stimulating Hormone	Rodent
Free Thyroxine	Nonrodent, Rodent
Total Thyroxine	Rodent
Transforming Growth Factor-beta 2	Nonrodent
Troponin I	Nonrodent, Rodent
Troponin T	Nonrodent
Tumor Necrosis Factor- $\alpha$	Human, Nonrodent, Rodent